

Lanes, Volumes, Timings  
1: Brownridge Road/Fifth Line & Steeles Avenue

2021 Background AM  
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)	140	945	55	15	475	40	10	0	5	20	5	65
Future Volume (vph)	140	945	55	15	475	40	10	0	5	20	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	145.0		65.0	30.0		0.0	20.0		0.0	25.0		25.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			20.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.988			0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	2959	1524	1444	2605	0	1480	1154	0	1289	1900	1468
Flt Permitted	0.462			0.303			0.754			0.754		
Satd. Flow (perm)	820	2959	1524	461	2605	0	1174	1154	0	1023	1900	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65		25			109				109
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		486.3			703.6			285.2			91.4	
Travel Time (s)		29.2			42.2			20.5			6.6	
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 (%)	7%	22%	6%	25%	38%	24%	22%	0%	40%	40%	0%	10%
Adj. Flow (vph)	140	945	55	15	475	40	10	0	5	20	5	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	945	55	15	515	0	10	5	0	20	5	65
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	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		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
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	0.6		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
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	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	25.0	25.0	25.0	25.0	25.0		10.0	10.0		10.0	10.0	10.0

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0		17.0	17.0		17.0	17.0	17.0
Total Split (%)	66.0%	66.0%	66.0%	66.0%	66.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0		11.0	11.0		11.0	11.0	11.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	None		None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		16.0	16.0		16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	36.7	36.7	36.7	36.7	36.7		10.1	10.1		10.1	10.1	10.1
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72		0.20	0.20		0.20	0.20	0.20
v/c Ratio	0.24	0.44	0.05	0.05	0.27		0.04	0.02		0.10	0.01	0.17
Control Delay	7.6	7.0	2.0	6.6	5.6		17.0	0.0		18.1	16.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	7.6	7.0	2.0	6.6	5.6		17.0	0.0		18.1	16.2	3.1
LOS	A	A	A	A	A		B	A		B	B	A
Approach Delay		6.9			5.6			11.3			7.1	
Approach LOS		A			A			B			A	

Intersection Summary

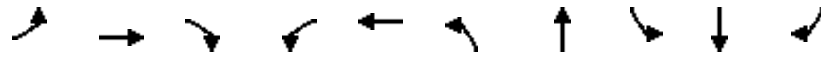
Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	50.7
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.44
Intersection Signal Delay:	6.5
Intersection LOS:	A
Intersection Capacity Utilization	73.6%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 1: Brownridge Road/Fifth Line & Steeles Avenue



Queues  
1: Brownridge Road/Fifth Line & Steeles Avenue

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	140	945	55	15	515	10	5	20	5	65
v/c Ratio	0.24	0.44	0.05	0.05	0.27	0.04	0.02	0.10	0.01	0.17
Control Delay	7.6	7.0	2.0	6.6	5.6	17.0	0.0	18.1	16.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	7.0	2.0	6.6	5.6	17.0	0.0	18.1	16.2	3.1
Queue Length 50th (m)	6.8	29.2	0.0	0.6	12.7	1.0	0.0	2.0	0.5	0.0
Queue Length 95th (m)	16.7	45.0	3.3	2.9	21.3	3.8	0.0	5.9	2.5	4.0
Internal Link Dist (m)	462.3		679.6			261.2		67.4		
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	593	2140	1120	333	1891	256	337	223	415	406
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	0.24	0.44	0.05	0.05	0.27	0.04	0.01	0.09	0.01	0.16
<b>Intersection Summary</b>										

# HCM Signalized Intersection Capacity Analysis

## 1: Brownridge Road/Fifth Line & Steeles Avenue

2021 Background AM  
Premier Gateway Phase 1B Employment Area



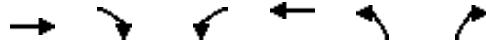
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	945	55	15	475	40	10	0	5	20	5	65
Future Volume (vph)	140	945	55	15	475	40	10	0	5	20	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	2959	1524	1444	2606		1480	1154		1289	1900	1468
Flt Permitted	0.46	1.00	1.00	0.30	1.00		0.75	1.00		0.75	1.00	1.00
Satd. Flow (perm)	820	2959	1524	460	2606		1175	1154		1024	1900	1468
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)	140	945	55	15	475	40	10	0	5	20	5	65
RTOR Reduction (vph)	0	0	21	0	9	0	0	4	0	0	0	58
Lane Group Flow (vph)	140	945	34	15	506	0	10	1	0	20	5	7
Heavy Vehicles (%)	7%	22%	6%	25%	38%	24%	22%	0%	40%	40%	0%	10%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	33.3	33.3	33.3	33.3	33.3		5.8	5.8		5.8	5.8	5.8
Effective Green, g (s)	33.3	33.3	33.3	33.3	33.3		5.8	5.8		5.8	5.8	5.8
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63		0.11	0.11		0.11	0.11	0.11
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	514	1855	955	288	1634		128	126		111	207	160
v/s Ratio Prot		c0.32			0.19			0.00				0.00
v/s Ratio Perm	0.17		0.02	0.03			0.01			c0.02		0.00
v/c Ratio	0.27	0.51	0.04	0.05	0.31		0.08	0.00		0.18	0.02	0.04
Uniform Delay, d1	4.5	5.4	3.8	3.8	4.6		21.2	21.1		21.5	21.1	21.2
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	1.3	1.0	0.1	0.3	0.5		0.3	0.0		0.8	0.0	0.1
Delay (s)	5.8	6.4	3.8	4.2	5.1		21.5	21.1		22.3	21.2	21.3
Level of Service	A	A	A	A	A		C	C		C	C	C
Approach Delay (s)		6.2			5.0			21.4			21.5	
Approach LOS		A			A			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			6.8			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			53.1			Sum of lost time (s)				14.0		
Intersection Capacity Utilization			73.6%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
2: Fifth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (vph)	980	20	5	530	5	5
Future Volume (vph)	980	20	5	530	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	60.0		15.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			100.0		30.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2935	1538	1543	2635	1543	1615
Flt Permitted			0.292		0.950	
Satd. Flow (perm)	2935	1538	474	2635	1543	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		20				5
Link Speed (k/h)	60			60	60	
Link Distance (m)	703.6			479.7	556.9	
Travel Time (s)	42.2			28.8	33.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	23%	5%	17%	37%	17%	0%
Adj. Flow (vph)	980	20	5	530	5	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	980	20	5	530	5	5
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	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)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0

Lanes, Volumes, Timings  
2: Fifth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	33.0	33.0	33.0	33.0	16.0	16.0
Total Split (s)	33.0	33.0	33.0	33.0	17.0	17.0
Total Split (%)	66.0%	66.0%	66.0%	66.0%	34.0%	34.0%
Maximum Green (s)	25.0	25.0	25.0	25.0	11.0	11.0
Yellow Time (s)	6.0	6.0	6.0	6.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	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
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	47.4	47.4	47.4	47.4	10.1	10.1
Actuated g/C Ratio	0.93	0.93	0.93	0.93	0.20	0.20
v/c Ratio	0.36	0.01	0.01	0.22	0.02	0.02
Control Delay	2.5	1.6	2.8	2.0	19.8	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.5	1.6	2.8	2.0	19.8	14.0
LOS	A	A	A	A	B	B
Approach Delay	2.5			2.0	16.9	
Approach LOS	A			A	B	

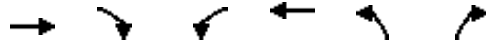
Intersection Summary

Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	51.2
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.36
Intersection Signal Delay:	2.4
Intersection Capacity Utilization	55.0%
Analysis Period (min)	15
Intersection LOS:	A
ICU Level of Service	B

Splits and Phases: 2: Fifth Line South & Steeles Avenue



Queues  
2: Fifth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	980	20	5	530	5	5
v/c Ratio	0.36	0.01	0.01	0.22	0.02	0.02
Control Delay	2.5	1.6	2.8	2.0	19.8	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.5	1.6	2.8	2.0	19.8	14.0
Queue Length 50th (m)	0.0	0.0	0.0	0.0	0.4	0.0
Queue Length 95th (m)	44.6	2.0	1.3	21.4	3.3	2.7
Internal Link Dist (m)	679.6			455.7	532.9	
Turn Bay Length (m)		30.0	60.0		15.0	
Base Capacity (vph)	2715	1424	438	2437	335	355
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	0.36	0.01	0.01	0.22	0.01	0.01
<b>Intersection Summary</b>						

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

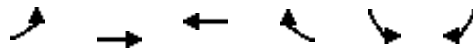
2021 Background AM  
Premier Gateway Phase 1B Employment Area



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (vph)	980	20	5	530	5	5
Future Volume (vph)	980	20	5	530	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	2935	1538	1543	2635	1543	1615
Flt Permitted	1.00	1.00	0.29	1.00	0.95	1.00
Satd. Flow (perm)	2935	1538	475	2635	1543	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	980	20	5	530	5	5
RTOR Reduction (vph)	0	6	0	0	0	5
Lane Group Flow (vph)	980	14	5	530	5	0
Heavy Vehicles (%)	23%	5%	17%	37%	17%	0%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	40.5	40.5	40.5	40.5	1.6	1.6
Effective Green, g (s)	40.5	40.5	40.5	40.5	1.6	1.6
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.03	0.03
Clearance Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2118	1110	342	1902	44	46
v/s Ratio Prot	c0.33			0.20		
v/s Ratio Perm		0.01	0.01		c0.00	0.00
v/c Ratio	0.46	0.01	0.01	0.28	0.11	0.00
Uniform Delay, d1	3.3	2.2	2.2	2.7	26.6	26.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.1	0.4	1.2	0.0
Delay (s)	4.0	2.2	2.3	3.1	27.7	26.5
Level of Service	A	A	A	A	C	C
Approach Delay (s)	4.0			3.1	27.1	
Approach LOS	A			A	C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			3.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.45			
Actuated Cycle Length (s)			56.1		Sum of lost time (s)	14.0
Intersection Capacity Utilization			55.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						



Lanes, Volumes, Timings  
3: Steeles Avenue & Sixth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷↷	↷↷	↷	↶	↷
Traffic Volume (vph)	35	1025	510	0	10	35
Future Volume (vph)	35	1025	510	0	10	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0			30.0	30.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Fr <sub>t</sub>						0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1752	2935	2674	1267	1031	1568
Fl <sub>t</sub> Permitted	0.950				0.950	
Satd. Flow (perm)	1752	2935	2674	1267	1031	1568
Link Speed (k/h)		60	80		70	
Link Distance (m)		479.7	905.3		3066.1	
Travel Time (s)		28.8	40.7		157.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	23%	35%	50%	75%	3%
Adj. Flow (vph)	35	1025	510	0	10	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	1025	510	0	10	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
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
Sign Control		Free	Free		Stop	

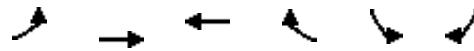
Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.3%
ICU Level of Service	A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

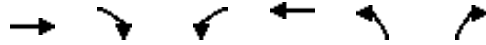
## 3: Steeles Avenue & Sixth Line

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↵	↕↕	↕↕	↵	↵	↵		
Traffic Volume (veh/h)	35	1025	510	0	10	35		
Future Volume (Veh/h)	35	1025	510	0	10	35		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	35	1025	510	0	10	35		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	510				1092	255		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	510				1092	255		
tC, single (s)	4.2				8.3	7.0		
tC, 2 stage (s)								
tF (s)	2.2				4.2	3.3		
p0 queue free %	97				91	95		
cM capacity (veh/h)	1044				117	741		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	35	512	512	255	255	0	10	35
Volume Left	35	0	0	0	0	0	10	0
Volume Right	0	0	0	0	0	0	0	35
cSH	1044	1700	1700	1700	1700	1700	117	741
Volume to Capacity	0.03	0.30	0.30	0.15	0.15	0.00	0.09	0.05
Queue Length 95th (m)	0.8	0.0	0.0	0.0	0.0	0.0	2.2	1.2
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	0.0	38.5	10.1
Lane LOS	A						E	B
Approach Delay (s)	0.3			0.0			16.4	
Approach LOS	C							
Intersection Summary								
Average Delay	0.6							
Intersection Capacity Utilization	38.3%			ICU Level of Service			A	
Analysis Period (min)	15							

Lanes, Volumes, Timings  
4: Sixth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (vph)	1005	25	75	460	10	30
Future Volume (vph)	1005	25	75	460	10	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	60.0		30.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			100.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Fr <sub>t</sub>		0.850				0.850
Fl <sub>t</sub> Protected			0.950		0.950	
Satd. Flow (prot)	3085	1615	1736	2798	1597	1509
Fl <sub>t</sub> Permitted			0.950		0.950	
Satd. Flow (perm)	3085	1615	1736	2798	1597	1509
Link Speed (k/h)	80			80	50	
Link Distance (m)	905.3			497.0	169.8	
Travel Time (s)	40.7			22.4	12.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	17%	0%	4%	29%	13%	7%
Adj. Flow (vph)	1005	25	75	460	10	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1005	25	75	460	10	30
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
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)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

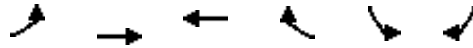
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
4: Sixth Line South & Steeles Avenue

2021 Background AM  
Premier Gateway Phase 1B Employment Area

	→	↘	↙	←	↖	↗			
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗			
Traffic Volume (veh/h)	1005	25	75	460	10	30			
Future Volume (Veh/h)	1005	25	75	460	10	30			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Hourly flow rate (vph)	1005	25	75	460	10	30			
Pedestrians									
Lane Width (m)									
Walking Speed (m/s)									
Percent Blockage									
Right turn flare (veh)									
Median type	None			None					
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			1030			1385	502		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1030			1385	502		
tC, single (s)			4.2			7.1	7.0		
tC, 2 stage (s)									
tF (s)			2.2			3.6	3.4		
p0 queue free %			89			91	94		
cM capacity (veh/h)			658			108	501		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	502	502	25	75	230	230	10	30	
Volume Left	0	0	0	75	0	0	10	0	
Volume Right	0	0	25	0	0	0	0	30	
cSH	1700	1700	1700	658	1700	1700	108	501	
Volume to Capacity	0.30	0.30	0.01	0.11	0.14	0.14	0.09	0.06	
Queue Length 95th (m)	0.0	0.0	0.0	3.1	0.0	0.0	2.4	1.5	
Control Delay (s)	0.0	0.0	0.0	11.2	0.0	0.0	41.8	12.6	
Lane LOS				B			E	B	
Approach Delay (s)	0.0			1.6			19.9		
Approach LOS							C		
Intersection Summary									
Average Delay			1.0						
Intersection Capacity Utilization			45.3%		ICU Level of Service		A		
Analysis Period (min)			15						

