

Lanes, Volumes, Timings
4: Sixth Line South/"Street A" & Steeles Avenue

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	400	1605	5	35	880	175	10	80	75	40	20	85
Future Volume (vph)	400	1605	5	35	880	175	10	80	75	40	20	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		30.0	50.0		30.0	50.0		0.0	70.0		135.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	7.5			100.0			7.5			7.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.927				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4252	1615	1805	4715	1583	1805	1743	0	1770	1863	1583
Flt Permitted	0.232			0.141			0.744			0.659		
Satd. Flow (perm)	432	4252	1615	268	4715	1583	1414	1743	0	1228	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			165		54				150
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		463.9			497.0			166.1			330.6	
Travel Time (s)		20.9			22.4			12.0			23.8	
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 (%)	2%	22%	0%	0%	10%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	400	1605	5	35	880	175	10	80	75	40	20	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	1605	5	35	880	175	10	155	0	40	20	85
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			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	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	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	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	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
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	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		6
Detector Phase	7	4	4	3	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0

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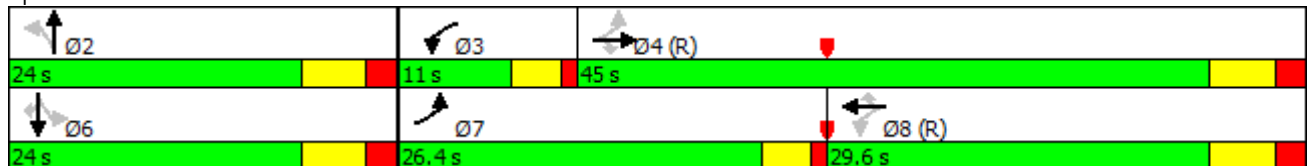


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	9.5	24.0	24.0	11.0	24.0	24.0	24.0	24.0		24.0	24.0	24.0
Total Split (s)	26.4	45.0	45.0	11.0	29.6	29.6	24.0	24.0		24.0	24.0	24.0
Total Split (%)	33.0%	56.3%	56.3%	13.8%	37.0%	37.0%	30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	22.4	39.0	39.0	7.0	23.6	23.6	18.0	18.0		18.0	18.0	18.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	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	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)		7.0	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	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effct Green (s)	52.0	43.8	43.8	38.6	30.6	30.6	18.0	18.0		18.0	18.0	18.0
Actuated g/C Ratio	0.65	0.55	0.55	0.48	0.38	0.38	0.22	0.22		0.22	0.22	0.22
v/c Ratio	0.74	0.69	0.01	0.14	0.49	0.25	0.03	0.36		0.14	0.05	0.18
Control Delay	26.8	31.0	0.0	8.7	20.9	5.3	24.7	19.7		26.5	24.8	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	26.8	31.0	0.0	8.7	20.9	5.3	24.7	19.7		26.5	24.8	1.6
LOS	C	C	A	A	C	A	C	B		C	C	A
Approach Delay		30.1			18.0			20.0			11.7	
Approach LOS		C			B			C			B	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	25.0
Intersection LOS:	C
Intersection Capacity Utilization	70.5%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 4: Sixth Line South/"Street A" & Steeles Avenue



Queues
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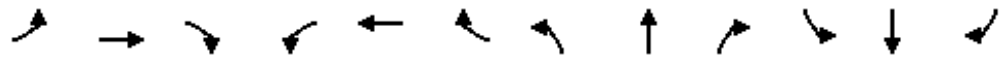
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	400	1605	5	35	880	175	10	155	40	20	85
v/c Ratio	0.74	0.69	0.01	0.14	0.49	0.25	0.03	0.36	0.14	0.05	0.18
Control Delay	26.8	31.0	0.0	8.7	20.9	5.3	24.7	19.7	26.5	24.8	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	31.0	0.0	8.7	20.9	5.3	24.7	19.7	26.5	24.8	1.6
Queue Length 50th (m)	57.8	92.7	0.0	1.7	37.6	1.0	1.3	13.3	5.2	2.5	0.0
Queue Length 95th (m)	m81.3	109.9	m0.0	4.6	57.8	15.1	5.3	29.8	13.4	8.0	2.3
Internal Link Dist (m)		439.9			473.0			142.1		306.6	
Turn Bay Length (m)	85.0		30.0	50.0		30.0	50.0		70.0		135.0
Base Capacity (vph)	655	2326	926	266	1800	706	318	434	276	419	472
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	0.61	0.69	0.01	0.13	0.49	0.25	0.03	0.36	0.14	0.05	0.18

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	400	1605	5	35	880	175	10	80	75	40	20	85
Future Volume (vph)	400	1605	5	35	880	175	10	80	75	40	20	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4252	1615	1805	4715	1583	1805	1744		1770	1863	1583
Flt Permitted	0