Lanes, Volumes, Timings  
5: Steeles Avenue & Hornby Road



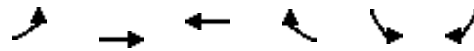
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	15	940	480	15	5	30
Future Volume (vph)	15	940	480	15	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0			30.0	30.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1687	2911	2597	1509	1543	1509
Fl <sub>t</sub> Permitted	0.950				0.950	
Satd. Flow (perm)	1687	2911	2597	1509	1543	1509
Link Speed (k/h)		60	60		60	
Link Distance (m)		497.0	879.8		1223.8	
Travel Time (s)		29.8	52.8		73.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	7%	24%	39%	7%	17%	7%
Adj. Flow (vph)	15	940	480	15	5	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	940	480	15	5	30
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
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
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.0%
ICU Level of Service	A
Analysis Period (min)	15

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

























2021 Background AM  
 Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↵	↕↕	↕↕	↗	↵	↗		
Traffic Volume (veh/h)	15	940	480	15	5	30		
Future Volume (Veh/h)	15	940	480	15	5	30		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	15	940	480	15	5	30		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	495				980	240		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	495				980	240		
tC, single (s)	4.2				7.1	7.0		
tC, 2 stage (s)								
tF (s)	2.3				3.7	3.4		
p0 queue free %	99				98	96		
cM capacity (veh/h)	1031				219	746		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	15	470	470	240	240	15	5	30
Volume Left	15	0	0	0	0	0	5	0
Volume Right	0	0	0	0	0	15	0	30
cSH	1031	1700	1700	1700	1700	1700	219	746
Volume to Capacity	0.01	0.28	0.28	0.14	0.14	0.01	0.02	0.04
Queue Length 95th (m)	0.4	0.0	0.0	0.0	0.0	0.0	0.6	1.0
Control Delay (s)	8.5	0.0	0.0	0.0	0.0	0.0	21.8	10.0
Lane LOS	A						C B	
Approach Delay (s)	0.1			0.0			11.7	
Approach LOS							B	
Intersection Summary								
Average Delay	0.4							
Intersection Capacity Utilization	36.0%			ICU Level of Service			A	
Analysis Period (min)	15							

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

2021 Background AM  
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)	55	580	190	470	485	35	125	280	355	150	1045	325
Future Volume (vph)	55	580	190	470	485	35	125	280	355	150	1045	325
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		0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1357	3085	1179	3400	2843	1455	2148	3167	1524	1752	2890	0
Flt Permitted	0.476			0.950			0.950			0.580		
Satd. Flow (perm)	680	3085	1179	3400	2843	1455	2148	3167	1524	1070	2890	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			105			355		35	
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)	55	580	190	470	485	35	125	280	355	150	1045	325
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	580	190	470	485	35	125	280	355	150	1370	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

2021 Background AM  
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)	11.0	40.0	40.0	24.0	53.0	53.0	13.0	68.0	68.0	13.0	68.0	
Total Split (%)	7.6%	27.6%	27.6%	16.6%	36.6%	36.6%	9.0%	46.9%	46.9%	9.0%	46.9%	
Maximum Green (s)	7.0	33.0	33.0	19.0	46.0	46.0	8.0	60.0	60.0	9.0	60.0	
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)	40.9	30.9	30.9	19.0	46.1	46.1	10.1	61.9	61.9	73.2	60.0	
Actuated g/C Ratio	0.28	0.21	0.21	0.13	0.32	0.32	0.07	0.43	0.43	0.50	0.41	
v/c Ratio	0.25	0.88	0.52	1.06	0.54	0.07	0.84	0.21	0.42	0.26	1.13	
Control Delay	30.5	71.0	19.3	117.1	43.5	0.2	105.4	27.1	4.1	18.4	106.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.5	71.0	19.3	117.1	43.5	0.2	105.4	27.1	4.1	18.4	106.4	
LOS	C	E	B	F	D	A	F	C	A	B	F	
Approach Delay		56.4			76.9			29.2			97.7	
Approach LOS		E			E			C			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 145  
 Actuated Cycle Length: 145  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 71.7  
 Intersection LOS: E  
 Intersection Capacity Utilization 96.8%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 6: Trafalgar Road & Steeles Avenue





Queues  
6: Trafalgar Road & Steeles Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	55	580	190	470	485	35	125	280	355	150	1370
v/c Ratio	0.25	0.88	0.52	1.06	0.54	0.07	0.84	0.21	0.42	0.26	1.13
Control Delay	30.5	71.0	19.3	117.1	43.5	0.2	105.4	27.1	4.1	18.4	106.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	71.0	19.3	117.1	43.5	0.2	105.4	27.1	4.1	18.4	106.4
Queue Length 50th (m)	10.1	88.5	11.6	~79.8	63.6	0.0	~21.2	28.3	0.0	22.6	~248.5
Queue Length 95th (m)	19.8	112.1	37.4	#116.3	82.5	0.0	#43.8	39.3	19.4	35.6	#294.1
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)	224	702	378	445	915	540	149	1352	853	584	1216
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	0.25	0.83	0.50	1.06	0.53	0.06	0.84	0.21	0.42	0.26	1.13

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  
6: Trafalgar Road & Steeles Avenue

2021 Background AM  
Premier Gateway Phase 1B Employment Area

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	580	190	470	485	35	125	280	355	150	1045	325
Future Volume (vph)	55	580	190	470	485	35	125	280	355	150	1045	325
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	0.96	
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	2891	
Flt Permitted	0.48	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	679	3085	1179	3400	2843	1455	2148	3167	1524	1070	2891	
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)	55	580	190	470	485	35	125	280	355	150	1045	325
RTOR Reduction (vph)	0	0	112	0	0	24	0	0	205	0	21	0
Lane Group Flow (vph)	55	580	78	470	485	11	125	280	150	150	1349	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)	37.3	31.7	31.7	19.0	46.1	46.1	10.1	61.1	61.1	68.4	59.2	
Effective Green, g (s)	37.3	31.7	31.7	19.0	46.1	46.1	10.1	61.1	61.1	68.4	59.2	
Actuated g/C Ratio	0.26	0.22	0.22	0.13	0.32	0.32	0.07	0.42	0.42	0.47	0.41	
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)	200	674	257	445	903	462	149	1334	642	548	1180	
v/s Ratio Prot	0.01	c0.19		c0.14	0.17		c0.06	0.09		0.02	c0.47	
v/s Ratio Perm	0.06		0.07			0.01			0.10	0.11		
v/c Ratio	0.28	0.86	0.30	1.06	0.54	0.02	0.84	0.21	0.23	0.27	1.14	
Uniform Delay, d1	41.7	54.5	47.4	63.0	40.7	34.0	66.6	26.6	26.9	22.1	42.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	10.9	0.7	58.3	0.6	0.0	33.0	0.4	0.8	0.3	75.0	
Delay (s)	42.4	65.4	48.1	121.3	41.3	34.0	99.6	27.0	27.8	22.4	117.9	
Level of Service	D	E	D	F	D	C	F	C	C	C	F	
Approach Delay (s)		59.9			79.0			39.3			108.5	
Approach LOS		E			E			D			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			78.7				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)		25.0			
Intersection Capacity Utilization			96.8%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
7: Toronto Premier Outlets & Steeles Avenue

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖↗	↗
Traffic Volume (vph)	1045	5	5	975	20	5
Future Volume (vph)	1045	5	5	975	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		130.0	45.0		0.0	40.0
Storage Lanes		1	1		2	1
Taper Length (m)			80.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3374	1615	1543	3195	3045	1615
Flt Permitted			0.202		0.950	
Satd. Flow (perm)	3374	1615	328	3195	3045	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		5				5
Link Speed (k/h)	60			60	50	
Link Distance (m)	311.3			200.7	119.1	
Travel Time (s)	18.7			12.0	8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	7%	0%	17%	13%	15%	0%
Adj. Flow (vph)	1045	5	5	975	20	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1045	5	5	975	20	5
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			7.2	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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	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)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	20.0	20.0	6.0	20.0	10.0	10.0

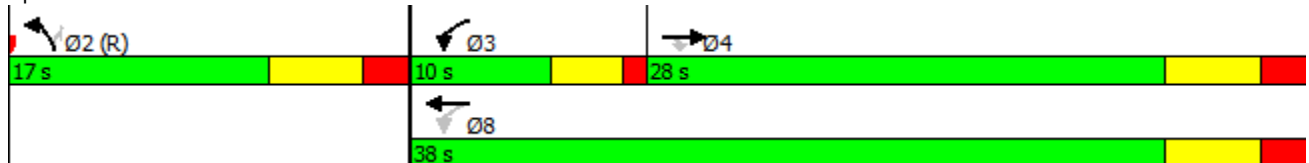


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	26.0	26.0	10.0	26.0	17.0	17.0
Total Split (s)	28.0	28.0	10.0	38.0	17.0	17.0
Total Split (%)	50.9%	50.9%	18.2%	69.1%	30.9%	30.9%
Maximum Green (s)	22.0	22.0	6.0	32.0	11.0	11.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	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	4.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	4.0
Recall Mode	Max	Max	None	Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	17.0	17.0		17.0	21.0	21.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	34.0	32.0	11.0	11.0
Actuated g/C Ratio	0.55	0.55	0.62	0.58	0.20	0.20
v/c Ratio	0.57	0.01	0.01	0.52	0.03	0.02
Control Delay	10.9	5.8	4.2	8.2	17.9	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	5.8	4.2	8.2	17.9	12.2
LOS	B	A	A	A	B	B
Approach Delay	10.9			8.2	16.8	
Approach LOS	B			A	B	

Intersection Summary

Area Type:	Other
Cycle Length:	55
Actuated Cycle Length:	55
Offset:	0 (0%), Referenced to phase 2:NBL and 6: Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	9.7
Intersection Capacity Utilization:	47.2%
Analysis Period (min):	15
Intersection LOS:	A
ICU Level of Service:	A

Splits and Phases: 7: Toronto Premier Outlets & Steeles Avenue



Queues  
7: Toronto Premier Outlets & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1045	5	5	975	20	5
v/c Ratio	0.57	0.01	0.01	0.52	0.03	0.02
Control Delay	10.9	5.8	4.2	8.2	17.9	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	5.8	4.2	8.2	17.9	12.2
Queue Length 50th (m)	30.1	0.0	0.2	28.0	0.8	0.0
Queue Length 95th (m)	69.2	1.7	1.1	41.1	3.1	2.3
Internal Link Dist (m)	287.3			176.7	95.1	
Turn Bay Length (m)		130.0	45.0			40.0
Base Capacity (vph)	1840	883	335	1858	609	327
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	0.57	0.01	0.01	0.52	0.03	0.02
<b>Intersection Summary</b>						

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

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖↗	↗
Traffic Volume (vph)	1045	5	5	975	20	5
Future Volume (vph)	1045	5	5	975	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3374	1615	1543	3195	3045	1615
Flt Permitted	1.00	1.00	0.20	1.00	0.95	1.00
Satd. Flow (perm)	3374	1615	327	3195	3045	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1045	5	5	975	20	5
RTOR Reduction (vph)	0	2	0	0	0	4
Lane Group Flow (vph)	1045	3	5	975	20	1
Heavy Vehicles (%)	7%	0%	17%	13%	15%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	30.0	30.0	35.2	35.2	7.8	7.8
Effective Green, g (s)	30.0	30.0	35.2	35.2	7.8	7.8
Actuated g/C Ratio	0.55	0.55	0.64	0.64	0.14	0.14
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	4.0
Lane Grp Cap (vph)	1840	880	235	2044	431	229
v/s Ratio Prot	c0.31		0.00	c0.31	c0.01	
v/s Ratio Perm		0.00	0.01			0.00
v/c Ratio	0.57	0.00	0.02	0.48	0.05	0.00
Uniform Delay, d1	8.2	5.7	4.3	5.1	20.4	20.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.0	0.0	0.8	0.2	0.0
Delay (s)	9.5	5.7	4.4	5.9	20.6	20.3
Level of Service	A	A	A	A	C	C
Approach Delay (s)	9.5			5.9	20.5	
Approach LOS	A			A	C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			7.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			55.0		Sum of lost time (s)	16.0
Intersection Capacity Utilization			47.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

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)	80	965	15	30	625	25	5	0	10	185	5	370
Future Volume (vph)	80	965	15	30	625	25	5	0	10	185	5	370
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		0.994			0.850			0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3252	1404	1752	2977	0	2633	1429	0	1787	1603	0
Flt Permitted	0.331			0.204			0.950			0.751		
Satd. Flow (perm)	599	3252	1404	376	2977	0	2633	1429	0	1413	1603	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		5			266			370	
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)	80	965	15	30	625	25	5	0	10	185	5	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	965	15	30	650	0	5	10	0	185	375	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	

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

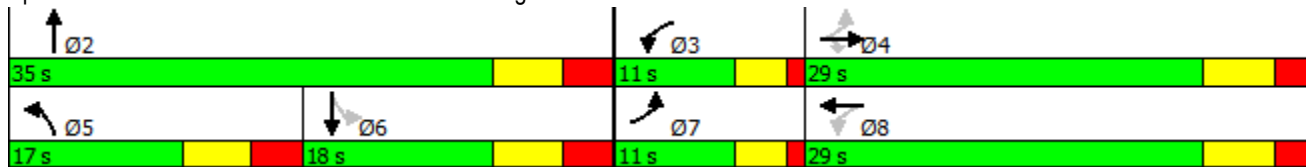


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	26.0	26.0	11.0	26.0		17.0	17.0		17.0	17.0	
Total Split (s)	11.0	29.0	29.0	11.0	29.0		17.0	35.0		18.0	18.0	
Total Split (%)	14.7%	38.7%	38.7%	14.7%	38.7%		22.7%	46.7%		24.0%	24.0%	
Maximum Green (s)	7.0	23.0	23.0	7.0	23.0		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	
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)	31.4	26.9	26.9	30.6	24.7		10.3	13.9		11.3	11.3	
Actuated g/C Ratio	0.54	0.46	0.46	0.53	0.43		0.18	0.24		0.19	0.19	
v/c Ratio	0.17	0.64	0.02	0.08	0.51		0.01	0.02		0.67	0.61	
Control Delay	8.0	17.8	0.1	7.8	16.3		25.2	0.1		40.4	8.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.0	17.8	0.1	7.8	16.3		25.2	0.1		40.4	8.7	
LOS	A	B	A	A	B		C	A		D	A	
Approach Delay		16.8			15.9			8.5			19.2	
Approach LOS		B			B			A			B	

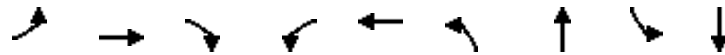
Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	58
Natural Cycle:	75
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.67
Intersection Signal Delay:	17.1
Intersection LOS:	B
Intersection Capacity Utilization:	69.8%
ICU Level of Service:	C
Analysis Period (min):	15

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







Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	80	965	15	30	650	5	10	185	375
v/c Ratio	0.17	0.64	0.02	0.08	0.51	0.01	0.02	0.67	0.61
Control Delay	8.0	17.8	0.1	7.8	16.3	25.2	0.1	40.4	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	17.8	0.1	7.8	16.3	25.2	0.1	40.4	8.7
Queue Length 50th (m)	3.0	28.9	0.0	1.1	27.9	0.2	0.0	19.9	0.5
Queue Length 95th (m)	13.2	#113.1	0.0	6.4	63.1	1.8	0.0	#64.9	25.1
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)	462	1506	767	369	1270	467	843	275	610
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	0.17	0.64	0.02	0.08	0.51	0.01	0.01	0.67	0.61

#### Intersection Summary






















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

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

2021 Background AM

## 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)	80	965	15	30	625	25	5	0	10	185	5	370
Future Volume (vph)	80	965	15	30	625	25	5	0	10	185	5	370
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	0.85		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	2978		2633	1429		1787	1603	
Flt Permitted	0.33	1.00	1.00	0.20	1.00		0.95	1.00		0.75	1.00	
Satd. Flow (perm)	598	3252	1404	375	2978		2633	1429		1413	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)	80	965	15	30	625	25	5	0	10	185	5	370
RTOR Reduction (vph)	0	0	9	0	3	0	0	7	0	0	307	0
Lane Group Flow (vph)	80	965	6	30	647	0	5	3	0	185	68	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)	30.7	26.9	26.9	27.9	25.5		1.5	19.8		11.3	11.3	
Effective Green, g (s)	30.7	26.9	26.9	27.9	25.5		1.5	19.8		11.3	11.3	
Actuated g/C Ratio	0.46	0.41	0.41	0.42	0.39		0.02	0.30		0.17	0.17	
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)	342	1323	571	208	1148		59	428		241	274	
v/s Ratio Prot	c0.01	c0.30		0.01	0.22		c0.00	0.00				0.04
v/s Ratio Perm	0.10		0.00	0.06						c0.13		
v/c Ratio	0.23	0.73	0.01	0.14	0.56		0.08	0.01		0.77	0.25	
Uniform Delay, d1	10.1	16.5	11.7	11.7	15.9		31.6	16.2		26.1	23.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	3.6	0.0	0.3	2.0		0.8	0.0		20.6	2.2	
Delay (s)	10.5	20.1	11.7	12.1	17.9		32.5	16.3		46.8	25.9	
Level of Service	B	C	B	B	B		C	B		D	C	
Approach Delay (s)		19.3			17.7			21.7			32.8	
Approach LOS		B			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			0.70									
Actuated Cycle Length (s)			66.1			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			69.8%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
 9: Eighth Line South & Steeles Avenue

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1160	1	1	680	1	0
Future Volume (vph)	1160	1	1	680	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	90.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
<b>Fr</b>						
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3282	0	1805	3034	1805	1900
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3282	0	1805	3034	1805	1900
Link Speed (k/h)	70			70	50	
Link Distance (m)	870.8			525.4	458.2	
Travel Time (s)	44.8			27.0	33.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	0%	0%	19%	0%	0%
Adj. Flow (vph)	1160	1	1	680	1	0
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	1161	0	1	680	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
<b>Two way Left Turn Lane</b>						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	42.1%			ICU Level of Service A		
Analysis Period (min)	15					

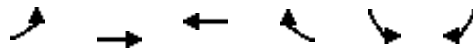
HCM Unsignalized Intersection Capacity Analysis  
 9: Eighth Line South & Steeles Avenue

2021 Background AM  
 Premier Gateway Phase 1B Employment Area

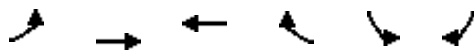
	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑		↘	↑↑	↘	↗	
Traffic Volume (veh/h)	1160	1	1	680	1	0	
Future Volume (Veh/h)	1160	1	1	680	1	0	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	1160	1	1	680	1	0	
<b>Pedestrians</b>							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None		None				
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			1161			1502	580
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1161			1502	580
tC, single (s)			4.1			6.8	6.9
tC, 2 stage (s)							
tF (s)			2.2			3.5	3.3
p0 queue free %			100			99	100
cM capacity (veh/h)			609			114	462
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	773	388	1	340	340	1	0
Volume Left	0	0	1	0	0	1	0
Volume Right	0	1	0	0	0	0	0
cSH	1700	1700	609	1700	1700	114	1700
Volume to Capacity	0.45	0.23	0.00	0.20	0.20	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Control Delay (s)	0.0	0.0	10.9	0.0	0.0	36.8	0.0
Lane LOS			B			E	A
Approach Delay (s)	0.0	0.0				36.8	
Approach LOS						E	
<b>Intersection Summary</b>							
Average Delay			0.0				
Intersection Capacity Utilization			42.1%	ICU Level of Service		A	
Analysis Period (min)			15				

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

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↗↗	↗	↖↖	↖
Traffic Volume (vph)	80	1105	630	225	595	75
Future Volume (vph)	80	1105	630	225	595	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0			75.0	90.0	0.0
Storage Lanes	1			1	1	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	0.351				0.950	
Satd. Flow (perm)	575	3312	3059	1509	3433	1324
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				225		75
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)	80	1105	630	225	595	75
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	1105	630	225	595	75
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	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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		CI+Ex	CI+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

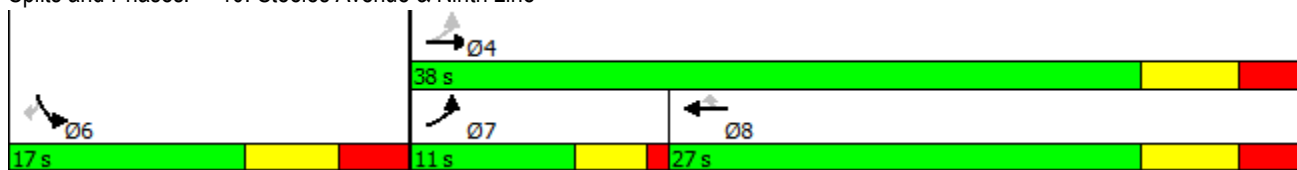


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	11.0	27.0	27.0	27.0	17.0	17.0
Total Split (s)	11.0	38.0	27.0	27.0	17.0	17.0
Total Split (%)	20.0%	69.1%	49.1%	49.1%	30.9%	30.9%
Maximum Green (s)	7.0	31.0	20.0	20.0	10.0	10.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	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	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 Effct Green (s)	34.0	31.0	24.4	24.4	10.0	10.0
Actuated g/C Ratio	0.62	0.56	0.44	0.44	0.18	0.18
v/c Ratio	0.17	0.59	0.46	0.28	0.95	0.25
Control Delay	5.1	9.5	13.6	3.3	52.0	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	9.5	13.6	3.3	52.0	8.3
LOS	A	A	B	A	D	A
Approach Delay		9.2	10.9		47.1	
Approach LOS		A	B		D	

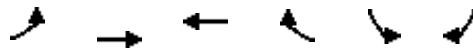
Intersection Summary

Area Type:	Other
Cycle Length:	55
Actuated Cycle Length:	55
Natural Cycle:	55
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.95
Intersection Signal Delay:	19.1
Intersection LOS:	B
Intersection Capacity Utilization:	59.2%
ICU Level of Service:	B
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)	80	1105	630	225	595	75
v/c Ratio	0.17	0.59	0.46	0.28	0.95	0.25
Control Delay	5.1	9.5	13.6	3.3	52.0	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	9.5	13.6	3.3	52.0	8.3
Queue Length 50th (m)	2.8	34.9	26.9	0.0	32.2	0.0
Queue Length 95th (m)	6.8	50.7	41.1	11.4	#60.3	9.0
Internal Link Dist (m)		501.4	704.8		3096.2	
Turn Bay Length (m)	65.0			75.0	90.0	
Base Capacity (vph)	480	1866	1357	794	624	302
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	0.17	0.59	0.46	0.28	0.95	0.25

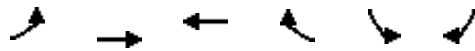
Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 10: Steeles Avenue & Ninth Line

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	80	1105	630	225	595	75
Future Volume (vph)	80	1105	630	225	595	75
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
Flt	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	0.35	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	574	3312	3059	1509	3433	1324
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	80	1105	630	225	595	75
RTOR Reduction (vph)	0	0	0	128	0	62
Lane Group Flow (vph)	80	1105	630	97	595	13
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	10.0	10.0
Effective Green, g (s)	32.6	32.6	24.4	24.4	10.0	10.0
Actuated g/C Ratio	0.58	0.58	0.43	0.43	0.18	0.18
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)	403	1907	1318	650	606	233
v/s Ratio Prot	0.01	c0.33	0.21		c0.17	
v/s Ratio Perm	0.10			0.06		0.01
v/c Ratio	0.20	0.58	0.48	0.15	0.98	0.06
Uniform Delay, d1	5.5	7.6	11.5	9.8	23.2	19.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.3	1.2	0.5	32.4	0.5
Delay (s)	5.8	8.9	12.8	10.3	55.6	19.8
Level of Service	A	A	B	B	E	B
Approach Delay (s)		8.7	12.1		51.6	
Approach LOS		A	B		D	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			20.4		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			56.6		Sum of lost time (s)	18.0
Intersection Capacity Utilization			59.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						



Lanes, Volumes, Timings  
11: Trafalgar Rd & Hornby Rd



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	5	2	335	1455	20
Future Volume (vph)	15	5	2	335	1455	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	100.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	7.5		100.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.998	
Flt Protected	0.964					
Satd. Flow (prot)	1438	0	0	1635	1807	0
Flt Permitted	0.964					
Satd. Flow (perm)	1438	0	0	1635	1807	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	54.4			135.9	215.8	
Travel Time (s)	3.3			6.1	9.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	25%	17%	50%	16%	5%	0%
Adj. Flow (vph)	15	5	2	335	1455	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	337	1475	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
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
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	87.8%
ICU Level of Service	E
Analysis Period (min)	15

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

















2021 Background AM  
 Premier Gateway Phase 1B Employment Area



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	2	335	1455	20
Future Volume (Veh/h)	15	5	2	335	1455	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	5	2	335	1455	20
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1804	1465	1455			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1804	1465	1455			
tC, single (s)	6.6	6.4	4.6			
tC, 2 stage (s)						
tF (s)	3.7	3.5	2.7			
p0 queue free %	80	97	99			
cM capacity (veh/h)	76	145	345			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	20	337	1475			
Volume Left	15	2	0			
Volume Right	5	0	20			
cSH	86	345	1700			
Volume to Capacity	0.23	0.01	0.87			
Queue Length 95th (m)	6.6	0.1	0.0			
Control Delay (s)	59.1	0.2	0.0			
Lane LOS	F	A				
Approach Delay (s)	59.1	0.2	0.0			
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			87.8%	ICU Level of Service	E	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
12: Fifth Line & 5 Side Road

2021 Background AM  
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)	10	590	10	25	170	5	5	20	20	40	50	25
Future Volume (vph)	10	590	10	25	170	5	5	20	20	40	50	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.997			0.940			0.971	
Flt Protected		0.999			0.994			0.994			0.983	
Satd. Flow (prot)	0	1853	0	0	1785	0	0	1529	0	0	1729	0
Flt Permitted		0.999			0.994			0.994			0.983	
Satd. Flow (perm)	0	1853	0	0	1785	0	0	1529	0	0	1729	0
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		320.1			648.3			2473.7			211.2	
Travel Time (s)		19.2			38.9			127.2			10.9	
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 (%)	10%	2%	9%	10%	5%	0%	25%	20%	10%	9%	4%	0%
Adj. Flow (vph)	10	590	10	25	170	5	5	20	20	40	50	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	610	0	0	200	0	0	45	0	0	115	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			0.0			0.0	
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
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	53.1%						ICU Level of Service A					
Analysis Period (min)	15											

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

















2021 Background AM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (veh/h)	10	590	10	25	170	5	5	20	20	40	50	25	
Future Volume (Veh/h)	10	590	10	25	170	5	5	20	20	40	50	25	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			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	
Hourly flow rate (vph)	10	590	10	25	170	5	5	20	20	40	50	25	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None				None								
Median storage veh													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	175				600			888	840	595	868	842	172
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	175				600			888	840	595	868	842	172
tC, single (s)	4.2				4.2			7.3	6.7	6.3	7.2	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.3				2.3			3.7	4.2	3.4	3.6	4.0	3.3
p0 queue free %	99				97			97	93	96	83	83	97
cM capacity (veh/h)	1354				939			198	273	490	234	288	876
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	610	200	45	115									
Volume Left	10	25	5	40									
Volume Right	10	5	20	25									
cSH	1354	939	323	308									
Volume to Capacity	0.01	0.03	0.14	0.37									
Queue Length 95th (m)	0.2	0.7	3.8	13.3									
Control Delay (s)	0.2	1.3	17.9	23.4									
Lane LOS	A	A	C	C									
Approach Delay (s)	0.2	1.3	17.9	23.4									
Approach LOS			C	C									
Intersection Summary													
Average Delay				4.0									
Intersection Capacity Utilization				53.1%	ICU Level of Service							A	
Analysis Period (min)				15									

Lanes, Volumes, Timings  
13: Sixth Line & 5 Side Road

2021 Background AM  
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)	5	625	1	10	180	5	1	10	30	20	20	15
Future Volume (vph)	5	625	1	10	180	5	1	10	30	20	20	15
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			0.901			0.963	
Fl <sub>t</sub> Protected					0.997			0.999			0.982	
Satd. Flow (prot)	0	1843	0	0	1791	0	0	1521	0	0	1734	0
Fl <sub>t</sub> Permitted					0.997			0.999			0.982	
Satd. Flow (perm)	0	1843	0	0	1791	0	0	1521	0	0	1734	0
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		620.4			640.8			3066.1			190.9	
Travel Time (s)		37.2			38.4			157.7			9.8	
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 (%)	14%	3%	1%	0%	5%	33%	0%	0%	17%	10%	0%	0%
Adj. Flow (vph)	5	625	1	10	180	5	1	10	30	20	20	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	631	0	0	195	0	0	41	0	0	55	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
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	50.9%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 13: Sixth Line & 5 Side Road

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	625	1	10	180	5	1	10	30	20	20	15
Future Volume (Veh/h)	5	625	1	10	180	5	1	10	30	20	20	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	5	625	1	10	180	5	1	10	30	20	20	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
		None			None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	185			626			863	840	626	873	838	182
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185			626			863	840	626	873	838	182
tC, single (s)	4.2			4.1			7.1	6.5	6.4	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.5	3.6	4.0	3.3
p0 queue free %	100			99			100	97	93	92	93	98
cM capacity (veh/h)	1321			965			256	299	458	236	300	865
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	631	195	41	55								
Volume Left	5	10	1	20								
Volume Right	1	5	30	15								
cSH	1321	965	399	326								
Volume to Capacity	0.00	0.01	0.10	0.17								
Queue Length 95th (m)	0.1	0.3	2.7	4.8								
Control Delay (s)	0.1	0.5	15.1	18.3								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.1	0.5	15.1	18.3								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			50.9%	ICU Level of Service		A						
Analysis Period (min)			15									

Lanes, Volumes, Timings  
14: Trafalgar Rd & 5 Side Road

2021 Background AM  
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	365	250	60	100	10	15	340	35	30	1245	35
Future Volume (vph)	35	365	250	60	100	10	15	340	35	30	1245	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	40.0		0.0	40.0		0.0	50.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	80.0			80.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.986			0.986			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	1863	1568	1687	1757	0	1444	2860	0	1480	3345	0
Flt Permitted	0.686			0.389			0.129			0.509		
Satd. Flow (perm)	1196	1863	1568	691	1757	0	196	2860	0	793	3345	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			215		7			14			4	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		617.5			665.2			264.1			262.0	
Travel Time (s)		37.1			39.9			11.9			11.8	
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 (%)	9%	2%	3%	7%	1%	63%	25%	25%	19%	22%	7%	25%
Adj. Flow (vph)	35	365	250	60	100	10	15	340	35	30	1245	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	365	250	60	110	0	15	375	0	30	1280	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	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	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		7.0	25.0		7.0	25.0	

Lanes, Volumes, Timings  
14: Trafalgar Rd & 5 Side Road

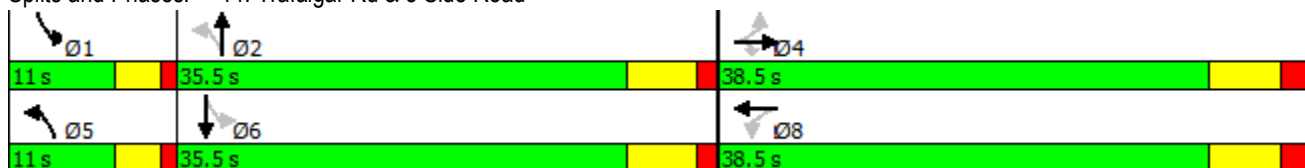
2021 Background AM  
Premier Gateway Phase 1B Employment Area

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	38.4	38.4	38.4	21.4	21.4		11.0	31.0		11.0	31.0	
Total Split (s)	38.5	38.5	38.5	38.5	38.5		11.0	35.5		11.0	35.5	
Total Split (%)	45.3%	45.3%	45.3%	45.3%	45.3%		12.9%	41.8%		12.9%	41.8%	
Maximum Green (s)	32.1	32.1	32.1	32.1	32.1		7.0	29.5		7.0	29.5	
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.0	1.4		1.0	1.4	
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)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0	25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	21.9	21.9	21.9	21.9	21.9		34.7	30.3		35.4	32.2	
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32		0.51	0.44		0.52	0.47	
v/c Ratio	0.09	0.61	0.39	0.27	0.19		0.07	0.30		0.06	0.81	
Control Delay	17.6	25.0	6.2	21.7	17.3		10.5	15.1		10.0	23.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.6	25.0	6.2	21.7	17.3		10.5	15.1		10.0	23.6	
LOS	B	C	A	C	B		B	B		A	C	
Approach Delay		17.4			18.8			15.0			23.3	
Approach LOS		B			B			B			C	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	68.6
Natural Cycle:	85
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	20.2
Intersection Capacity Utilization	82.9%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	E

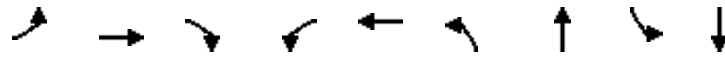
Splits and Phases: 14: Trafalgar Rd & 5 Side Road





Queues  
14: Trafalgar Rd & 5 Side Road

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	365	250	60	110	15	375	30	1280
v/c Ratio	0.09	0.61	0.39	0.27	0.19	0.07	0.30	0.06	0.81
Control Delay	17.6	25.0	6.2	21.7	17.3	10.5	15.1	10.0	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	25.0	6.2	21.7	17.3	10.5	15.1	10.0	23.6
Queue Length 50th (m)	2.9	36.3	2.9	5.2	8.7	0.8	12.8	1.7	64.5
Queue Length 95th (m)	9.9	73.8	18.9	16.5	22.6	4.2	36.1	6.9	#174.7
Internal Link Dist (m)		593.5			641.2		240.1		238.0
Turn Bay Length (m)	40.0		40.0	40.0		40.0		50.0	
Base Capacity (vph)	574	895	865	332	848	230	1271	480	1572
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	0.06	0.41	0.29	0.18	0.13	0.07	0.30	0.06	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

## 14: Trafalgar Rd & 5 Side Road

2021 Background AM  
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	365	250	60	100	10	15	340	35	30	1245	35
Future Volume (vph)	35	365	250	60	100	10	15	340	35	30	1245	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1863	1568	1687	1757		1444	2860		1480	3345	
Flt Permitted	0.69	1.00	1.00	0.39	1.00		0.13	1.00		0.51	1.00	
Satd. Flow (perm)	1196	1863	1568	690	1757		196	2860		793	3345	
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	365	250	60	100	10	15	340	35	30	1245	35
RTOR Reduction (vph)	0	0	149	0	5	0	0	8	0	0	2	0
Lane Group Flow (vph)	35	365	101	60	105	0	15	367	0	30	1278	0
Heavy Vehicles (%)	9%	2%	3%	7%	1%	63%	25%	25%	19%	22%	7%	25%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	21.9	21.9	21.9	21.9	21.9		32.1	31.0		34.5	32.2	
Effective Green, g (s)	21.9	21.9	21.9	21.9	21.9		32.1	31.0		34.5	32.2	
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31		0.45	0.43		0.48	0.45	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	365	569	479	211	537		107	1238		404	1504	
v/s Ratio Prot		c0.20			0.06		0.00	0.13		c0.00	c0.38	
v/s Ratio Perm	0.03		0.06	0.09			0.06			0.03		
v/c Ratio	0.10	0.64	0.21	0.28	0.20		0.14	0.30		0.07	0.85	
Uniform Delay, d1	17.8	21.5	18.4	18.9	18.3		13.0	13.2		9.8	17.5	
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	3.4	0.5	1.6	0.4		0.6	0.6		0.1	6.2	
Delay (s)	18.0	24.8	18.9	20.4	18.7		13.6	13.8		9.9	23.7	
Level of Service	B	C	B	C	B		B	B		A	C	
Approach Delay (s)		22.2			19.3			13.8			23.4	
Approach LOS		C			B			B			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			21.3				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			71.6				Sum of lost time (s)			16.4		
Intersection Capacity Utilization			82.9%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

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

2021 Background AM  
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)	15	380	5	30	120	15	0	90	25	70	520	70
Future Volume (vph)	15	380	5	30	120	15	0	90	25	70	520	70
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			0.988			0.971			0.986	
Fl <sub>t</sub> Protected		0.998			0.991						0.995	
Satd. Flow (prot)	0	1845	0	0	1786	0	0	1815	0	0	1862	0
Fl <sub>t</sub> Permitted		0.987			0.893						0.959	
Satd. Flow (perm)	0	1825	0	0	1609	0	0	1815	0	0	1795	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			10			25			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)	15	380	5	30	120	15	0	90	25	70	520	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	400	0	0	165	0	0	115	0	0	660	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			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

2021 Background AM  
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)		15.2			15.2			27.6			27.6	
Actuated g/C Ratio		0.29			0.29			0.53			0.53	
v/c Ratio		0.75			0.34			0.12			0.69	
Control Delay		25.9			15.4			6.1			14.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		25.9			15.4			6.1			14.4	
LOS		C			B			A			B	
Approach Delay		25.9			15.4			6.1			14.4	
Approach LOS		C			B			A			B	

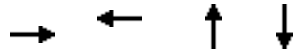
Intersection Summary

Area Type:	Other
Cycle Length:	55
Actuated Cycle Length:	51.9
Natural Cycle:	55
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	17.2
Intersection LOS:	B
Intersection Capacity Utilization:	71.9%
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



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	400	165	115	660
v/c Ratio	0.75	0.34	0.12	0.69
Control Delay	25.9	15.4	6.1	14.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.9	15.4	6.1	14.4
Queue Length 50th (m)	34.6	11.6	4.1	43.6
Queue Length 95th (m)	60.4	24.2	11.2	84.7
Internal Link Dist (m)	619.4	644.7	3062.4	430.5
Turn Bay Length (m)				
Base Capacity (vph)	653	582	977	962
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	0.61	0.28	0.12	0.69
<b>Intersection Summary</b>				

# HCM Signalized Intersection Capacity Analysis

## 15: Eighth Line & 5 Side Road

2021 Background AM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	380	5	30	120	15	0	90	25	70	520	70
Future Volume (vph)	15	380	5	30	120	15	0	90	25	70	520	70
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)		1846			1785			1814			1861	
Flt Permitted		0.99			0.89			1.00			0.96	
Satd. Flow (perm)		1825			1608			1814			1794	
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)	15	380	5	30	120	15	0	90	25	70	520	70
RTOR Reduction (vph)	0	1	0	0	7	0	0	12	0	0	7	0
Lane Group Flow (vph)	0	399	0	0	158	0	0	103	0	0	653	0
Heavy Vehicles (%)	13%	2%	14%	7%	3%	8%	0%	1%	4%	0%	0%	1%
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		15.2			15.2			27.6			27.6	
Effective Green, g (s)		15.2			15.2			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)		535			471			966			955	
v/s Ratio Prot								0.06				
v/s Ratio Perm		c0.22			0.10						c0.36	
v/c Ratio		0.75			0.34			0.11			0.68	
Uniform Delay, d1		16.6			14.3			6.0			8.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.6			0.4			0.2			4.0	
Delay (s)		22.2			14.8			6.2			12.8	
Level of Service		C			B			A			B	
Approach Delay (s)		22.2			14.8			6.2			12.8	
Approach LOS		C			B			A			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			15.3					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			51.8					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			71.9%					ICU Level of Service		C		
Analysis Period (min)			15									
c Critical Lane Group												

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

2021 Background AM  
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)	20	470	25	2	120	15	10	320	20	275	680	25
Future Volume (vph)	20	470	25	2	120	15	10	320	20	275	680	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		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	0.95	0.95	1.00	0.95	0.95
Frt		0.992			0.983			0.991			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1641	1811	0	1805	1835	0	1289	3214	0	1805	3391	0
Flt Permitted	0.671			0.231			0.384			0.456		
Satd. Flow (perm)	1159	1811	0	439	1835	0	521	3214	0	866	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			11			11			8	
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)	20	470	25	2	120	15	10	320	20	275	680	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	495	0	2	135	0	10	340	0	275	705	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	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)	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

2021 Background AM  
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		26.0	26.0		9.0	26.0	
Total Split (s)	25.0	25.0		25.0	25.0		26.0	26.0		9.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%		43.3%	43.3%		15.0%	58.3%	
Maximum Green (s)	19.0	19.0		19.0	19.0		20.0	20.0		5.0	29.0	
Yellow Time (s)	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		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		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		5.5	5.5		3.0	5.5	
Recall Mode	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	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	18.3	18.3		18.3	18.3		20.0	20.0		31.0	29.0	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.34	0.34		0.52	0.49	
v/c Ratio	0.06	0.88		0.01	0.24		0.06	0.31		0.52	0.42	
Control Delay	14.9	39.7		14.5	15.2		14.8	15.2		12.4	10.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.9	39.7		14.5	15.2		14.8	15.2		12.4	10.8	
LOS	B	D		B	B		B	B		B	B	
Approach Delay		38.7			15.2			15.2			11.3	
Approach LOS		D			B			B			B	

Intersection Summary

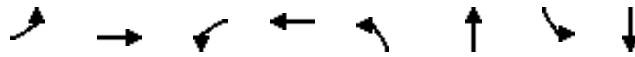
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	59.3
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	19.4
Intersection LOS:	B
Intersection Capacity Utilization:	77.5%
ICU Level of Service:	D
Analysis Period (min):	15

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





Queues  
16: Ninth Line & 5 Side Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	495	2	135	10	340	275	705
v/c Ratio	0.06	0.88	0.01	0.24	0.06	0.31	0.52	0.42
Control Delay	14.9	39.7	14.5	15.2	14.8	15.2	12.4	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	39.7	14.5	15.2	14.8	15.2	12.4	10.8
Queue Length 50th (m)	1.6	52.4	0.2	10.4	0.8	14.5	16.6	25.6
Queue Length 95th (m)	5.7	#103.2	1.5	21.9	3.7	24.0	29.5	37.5
Internal Link Dist (m)		556.9		434.3		3096.2		305.9
Turn Bay Length (m)	40.0		40.0		40.0		40.0	
Base Capacity (vph)	371	583	141	595	175	1091	532	1663
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.85	0.01	0.23	0.06	0.31	0.52	0.42























Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 16: Ninth Line & 5 Side Road

2021 Background AM  
Premier Gateway Phase 1B Employment Area

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	470	25	2	120	15	10	320	20	275	680	25
Future Volume (vph)	20	470	25	2	120	15	10	320	20	275	680	25
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		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	1811		1805	1836		1289	3215		1805	3390	
Flt Permitted	0.67	1.00		0.23	1.00		0.38	1.00		0.46	1.00	
Satd. Flow (perm)	1158	1811		438	1836		521	3215		866	3390	
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)	20	470	25	2	120	15	10	320	20	275	680	25
RTOR Reduction (vph)	0	3	0	0	8	0	0	7	0	0	4	0
Lane Group Flow (vph)	20	492	0	2	127	0	10	333	0	275	701	0
Heavy Vehicles (%)	10%	4%	6%	0%	2%	0%	40%	12%	0%	0%	6%	4%
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)	18.3	18.3		18.3	18.3		20.0	20.0		29.0	29.0	
Effective Green, g (s)	18.3	18.3		18.3	18.3		20.0	20.0		29.0	29.0	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.34	0.34		0.49	0.49	
Clearance Time (s)	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		5.5	5.5		3.0	5.5	
Lane Grp Cap (vph)	357	558		135	566		175	1084		502	1657	
v/s Ratio Prot		c0.27			0.07			0.10		c0.05	0.21	
v/s Ratio Perm	0.02			0.00			0.02			c0.22		
v/c Ratio	0.06	0.88		0.01	0.23		0.06	0.31		0.55	0.42	
Uniform Delay, d1	14.4	19.5		14.2	15.2		13.3	14.5		9.6	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	15.4		0.1	0.2		0.6	0.7		1.2	0.8	
Delay (s)	14.5	34.8		14.3	15.5		13.9	15.3		10.8	10.6	
Level of Service	B	C		B	B		B	B		B	B	
Approach Delay (s)		34.0			15.5			15.2			10.6	
Approach LOS		C			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			17.8				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			59.3				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			77.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
1: Brownridge Road/Fifth Line & Steeles Avenue

2021 Background PM  
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)	50	520	5	5	1180	15	45	10	25	45	5	110
Future Volume (vph)	50	520	5	5	1180	15	45	10	25	45	5	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	145.0		65.0	30.0		0.0	20.0		0.0	25.0		25.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			20.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.893				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	3085	1214	1203	3298	0	1687	1513	0	1583	1429	1568
Flt Permitted	0.208			0.460			0.754			0.734		
Satd. Flow (perm)	373	3085	1214	583	3298	0	1339	1513	0	1223	1429	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65		4			25				109
Link Speed (k/h)		60			60			50				50
Link Distance (m)		486.3			703.6			285.2				91.4
Travel Time (s)		29.2			42.2			20.5				6.6
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 (%)	6%	17%	33%	50%	9%	27%	7%	0%	17%	14%	33%	3%
Adj. Flow (vph)	50	520	5	5	1180	15	45	10	25	45	5	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	520	5	5	1195	0	45	35	0	45	5	110
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	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		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
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	0.6		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
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	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	25.0	25.0	25.0	25.0	25.0		10.0	10.0		10.0	10.0	10.0

Lanes, Volumes, Timings  
1: Brownridge Road/Fifth Line & Steeles Avenue

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0		16.0	16.0		16.0	16.0	16.0
Total Split (%)	68.0%	68.0%	68.0%	68.0%	68.0%		32.0%	32.0%		32.0%	32.0%	32.0%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		10.0	10.0		10.0	10.0	10.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	Max		None	None		None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		16.0	16.0		16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	32.9	32.9	32.9	32.9	32.9		10.1	10.1		10.1	10.1	10.1
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63		0.19	0.19		0.19	0.19	0.19
v/c Ratio	0.21	0.27	0.01	0.01	0.57		0.17	0.11		0.19	0.02	0.28
Control Delay	9.7	6.6	0.0	6.0	9.2		18.9	10.4		19.4	16.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	9.7	6.6	0.0	6.0	9.2		18.9	10.4		19.4	16.4	6.8
LOS	A	A	A	A	A		B	B		B	B	A
Approach Delay		6.8			9.2			15.2			10.7	
Approach LOS		A			A			B			B	

Intersection Summary

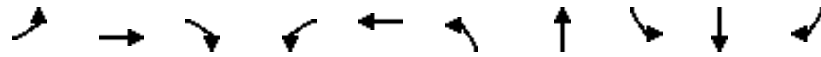
Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	52
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	8.9
Intersection LOS:	A
Intersection Capacity Utilization:	68.3%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Brownridge Road/Fifth Line & Steeles Avenue



Queues  
1: Brownridge Road/Fifth Line & Steeles Avenue

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	50	520	5	5	1195	45	35	45	5	110
v/c Ratio	0.21	0.27	0.01	0.01	0.57	0.17	0.11	0.19	0.02	0.28
Control Delay	9.7	6.6	0.0	6.0	9.2	18.9	10.4	19.4	16.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	6.6	0.0	6.0	9.2	18.9	10.4	19.4	16.4	6.8
Queue Length 50th (m)	2.3	13.1	0.0	0.2	39.2	3.5	0.8	3.5	0.4	0.1
Queue Length 95th (m)	8.4	21.0	0.0	1.4	58.6	10.4	6.5	10.5	2.5	9.9
Internal Link Dist (m)	462.3		679.6			261.2		67.4		
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	236	1954	793	369	2090	258	312	236	276	391
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	0.21	0.27	0.01	0.01	0.57	0.17	0.11	0.19	0.02	0.28

Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 1: Brownridge Road/Fifth Line & Steeles Avenue

2021 Background PM  
Premier Gateway Phase 1B Employment Area



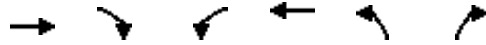
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	520	5	5	1180	15	45	10	25	45	5	110
Future Volume (vph)	50	520	5	5	1180	15	45	10	25	45	5	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1703	3085	1214	1203	3299		1687	1513		1583	1429	1568
Flt Permitted	0.21	1.00	1.00	0.46	1.00		0.75	1.00		0.73	1.00	1.00
Satd. Flow (perm)	372	3085	1214	582	3299		1340	1513		1224	1429	1568
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)	50	520	5	5	1180	15	45	10	25	45	5	110
RTOR Reduction (vph)	0	0	2	0	2	0	0	21	0	0	0	93
Lane Group Flow (vph)	50	520	3	5	1193	0	45	14	0	45	5	17
Heavy Vehicles (%)	6%	17%	33%	50%	9%	27%	7%	0%	17%	14%	33%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	31.3	31.3	31.3	31.3	31.3		7.9	7.9		7.9	7.9	7.9
Effective Green, g (s)	31.3	31.3	31.3	31.3	31.3		7.9	7.9		7.9	7.9	7.9
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59		0.15	0.15		0.15	0.15	0.15
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	218	1815	714	342	1940		198	224		181	212	232
v/s Ratio Prot		0.17			c0.36			0.01				0.00
v/s Ratio Perm	0.13		0.00	0.01			0.03			c0.04		0.01
v/c Ratio	0.23	0.29	0.00	0.01	0.62		0.23	0.06		0.25	0.02	0.07
Uniform Delay, d1	5.2	5.4	4.5	4.5	7.1		20.0	19.5		20.0	19.4	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.4	0.4	0.0	0.1	1.5		0.6	0.1		0.7	0.0	0.1
Delay (s)	7.7	5.8	4.5	4.6	8.5		20.5	19.6		20.7	19.4	19.6
Level of Service	A	A	A	A	A		C	B		C	B	B
Approach Delay (s)		6.0			8.5			20.1				19.9
Approach LOS		A			A			C				B
<b>Intersection Summary</b>												
HCM 2000 Control Delay			9.2			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			53.2			Sum of lost time (s)				14.0		
Intersection Capacity Utilization			68.3%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
2: Fifth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (vph)	600	5	5	1200	15	10
Future Volume (vph)	600	5	5	1200	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	60.0		15.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			100.0		30.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3085	1615	1203	3312	1687	1380
Flt Permitted			0.425		0.950	
Satd. Flow (perm)	3085	1615	538	3312	1687	1380
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		5				10
Link Speed (k/h)	60			60	60	
Link Distance (m)	703.6			479.7	556.9	
Travel Time (s)	42.2			28.8	33.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	17%	0%	50%	9%	7%	17%
Adj. Flow (vph)	600	5	5	1200	15	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	600	5	5	1200	15	10
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	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)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0

Lanes, Volumes, Timings  
2: Fifth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	33.0	33.0	33.0	33.0	16.0	16.0
Total Split (s)	34.0	34.0	34.0	34.0	16.0	16.0
Total Split (%)	68.0%	68.0%	68.0%	68.0%	32.0%	32.0%
Maximum Green (s)	26.0	26.0	26.0	26.0	10.0	10.0
Yellow Time (s)	6.0	6.0	6.0	6.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	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
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	47.5	47.5	47.5	47.5	10.1	10.1
Actuated g/C Ratio	0.92	0.92	0.92	0.92	0.20	0.20
v/c Ratio	0.21	0.00	0.01	0.39	0.05	0.04
Control Delay	2.0	2.2	2.8	2.6	19.4	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	2.2	2.8	2.6	19.4	12.3
LOS	A	A	A	A	B	B
Approach Delay	2.0			2.6	16.6	
Approach LOS	A			A	B	

Intersection Summary

Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	51.5
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.39
Intersection Signal Delay:	2.6
Intersection Capacity Utilization	55.0%
Analysis Period (min)	15
Intersection LOS:	A
ICU Level of Service	B

Splits and Phases: 2: Fifth Line South & Steeles Avenue





Queues  
2: Fifth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	600	5	5	1200	15	10
v/c Ratio	0.21	0.00	0.01	0.39	0.05	0.04
Control Delay	2.0	2.2	2.8	2.6	19.4	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	2.2	2.8	2.6	19.4	12.3
Queue Length 50th (m)	0.0	0.0	0.0	0.0	1.1	0.0
Queue Length 95th (m)	23.4	1.0	1.3	55.8	6.1	3.6
Internal Link Dist (m)	679.6			455.7	532.9	
Turn Bay Length (m)		30.0	60.0		15.0	
Base Capacity (vph)	2844	1489	496	3053	330	278
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.00	0.01	0.39	0.05	0.04
<b>Intersection Summary</b>						

# HCM Signalized Intersection Capacity Analysis

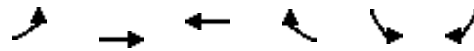
## 2: Fifth Line South & Steeles Avenue

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (vph)	600	5	5	1200	15	10
Future Volume (vph)	600	5	5	1200	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3085	1615	1203	3312	1687	1380
Flt Permitted	1.00	1.00	0.43	1.00	0.95	1.00
Satd. Flow (perm)	3085	1615	538	3312	1687	1380
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	600	5	5	1200	15	10
RTOR Reduction (vph)	0	1	0	0	0	10
Lane Group Flow (vph)	600	4	5	1200	15	0
Heavy Vehicles (%)	17%	0%	50%	9%	7%	17%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	40.7	40.7	40.7	40.7	1.7	1.7
Effective Green, g (s)	40.7	40.7	40.7	40.7	1.7	1.7
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.03	0.03
Clearance Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2226	1165	388	2390	50	41
v/s Ratio Prot	0.19			c0.36		
v/s Ratio Perm		0.00	0.01		c0.01	0.00
v/c Ratio	0.27	0.00	0.01	0.50	0.30	0.01
Uniform Delay, d1	2.7	2.2	2.2	3.4	26.8	26.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.0	0.1	0.8	3.4	0.1
Delay (s)	3.0	2.2	2.3	4.2	30.1	26.6
Level of Service	A	A	A	A	C	C
Approach Delay (s)	3.0			4.2	28.7	
Approach LOS	A			A	C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			4.1		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			56.4		Sum of lost time (s)	14.0
Intersection Capacity Utilization			55.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
3: Steeles Avenue & Sixth Line



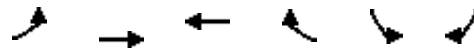
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	50	840	1235	20	5	35
Future Volume (vph)	50	840	1235	20	5	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0			30.0	30.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	2983	3282	1524	1805	1615
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	2983	3282	1524	1805	1615
Link Speed (k/h)		60	80		70	
Link Distance (m)		479.7	905.3		3066.1	
Travel Time (s)		28.8	40.7		157.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	21%	10%	6%	0%	0%
Adj. Flow (vph)	50	840	1235	20	5	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	840	1235	20	5	35
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
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
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
3: Steeles Avenue & Sixth Line

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↵	↑↑	↑↑	↵	↵	↵		
Traffic Volume (veh/h)	50	840	1235	20	5	35		
Future Volume (Veh/h)	50	840	1235	20	5	35		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	50	840	1235	20	5	35		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	1255				1755	618		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1255				1755	618		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	91				93	92		
cM capacity (veh/h)	550				71	437		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	50	420	420	618	618	20	5	35
Volume Left	50	0	0	0	0	0	5	0
Volume Right	0	0	0	0	0	20	0	35
cSH	550	1700	1700	1700	1700	1700	71	437
Volume to Capacity	0.09	0.25	0.25	0.36	0.36	0.01	0.07	0.08
Queue Length 95th (m)	2.4	0.0	0.0	0.0	0.0	0.0	1.8	2.1
Control Delay (s)	12.2	0.0	0.0	0.0	0.0	0.0	59.7	13.9
Lane LOS	B						F	B
Approach Delay (s)	0.7			0.0			19.7	
Approach LOS							C	
Intersection Summary								
Average Delay			0.6					
Intersection Capacity Utilization			50.8%		ICU Level of Service			A
Analysis Period (min)			15					

Lanes, Volumes, Timings  
4: Sixth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (vph)	420	15	250	945	25	80
Future Volume (vph)	420	15	250	945	25	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	60.0		30.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			100.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2959	1615	1805	3282	1805	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	2959	1615	1805	3282	1805	1615
Link Speed (k/h)	80			80	50	
Link Distance (m)	905.3			497.0	169.8	
Travel Time (s)	40.7			22.4	12.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	22%	0%	0%	10%	0%	0%
Adj. Flow (vph)	420	15	250	945	25	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	420	15	250	945	25	80
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
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)		15	25		25	15
Sign Control	Free			Free	Stop	

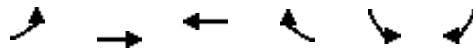
Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
4: Sixth Line South & Steeles Avenue

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗		
Traffic Volume (veh/h)	420	15	250	945	25	80		
Future Volume (Veh/h)	420	15	250	945	25	80		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	420	15	250	945	25	80		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None			None				
Median storage veh								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume			435			1392	210	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol			435			1392	210	
tC, single (s)			4.1			6.8	6.9	
tC, 2 stage (s)								
tF (s)			2.2			3.5	3.3	
p0 queue free %			78			76	90	
cM capacity (veh/h)			1135			105	802	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	210	210	15	250	472	472	25	80
Volume Left	0	0	0	250	0	0	25	0
Volume Right	0	0	15	0	0	0	0	80
cSH	1700	1700	1700	1135	1700	1700	105	802
Volume to Capacity	0.12	0.12	0.01	0.22	0.28	0.28	0.24	0.10
Queue Length 95th (m)	0.0	0.0	0.0	6.7	0.0	0.0	6.9	2.6
Control Delay (s)	0.0	0.0	0.0	9.1	0.0	0.0	49.4	10.0
Lane LOS				A			E	A
Approach Delay (s)	0.0			1.9			19.4	
Approach LOS							C	
Intersection Summary								
Average Delay			2.5					
Intersection Capacity Utilization			38.8%		ICU Level of Service		A	
Analysis Period (min)			15					

Lanes, Volumes, Timings  
5: Steeles Avenue & Hornby Road



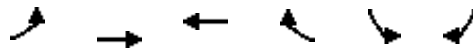
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	550	1160	15	5	55
Future Volume (vph)	35	550	1160	15	5	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0			30.0	30.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1805	3034	3282	1615	1357	1615
Fl <sub>t</sub> Permitted	0.950				0.950	
Satd. Flow (perm)	1805	3034	3282	1615	1357	1615
Link Speed (k/h)		60	60		60	
Link Distance (m)		497.0	879.8		1223.8	
Travel Time (s)		29.8	52.8		73.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	19%	10%	0%	33%	0%
Adj. Flow (vph)	35	550	1160	15	5	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	550	1160	15	5	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
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
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.1%
ICU Level of Service	A
Analysis Period (min)	15

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

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↶	↷↷	↷↷	↷	↶	↷		
Traffic Volume (veh/h)	35	550	1160	15	5	55		
Future Volume (Veh/h)	35	550	1160	15	5	55		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	35	550	1160	15	5	55		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type								
		None	None					
Median storage veh								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	1175				1505	580		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1175				1505	580		
tC, single (s)	4.1				7.5	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.8	3.3		
p0 queue free %	94				94	88		
cM capacity (veh/h)	602				79	463		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	35	275	275	580	580	15	5	55
Volume Left	35	0	0	0	0	0	5	0
Volume Right	0	0	0	0	0	15	0	55
cSH	602	1700	1700	1700	1700	1700	79	463
Volume to Capacity	0.06	0.16	0.16	0.34	0.34	0.01	0.06	0.12
Queue Length 95th (m)	1.5	0.0	0.0	0.0	0.0	0.0	1.6	3.2
Control Delay (s)	11.4	0.0	0.0	0.0	0.0	0.0	54.0	13.8
Lane LOS	B						F	B
Approach Delay (s)	0.7			0.0			17.2	
Approach LOS							C	
Intersection Summary								
Average Delay	0.8							
Intersection Capacity Utilization	42.1%			ICU Level of Service			A	
Analysis Period (min)	15							



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

2021 Background PM  
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)	325	600	115	600	895	160	165	640	570	40	295	65
Future Volume (vph)	325	600	115	600	895	160	165	640	570	40	295	65
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		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1367	3139	1262	3433	3312	1583	3099	3505	1568	1805	3163	0
Flt Permitted	0.200			0.950			0.950			0.387		
Satd. Flow (perm)	288	3139	1262	3433	3312	1583	3099	3505	1568	735	3163	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167			167			505			29
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)	325	600	115	600	895	160	165	640	570	40	295	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	600	115	600	895	160	165	640	570	40	360	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

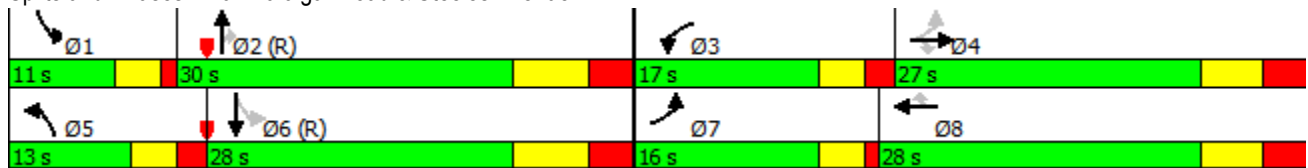
2021 Background PM  
Premier Gateway Phase 1B Employment Area

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)	16.0	27.0	27.0	17.0	28.0	28.0	13.0	30.0	30.0	11.0	28.0	
Total Split (%)	18.8%	31.8%	31.8%	20.0%	32.9%	32.9%	15.3%	35.3%	35.3%	12.9%	32.9%	
Maximum Green (s)	12.0	20.0	20.0	12.0	21.0	21.0	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)	35.0	20.0	20.0	12.0	21.0	21.0	8.0	26.4	26.4	31.0	20.0	
Actuated g/C Ratio	0.41	0.24	0.24	0.14	0.25	0.25	0.09	0.31	0.31	0.36	0.24	
v/c Ratio	1.20	0.81	0.27	1.24	1.09	0.31	0.57	0.59	0.68	0.11	0.47	
Control Delay	144.3	41.1	3.2	158.0	92.5	5.9	45.0	28.6	9.3	14.9	28.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	144.3	41.1	3.2	158.0	92.5	5.9	45.0	28.6	9.3	14.9	28.0	
LOS	F	D	A	F	F	A	D	C	A	B	C	
Approach Delay		69.1			107.9			22.6			26.7	
Approach LOS		E			F			C			C	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	0 (0%), Referenced to phase 2:NBT ar 6:SBTL, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.24
Intersection Signal Delay:	65.4
Intersection LOS:	E
Intersection Capacity Utilization:	86.1%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 6: Trafalgar Road & Steeles Avenue



Queues  
6: Trafalgar Road & Steeles Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	325	600	115	600	895	160	165	640	570	40	360
v/c Ratio	1.20	0.81	0.27	1.24	1.09	0.31	0.57	0.59	0.68	0.11	0.47
Control Delay	144.3	41.1	3.2	158.0	92.5	5.9	45.0	28.6	9.3	14.9	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.3	41.1	3.2	158.0	92.5	5.9	45.0	28.6	9.3	14.9	28.0
Queue Length 50th (m)	~54.0	51.2	0.0	~66.4	~92.1	0.0	14.1	52.2	8.6	3.8	25.5
Queue Length 95th (m)	#106.1	#77.1	5.4	#99.1	#129.8	13.6	24.3	71.4	44.6	9.6	39.0
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)	270	738	424	484	818	516	291	1088	835	356	766
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	1.20	0.81	0.27	1.24	1.09	0.31	0.57	0.59	0.68	0.11	0.47

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

























Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

2021 Background PM  
Premier Gateway Phase 1B Employment Area

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	325	600	115	600	895	160	165	640	570	40	295	65	
Future Volume (vph)	325	600	115	600	895	160	165	640	570	40	295	65	
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	0.97		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1367	3139	1262	3433	3312	1583	3099	3505	1568	1805	3163		
Flt Permitted	0.20	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.39	1.00		
Satd. Flow (perm)	288	3139	1262	3433	3312	1583	3099	3505	1568	736	3163		
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)	325	600	115	600	895	160	165	640	570	40	295	65	
RTOR Reduction (vph)	0	0	88	0	0	120	0	0	358	0	22	0	
Lane Group Flow (vph)	325	600	27	600	895	40	165	640	212	40	338	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)	32.0	20.0	20.0	12.0	21.0	21.0	8.0	24.8	24.8	24.2	20.0		
Effective Green, g (s)	32.0	20.0	20.0	12.0	21.0	21.0	8.0	24.8	24.8	24.2	20.0		
Actuated g/C Ratio	0.38	0.24	0.24	0.14	0.25	0.25	0.09	0.29	0.29	0.28	0.24		
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0		
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	0.2	3.0	0.2		
Lane Grp Cap (vph)	260	738	296	484	818	391	291	1022	457	262	744		
v/s Ratio Prot	c0.18	0.19		0.17	0.27		c0.05	c0.18		0.01	0.11		
v/s Ratio Perm	c0.29		0.02			0.02			0.14	0.04			
v/c Ratio	1.25	0.81	0.09	1.24	1.09	0.10	0.57	0.63	0.46	0.15	0.45		
Uniform Delay, d1	22.5	30.7	25.4	36.5	32.0	24.7	36.8	26.1	24.7	22.2	27.8		
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	140.3	6.8	0.1	124.5	60.3	0.1	3.1	2.9	3.4	0.3	2.0		
Delay (s)	162.8	37.6	25.5	161.0	92.3	24.8	39.9	29.0	28.0	22.5	29.8		
Level of Service	F	D	C	F	F	C	D	C	C	C	C		
Approach Delay (s)		75.4			110.7			29.9			29.1		
Approach LOS		E			F			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			70.3									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.98										
Actuated Cycle Length (s)			85.0									Sum of lost time (s)	25.0
Intersection Capacity Utilization			86.1%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

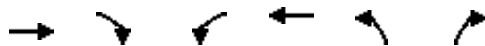
Lanes, Volumes, Timings  
7: Toronto Premier Outlets & Steeles Avenue

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖↗	↗
Traffic Volume (vph)	1150	40	25	1360	305	70
Future Volume (vph)	1150	40	25	1360	305	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		130.0	45.0		0.0	40.0
Storage Lanes		1	1		2	1
Taper Length (m)			80.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3312	1482	1805	3406	3467	1599
Flt Permitted			0.139		0.950	
Satd. Flow (perm)	3312	1482	264	3406	3467	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		40				70
Link Speed (k/h)	60			60	50	
Link Distance (m)	311.3			200.7	119.1	
Travel Time (s)	18.7			12.0	8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	9%	9%	0%	6%	1%	1%
Adj. Flow (vph)	1150	40	25	1360	305	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1150	40	25	1360	305	70
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			7.2	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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	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)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	20.0	20.0	6.0	20.0	10.0	10.0

Lanes, Volumes, Timings  
7: Toronto Premier Outlets & Steeles Avenue

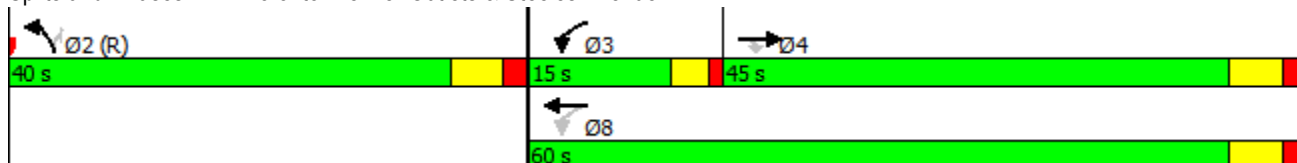


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	26.0	26.0	10.0	26.0	17.0	17.0
Total Split (s)	45.0	45.0	15.0	60.0	40.0	40.0
Total Split (%)	45.0%	45.0%	15.0%	60.0%	40.0%	40.0%
Maximum Green (s)	39.0	39.0	11.0	54.0	34.0	34.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	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	4.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	4.0
Recall Mode	Max	Max	None	Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	17.0	17.0		17.0	21.0	21.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	49.7	49.7	56.0	54.0	34.0	34.0
Actuated g/C Ratio	0.50	0.50	0.56	0.54	0.34	0.34
v/c Ratio	0.70	0.05	0.10	0.74	0.26	0.12
Control Delay	23.3	5.6	10.8	20.7	24.6	6.2
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	23.3	5.6	10.8	21.2	24.6	6.2
LOS	C	A	B	C	C	A
Approach Delay	22.7			21.0	21.2	
Approach LOS	C			C	C	

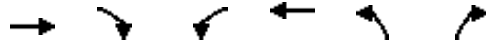
Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBL and 6:, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	21.7
Intersection Capacity Utilization	56.3%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	B

Splits and Phases: 7: Toronto Premier Outlets & Steeles Avenue



Queues  
7: Toronto Premier Outlets & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1150	40	25	1360	305	70
v/c Ratio	0.70	0.05	0.10	0.74	0.26	0.12
Control Delay	23.3	5.6	10.8	20.7	24.6	6.2
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	23.3	5.6	10.8	21.2	24.6	6.2
Queue Length 50th (m)	82.5	0.0	2.1	106.0	22.9	0.0
Queue Length 95th (m)	133.7	6.1	5.9	133.6	33.7	9.5
Internal Link Dist (m)	287.3			176.7	95.1	
Turn Bay Length (m)		130.0	45.0			40.0
Base Capacity (vph)	1646	756	317	1839	1178	589
Starvation Cap Reductn	0	0	0	146	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.05	0.08	0.80	0.26	0.12
<b>Intersection Summary</b>						

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

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖↗	↗
Traffic Volume (vph)	1150	40	25	1360	305	70
Future Volume (vph)	1150	40	25	1360	305	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Flt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3312	1482	1805	3406	3467	1599
Flt Permitted	1.00	1.00	0.14	1.00	0.95	1.00
Satd. Flow (perm)	3312	1482	264	3406	3467	1599
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1150	40	25	1360	305	70
RTOR Reduction (vph)	0	20	0	0	0	48
Lane Group Flow (vph)	1150	20	25	1360	305	22
Heavy Vehicles (%)	9%	9%	0%	6%	1%	1%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	49.7	49.7	56.4	56.4	31.6	31.6
Effective Green, g (s)	49.7	49.7	56.4	56.4	31.6	31.6
Actuated g/C Ratio	0.50	0.50	0.56	0.56	0.32	0.32
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	4.0
Lane Grp Cap (vph)	1646	736	190	1920	1095	505
v/s Ratio Prot	0.35		0.00	c0.40	c0.09	
v/s Ratio Perm		0.01	0.07			0.01
v/c Ratio	0.70	0.03	0.13	0.71	0.28	0.04
Uniform Delay, d1	19.4	12.8	12.6	15.8	25.7	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.1	0.3	2.2	0.6	0.2
Delay (s)	21.9	12.9	12.9	18.1	26.3	23.9
Level of Service	C	B	B	B	C	C
Approach Delay (s)	21.6			18.0	25.8	
Approach LOS	C			B	C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			20.4		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	16.0
Intersection Capacity Utilization			56.3%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						



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)	230	900	20	120	1345	120	55	30	105	35	20	65
Future Volume (vph)	230	900	20	120	1345	120	55	30	105	35	20	65
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		0.988			0.883			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3223	1615	1770	3349	0	3367	1652	0	1752	1656	0
Flt Permitted	0.084			0.247			0.950			0.671		
Satd. Flow (perm)	160	3223	1615	460	3349	0	3367	1652	0	1238	1656	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164		12			105				65
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)	230	900	20	120	1345	120	55	30	105	35	20	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	900	20	120	1465	0	55	135	0	35	85	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	

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

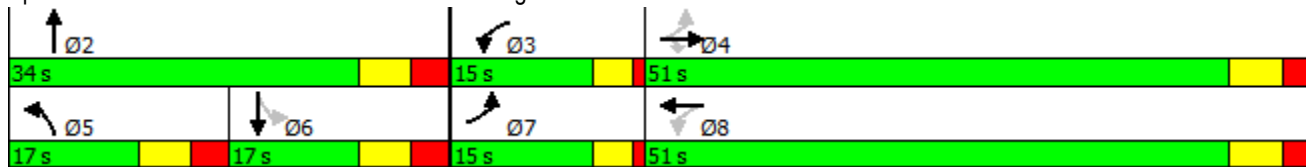


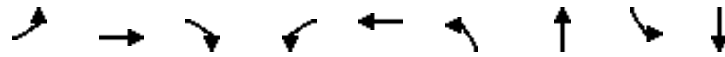
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	26.0	26.0	11.0	26.0		17.0	17.0		17.0	17.0	
Total Split (s)	15.0	51.0	51.0	15.0	51.0		17.0	34.0		17.0	17.0	
Total Split (%)	15.0%	51.0%	51.0%	15.0%	51.0%		17.0%	34.0%		17.0%	17.0%	
Maximum Green (s)	11.0	45.0	45.0	11.0	45.0		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)	59.8	47.4	47.4	55.8	45.4		10.1	23.2		10.1	10.1	
Actuated g/C Ratio	0.62	0.49	0.49	0.58	0.47		0.11	0.24		0.11	0.11	
v/c Ratio	0.83	0.57	0.02	0.31	0.92		0.16	0.28		0.27	0.37	
Control Delay	46.4	20.0	0.1	10.1	36.1		42.4	10.7		47.6	20.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	46.4	20.0	0.1	10.1	36.1		42.4	10.7		47.6	20.7	
LOS	D	C	A	B	D		D	B		D	C	
Approach Delay		25.0			34.2			19.9			28.5	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	96.1
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	29.6
Intersection LOS:	C
Intersection Capacity Utilization:	90.4%
ICU Level of Service:	E
Analysis Period (min):	15

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





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	230	900	20	120	1465	55	135	35	85
v/c Ratio	0.83	0.57	0.02	0.31	0.92	0.16	0.28	0.27	0.37
Control Delay	46.4	20.0	0.1	10.1	36.1	42.4	10.7	47.6	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	20.0	0.1	10.1	36.1	42.4	10.7	47.6	20.7
Queue Length 50th (m)	28.3	67.5	0.0	9.2	147.8	5.3	4.6	6.7	3.8
Queue Length 95th (m)	#71.0	91.4	0.0	16.5	#202.5	11.4	19.3	16.8	18.4
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)	290	1589	879	430	1587	353	543	129	232
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	0.79	0.57	0.02	0.28	0.92	0.16	0.25	0.27	0.37

#### Intersection Summary






















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

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

2021 Background PM

## 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)	230	900	20	120	1345	120	55	30	105	35	20	65
Future Volume (vph)	230	900	20	120	1345	120	55	30	105	35	20	65
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	3348		3367	1653		1752	1657	
Flt Permitted	0.08	1.00	1.00	0.25	1.00		0.95	1.00		0.67	1.00	
Satd. Flow (perm)	160	3223	1615	461	3348		3367	1653		1237	1657	
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)	230	900	20	120	1345	120	55	30	105	35	20	65
RTOR Reduction (vph)	0	0	10	0	6	0	0	78	0	0	58	0
Lane Group Flow (vph)	230	900	10	120	1459	0	55	57	0	35	27	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)	57.8	47.4	47.4	53.8	45.4		7.7	24.8		10.1	10.1	
Effective Green, g (s)	57.8	47.4	47.4	53.8	45.4		7.7	24.8		10.1	10.1	
Actuated g/C Ratio	0.59	0.49	0.49	0.55	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)	270	1565	784	366	1557		265	420		128	171	
v/s Ratio Prot	c0.09	0.28		0.03	c0.44		0.02	c0.03				0.02
v/s Ratio Perm	0.41		0.01	0.15						c0.03		
v/c Ratio	0.85	0.58	0.01	0.33	0.94		0.21	0.13		0.27	0.16	
Uniform Delay, d1	25.6	17.9	13.0	11.2	24.7		42.1	28.1		40.4	39.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.9	1.5	0.0	0.5	12.0		0.5	0.2		5.2	1.9	
Delay (s)	47.5	19.5	13.0	11.7	36.8		42.6	28.3		45.6	41.8	
Level of Service	D	B	B	B	D		D	C		D	D	
Approach Delay (s)		25.0			34.9			32.5			42.9	
Approach LOS		C			C			C			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			31.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			97.6			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			90.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
9: Eighth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1010	5	0	1595	5	5
Future Volume (vph)	1010	5	0	1595	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	90.0		30.0	0.0
Storage Lanes		0	1		1	
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.999					0.850
Flt Protected					0.950	
Satd. Flow (prot)	3273	0	1900	3406	1805	1346
Flt Permitted					0.950	
Satd. Flow (perm)	3273	0	1900	3406	1805	1346
Link Speed (k/h)	70			70	50	
Link Distance (m)	870.8			525.4	458.2	
Travel Time (s)	44.8			27.0	33.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	50%	0%	6%	0%	20%
Adj. Flow (vph)	1010	5	0	1595	5	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1015	0	0	1595	5	5
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
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)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.1%
ICU Level of Service	A
Analysis Period (min)	15

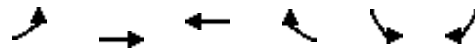
HCM Unsignalized Intersection Capacity Analysis  
 9: Eighth Line South & Steeles Avenue

2021 Background PM  
 Premier Gateway Phase 1B Employment Area

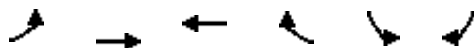
	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑		↘	↑↑	↘	↗	
Traffic Volume (veh/h)	1010	5	0	1595	5	5	
Future Volume (Veh/h)	1010	5	0	1595	5	5	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	1010	5	0	1595	5	5	
<b>Pedestrians</b>							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			1015			1810	508
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1015			1810	508
tC, single (s)			4.1			6.8	7.3
tC, 2 stage (s)							
tF (s)			2.2			3.5	3.5
p0 queue free %			100			93	99
cM capacity (veh/h)			691			72	466
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	673	342	0	798	798	5	5
Volume Left	0	0	0	0	0	5	0
Volume Right	0	5	0	0	0	0	5
cSH	1700	1700	1700	1700	1700	72	466
Volume to Capacity	0.40	0.20	0.00	0.47	0.47	0.07	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	1.8	0.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	59.0	12.8
Lane LOS						F	B
Approach Delay (s)	0.0		0.0			35.9	
Approach LOS						E	
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			54.1%			ICU Level of Service A	
Analysis Period (min)			15				

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

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	105	935	1495	735	280	70
Future Volume (vph)	105	935	1495	735	280	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0			75.0	90.0	0.0
Storage Lanes	1			1	1	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	0.110				0.950	
Satd. Flow (perm)	199	3252	3406	1615	3367	1524
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				735		70
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)	105	935	1495	735	280	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	935	1495	735	280	70
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	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+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		CI+Ex	CI+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

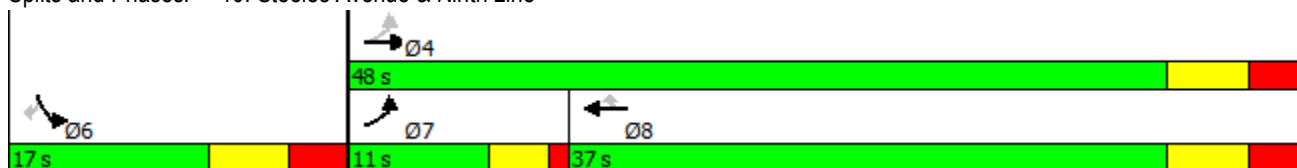


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	11.0	27.0	27.0	27.0	17.0	17.0
Total Split (s)	11.0	48.0	37.0	37.0	17.0	17.0
Total Split (%)	16.9%	73.8%	56.9%	56.9%	26.2%	26.2%
Maximum Green (s)	7.0	41.0	30.0	30.0	10.0	10.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	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	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 Effct Green (s)	44.0	41.0	32.2	32.2	10.0	10.0
Actuated g/C Ratio	0.68	0.63	0.50	0.50	0.15	0.15
v/c Ratio	0.35	0.46	0.89	0.63	0.54	0.24
Control Delay	7.1	7.1	24.7	3.8	29.7	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	7.1	24.7	3.8	29.7	9.6
LOS	A	A	C	A	C	A
Approach Delay		7.1	17.8		25.7	
Approach LOS		A	B		C	

Intersection Summary

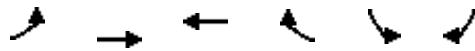
Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Natural Cycle:	65
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.89
Intersection Signal Delay:	15.5
Intersection LOS:	B
Intersection Capacity Utilization:	70.5%
ICU Level of Service:	C
Analysis Period (min):	15

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)	105	935	1495	735	280	70
v/c Ratio	0.35	0.46	0.89	0.63	0.54	0.24
Control Delay	7.1	7.1	24.7	3.8	29.7	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	7.1	24.7	3.8	29.7	9.6
Queue Length 50th (m)	3.7	27.6	90.4	0.0	17.1	0.0
Queue Length 95th (m)	8.6	38.9	#140.6	16.9	28.1	9.8
Internal Link Dist (m)		501.4	704.8		3096.2	
Turn Bay Length (m)	65.0			75.0	90.0	
Base Capacity (vph)	298	2051	1687	1171	518	293
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.46	0.89	0.63	0.54	0.24

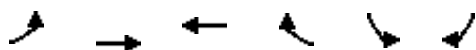
Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 10: Steeles Avenue & Ninth Line

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	105	935	1495	735	280	70
Future Volume (vph)	105	935	1495	735	280	70
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
Fr <sub>t</sub>	1.00	1.00	1.00	0.85	1.00	0.85
Fl <sub>t</sub> Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3252	3406	1615	3367	1524
Fl <sub>t</sub> Permitted	0.11	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	200	3252	3406	1615	3367	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	105	935	1495	735	280	70
RTOR Reduction (vph)	0	0	0	375	0	59
Lane Group Flow (vph)	105	935	1495	360	280	11
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)	41.8	41.8	32.2	32.2	10.0	10.0
Effective Green, g (s)	41.8	41.8	32.2	32.2	10.0	10.0
Actuated g/C Ratio	0.64	0.64	0.49	0.49	0.15	0.15
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)	256	2065	1666	790	511	231
v/s Ratio Prot	0.03	c0.29	c0.44		c0.08	
v/s Ratio Perm	0.23			0.22		0.01
v/c Ratio	0.41	0.45	0.90	0.46	0.55	0.05
Uniform Delay, d <sub>1</sub>	9.7	6.1	15.3	11.0	25.8	23.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d <sub>2</sub>	1.1	0.7	8.0	1.9	4.2	0.4
Delay (s)	10.7	6.9	23.3	12.9	30.0	24.2
Level of Service	B	A	C	B	C	C
Approach Delay (s)		7.3	19.9		28.8	
Approach LOS		A	B		C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			17.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			65.8		Sum of lost time (s)	18.0
Intersection Capacity Utilization			70.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
11: Trafalgar Rd & Hornby Rd



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	5	5	1115	360	65
Future Volume (vph)	35	5	5	1115	360	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	100.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	7.5		100.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.983				0.979	
Flt Protected	0.958					
Satd. Flow (prot)	1789	0	0	1863	1829	0
Flt Permitted	0.958					
Satd. Flow (perm)	1789	0	0	1863	1829	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	54.4			135.9	215.8	
Travel Time (s)	3.3			6.1	9.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	35	5	5	1115	360	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	0	1120	425	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
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
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	72.7%
ICU Level of Service	C
Analysis Period (min)	15

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

2021 Background PM  
 Premier Gateway Phase 1B Employment Area



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	5	5	1115	360	65
Future Volume (Veh/h)	35	5	5	1115	360	65
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	35	5	5	1115	360	65
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1518	392	360			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1518	392	360			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	73	99	100			
cM capacity (veh/h)	132	661	1210			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	40	1120	425			
Volume Left	35	5	0			
Volume Right	5	0	65			
cSH	147	1210	1700			
Volume to Capacity	0.27	0.00	0.25			
Queue Length 95th (m)	8.3	0.1	0.0			
Control Delay (s)	38.5	0.1	0.0			
Lane LOS	E	A				
Approach Delay (s)	38.5	0.1	0.0			
Approach LOS	E					
<b>Intersection Summary</b>						
Average Delay			1.1			
Intersection Capacity Utilization			72.7%	ICU Level of Service	C	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
12: Fifth Line & 5 Side Road

2021 Background PM  
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	205	5	15	430	20	10	40	25	5	30	15
Future Volume (vph)	40	205	5	15	430	20	10	40	25	5	30	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.994			0.955			0.959	
Flt Protected		0.992			0.998			0.993			0.995	
Satd. Flow (prot)	0	1849	0	0	1834	0	0	1734	0	0	1725	0
Flt Permitted		0.992			0.998			0.993			0.995	
Satd. Flow (perm)	0	1849	0	0	1834	0	0	1734	0	0	1725	0
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		320.1			648.3			2473.7			211.2	
Travel Time (s)		19.2			38.9			127.2			10.9	
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 (%)	0%	2%	0%	0%	3%	0%	17%	0%	5%	0%	0%	17%
Adj. Flow (vph)	40	205	5	15	430	20	10	40	25	5	30	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	250	0	0	465	0	0	75	0	0	50	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			0.0			0.0	
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
Sign Control		Free			Free			Stop			Stop	

















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.5%
ICU Level of Service	A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

















## 12: Fifth Line & 5 Side Road

2021 Background PM  
Premier Gateway Phase 1B Employment Area

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	40	205	5	15	430	20	10	40	25	5	30	15	
Future Volume (Veh/h)	40	205	5	15	430	20	10	40	25	5	30	15	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			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	
Hourly flow rate (vph)	40	205	5	15	430	20	10	40	25	5	30	15	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None					None							
Median storage veh													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	450			210				788	768	208	802	760	440
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	450			210				788	768	208	802	760	440
tC, single (s)	4.1			4.1				7.3	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)													
tF (s)	2.2			2.2				3.7	4.0	3.3	3.5	4.0	3.5
p0 queue free %	96			99				96	87	97	98	91	97
cM capacity (veh/h)	1121			1373				255	319	825	258	322	587
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	250	465	75	50									
Volume Left	40	15	10	5									
Volume Right	5	20	25	15									
cSH	1121	1373	385	362									
Volume to Capacity	0.04	0.01	0.19	0.14									
Queue Length 95th (m)	0.9	0.3	5.7	3.8									
Control Delay (s)	1.6	0.4	16.6	16.5									
Lane LOS	A	A	C	C									
Approach Delay (s)	1.6	0.4	16.6	16.5									
Approach LOS			C	C									
Intersection Summary													
Average Delay			3.1										
Intersection Capacity Utilization			42.5%	ICU Level of Service	A								
Analysis Period (min)			15										

Lanes, Volumes, Timings  
13: Sixth Line & 5 Side Road

2021 Background PM  
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)	5	200	5	15	480	20	10	30	15	10	15	10
Future Volume (vph)	5	200	5	15	480	20	10	30	15	10	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.995			0.963			0.961	
Flt Protected		0.999			0.999			0.991			0.986	
Satd. Flow (prot)	0	1833	0	0	1783	0	0	1733	0	0	1750	0
Flt Permitted		0.999			0.999			0.991			0.986	
Satd. Flow (perm)	0	1833	0	0	1783	0	0	1733	0	0	1750	0
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		620.4			640.8			3066.1			190.9	
Travel Time (s)		37.2			38.4			157.7			9.8	
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 (%)	14%	3%	1%	0%	5%	33%	0%	0%	17%	10%	0%	0%
Adj. Flow (vph)	5	200	5	15	480	20	10	30	15	10	15	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	210	0	0	515	0	0	55	0	0	35	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
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	43.9%						ICU Level of Service A					
Analysis Period (min)	15											

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

2021 Background PM  
 Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	200	5	15	480	20	10	30	15	10	15	10
Future Volume (Veh/h)	5	200	5	15	480	20	10	30	15	10	15	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	5	200	5	15	480	20	10	30	15	10	15	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	500			205			750	742	202	762	735	490
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	500			205			750	742	202	762	735	490
tC, single (s)	4.2			4.1			7.1	6.5	6.4	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.5	3.6	4.0	3.3
p0 queue free %	100			99			97	91	98	96	96	98
cM capacity (veh/h)	1005			1378			310	340	802	282	344	582
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	210	515	55	35								
Volume Left	5	15	10	10								
Volume Right	5	20	15	10								
cSH	1005	1378	395	363								
Volume to Capacity	0.00	0.01	0.14	0.10								
Queue Length 95th (m)	0.1	0.3	3.8	2.5								
Control Delay (s)	0.3	0.3	15.6	16.0								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.3	0.3	15.6	16.0								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			43.9%	ICU Level of Service	A							
Analysis Period (min)			15									



Lanes, Volumes, Timings  
14: Trafalgar Rd & 5 Side Road

2021 Background PM  
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)	50	155	40	45	355	40	90	1160	55	10	530	65
Future Volume (vph)	50	155	40	45	355	40	90	1160	55	10	530	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	40.0		0.0	40.0		0.0	50.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	80.0			80.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.985			0.993			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	1863	1482	1805	1872	0	1770	3453	0	1583	3376	0
Flt Permitted	0.321			0.659			0.342			0.146		
Satd. Flow (perm)	560	1863	1482	1252	1872	0	637	3453	0	243	3376	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90		8			6			17	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		617.5			665.2			264.1			262.0	
Travel Time (s)		37.1			39.9			11.9			11.8	
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 (%)	9%	2%	9%	0%	0%	0%	2%	4%	0%	14%	5%	7%
Adj. Flow (vph)	50	155	40	45	355	40	90	1160	55	10	530	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	155	40	45	395	0	90	1215	0	10	595	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	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	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		7.0	25.0		7.0	25.0	

Lanes, Volumes, Timings  
14: Trafalgar Rd & 5 Side Road

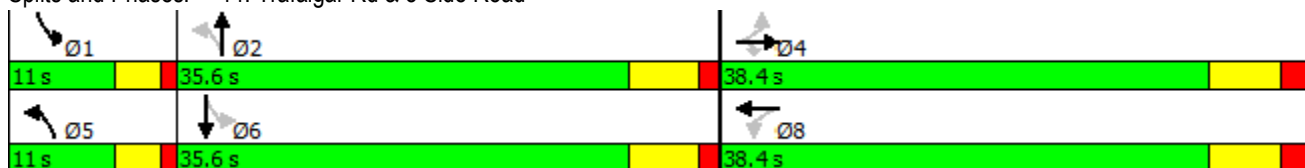
2021 Background PM  
Premier Gateway Phase 1B Employment Area

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	38.4	38.4	38.4	21.4	21.4		11.0	31.0		11.0	31.0	
Total Split (s)	38.4	38.4	38.4	38.4	38.4		11.0	35.6		11.0	35.6	
Total Split (%)	45.2%	45.2%	45.2%	45.2%	45.2%		12.9%	41.9%		12.9%	41.9%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0		7.0	29.6		7.0	29.6	
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.0	1.4		1.0	1.4	
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)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0	25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	22.5	22.5	22.5	22.5	22.5		39.9	36.6		37.5	30.2	
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31		0.54	0.50		0.51	0.41	
v/c Ratio	0.29	0.27	0.08	0.12	0.68		0.20	0.71		0.04	0.43	
Control Delay	24.8	20.9	0.5	19.2	28.9		10.4	19.9		10.0	18.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.8	20.9	0.5	19.2	28.9		10.4	19.9		10.0	18.2	
LOS	C	C	A	B	C		B	B		A	B	
Approach Delay		18.3			27.9			19.2			18.0	
Approach LOS		B			C			B			B	

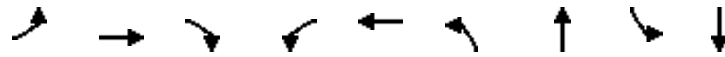
Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	73.7
Natural Cycle:	85
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	20.3
Intersection Capacity Utilization	92.3%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	F

Splits and Phases: 14: Trafalgar Rd & 5 Side Road



Queues  
14: Trafalgar Rd & 5 Side Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	50	155	40	45	395	90	1215	10	595
v/c Ratio	0.29	0.27	0.08	0.12	0.68	0.20	0.71	0.04	0.43
Control Delay	24.8	20.9	0.5	19.2	28.9	10.4	19.9	10.0	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	20.9	0.5	19.2	28.9	10.4	19.9	10.0	18.2
Queue Length 50th (m)	5.7	17.7	0.0	4.9	51.1	5.6	61.9	0.6	32.2
Queue Length 95th (m)	14.8	31.5	0.8	12.0	79.3	15.5	#157.2	3.3	56.3
Internal Link Dist (m)		593.5			641.2		240.1		238.0
Turn Bay Length (m)	40.0		40.0	40.0		40.0		50.0	
Base Capacity (vph)	247	824	706	554	832	454	1719	253	1391
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	0.20	0.19	0.06	0.08	0.47	0.20	0.71	0.04	0.43























Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 14: Trafalgar Rd & 5 Side Road

2021 Background PM  
Premier Gateway Phase 1B Employment Area

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	155	40	45	355	40	90	1160	55	10	530	65
Future Volume (vph)	50	155	40	45	355	40	90	1160	55	10	530	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1863	1482	1805	1871		1770	3454		1583	3375	
Flt Permitted	0.32	1.00	1.00	0.66	1.00		0.34	1.00		0.15	1.00	
Satd. Flow (perm)	560	1863	1482	1251	1871		636	3454		243	3375	
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)	50	155	40	45	355	40	90	1160	55	10	530	65
RTOR Reduction (vph)	0	0	28	0	6	0	0	3	0	0	10	0
Lane Group Flow (vph)	50	155	12	45	389	0	90	1212	0	10	585	0
Heavy Vehicles (%)	9%	2%	9%	0%	0%	0%	2%	4%	0%	14%	5%	7%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	22.5	22.5	22.5	22.5	22.5		41.8	36.6		33.7	32.5	
Effective Green, g (s)	22.5	22.5	22.5	22.5	22.5		41.8	36.6		33.7	32.5	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.54	0.48		0.44	0.42	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	164	546	434	366	548		424	1648		127	1430	
v/s Ratio Prot		0.08			c0.21		c0.01	c0.35		0.00	0.17	
v/s Ratio Perm	0.09		0.01	0.04			0.10			0.03		
v/c Ratio	0.30	0.28	0.03	0.12	0.71		0.21	0.74		0.08	0.41	
Uniform Delay, d1	21.0	20.9	19.3	19.9	24.2		8.8	16.1		13.1	15.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.6	0.1	0.3	5.3		0.3	3.0		0.3	0.9	
Delay (s)	23.2	21.5	19.4	20.2	29.5		9.0	19.1		13.4	16.3	
Level of Service	C	C	B	C	C		A	B		B	B	
Approach Delay (s)		21.5			28.6			18.4			16.2	
Approach LOS		C			C			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			19.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			76.7			Sum of lost time (s)				16.4		
Intersection Capacity Utilization			92.3%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

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

2021 Background PM  
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)	50	210	5	20	410	75	5	345	45	20	105	25
Future Volume (vph)	50	210	5	20	410	75	5	345	45	20	105	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.980			0.985			0.977	
Flt Protected		0.991			0.998			0.999			0.993	
Satd. Flow (prot)	0	1824	0	0	1833	0	0	1843	0	0	1831	0
Flt Permitted		0.864			0.982			0.997			0.932	
Satd. Flow (perm)	0	1590	0	0	1803	0	0	1839	0	0	1719	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			23			17			25	
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)	50	210	5	20	410	75	5	345	45	20	105	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	265	0	0	505	0	0	395	0	0	150	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

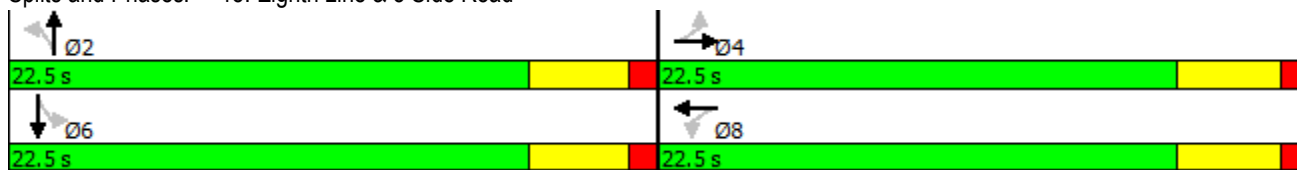
2021 Background PM  
Premier Gateway Phase 1B Employment Area

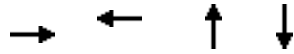
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			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)		15.1			15.1			18.1			18.1	
Actuated g/C Ratio		0.36			0.36			0.43			0.43	
v/c Ratio		0.47			0.77			0.49			0.20	
Control Delay		13.2			20.5			11.8			8.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.2			20.5			11.8			8.2	
LOS		B			C			B			A	
Approach Delay		13.2			20.5			11.8			8.2	
Approach LOS		B			C			B			A	

Intersection Summary

Area Type:	Other
Cycle Length:	45
Actuated Cycle Length:	42.2
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	15.0
Intersection LOS:	B
Intersection Capacity Utilization:	62.2%
ICU Level of Service:	B
Analysis Period (min):	15

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





Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	265	505	395	150
v/c Ratio	0.47	0.77	0.49	0.20
Control Delay	13.2	20.5	11.8	8.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.2	20.5	11.8	8.2
Queue Length 50th (m)	14.7	30.9	20.8	5.9
Queue Length 95th (m)	29.5	#60.9	41.9	15.1
Internal Link Dist (m)	619.4	644.7	3062.4	430.5
Turn Bay Length (m)				
Base Capacity (vph)	683	786	798	751
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.64	0.49	0.20

















**Intersection Summary**

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

# HCM Signalized Intersection Capacity Analysis

## 15: Eighth Line & 5 Side Road

2021 Background PM  
Premier Gateway Phase 1B Employment Area

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	210	5	20	410	75	5	345	45	20	105	25
Future Volume (vph)	50	210	5	20	410	75	5	345	45	20	105	25
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			0.98			0.98	
Flt Protected		0.99			1.00			1.00			0.99	
Satd. Flow (prot)		1824			1833			1843			1833	
Flt Permitted		0.86			0.98			1.00			0.93	
Satd. Flow (perm)		1591			1802			1839			1720	
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)	50	210	5	20	410	75	5	345	45	20	105	25
RTOR Reduction (vph)	0	2	0	0	15	0	0	10	0	0	14	0
Lane Group Flow (vph)	0	263	0	0	490	0	0	385	0	0	136	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)		15.1			15.1			18.1			18.1	
Effective Green, g (s)		15.1			15.1			18.1			18.1	
Actuated g/C Ratio		0.36			0.36			0.43			0.43	
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)		569			644			788			737	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.27			0.21			0.08	
v/c Ratio		0.46			0.76			0.49			0.18	
Uniform Delay, d1		10.4			12.0			8.7			7.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			5.3			2.2			0.6	
Delay (s)		11.0			17.3			10.9			8.0	
Level of Service		B			B			B			A	
Approach Delay (s)		11.0			17.3			10.9			8.0	
Approach LOS		B			B			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			13.0			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			42.2			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			62.2%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												



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

2021 Background PM  
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)	30	210	15	10	470	235	15	790	10	30	325	25
Future Volume (vph)	30	210	15	10	470	235	15	790	10	30	325	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		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	0.95	0.95	1.00	0.95	0.95
Frt		0.990			0.950			0.998			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1881	0	1805	1805	0	1805	3601	0	1805	3537	0
Flt Permitted	0.222			0.618			0.542			0.313		
Satd. Flow (perm)	410	1881	0	1174	1805	0	1030	3601	0	595	3537	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			43			3			19	
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)	30	210	15	10	470	235	15	790	10	30	325	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	225	0	10	705	0	15	800	0	30	350	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	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)	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

2021 Background PM  
Premier Gateway Phase 1B Employment Area

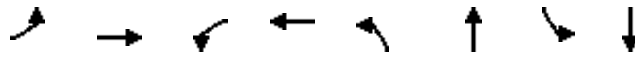
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0		26.0	26.0	
Total Split (s)	24.0	24.0		24.0	24.0		36.0	36.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		5.5	5.5		5.5	5.5	
Recall Mode	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	
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)	18.0	18.0		18.0	18.0		30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.50	0.50		0.50	0.50	
v/c Ratio	0.24	0.40		0.03	1.23		0.03	0.44		0.10	0.20	
Control Delay	22.0	18.8		15.2	143.1		7.9	10.6		9.0	8.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.0	18.8		15.2	143.1		7.9	10.6		9.0	8.2	
LOS	C	B		B	F		A	B		A	A	
Approach Delay		19.2			141.3			10.5			8.3	
Approach LOS		B			F			B			A	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	60
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	1.23
Intersection Signal Delay:	54.3
Intersection LOS:	D
Intersection Capacity Utilization	74.0%
ICU Level of Service	D
Analysis Period (min)	15

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





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	225	10	705	15	800	30	350
v/c Ratio	0.24	0.40	0.03	1.23	0.03	0.44	0.10	0.20
Control Delay	22.0	18.8	15.2	143.1	7.9	10.6	9.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	18.8	15.2	143.1	7.9	10.6	9.0	8.2
Queue Length 50th (m)	2.6	19.8	0.8	~101.6	0.8	28.7	1.7	10.2
Queue Length 95th (m)	9.2	36.6	3.8	#162.0	3.3	41.2	5.7	16.7
Internal Link Dist (m)		556.9		434.3		3096.2		305.9
Turn Bay Length (m)	40.0		40.0		40.0		40.0	
Base Capacity (vph)	123	568	352	571	515	1802	297	1778
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.40	0.03	1.23	0.03	0.44	0.10	0.20

**Intersection Summary**

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 16: Ninth Line & 5 Side Road

2021 Background PM  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	30	210	15	10	470	235	15	790	10	30	325	25
Future Volume (vph)	30	210	15	10	470	235	15	790	10	30	325	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.95		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1881		1805	1805		1805	3602		1805	3538	
Flt Permitted	0.22	1.00		0.62	1.00		0.54	1.00		0.31	1.00	
Satd. Flow (perm)	410	1881		1174	1805		1030	3602		594	3538	
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)	30	210	15	10	470	235	15	790	10	30	325	25
RTOR Reduction (vph)	0	4	0	0	30	0	0	2	0	0	10	0
Lane Group Flow (vph)	30	221	0	10	675	0	15	799	0	30	341	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	3%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		30.0	30.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		18.0	18.0		30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	123	564		352	541		515	1801		297	1769	
v/s Ratio Prot		0.12			0.37			0.22			0.10	
v/s Ratio Perm	0.07			0.01			0.01			0.05		
v/c Ratio	0.24	0.39		0.03	1.25		0.03	0.44		0.10	0.19	
Uniform Delay, d1	15.9	16.7		14.8	21.0		7.6	9.6		7.9	8.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.5		0.0	126.2		0.1	0.8		0.7	0.2	
Delay (s)	17.1	17.2		14.9	147.2		7.7	10.4		8.6	8.5	
Level of Service	B	B		B	F		A	B		A	A	
Approach Delay (s)		17.2			145.3			10.4			8.5	
Approach LOS		B			F			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			55.4				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)		12.0			
Intersection Capacity Utilization			74.0%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												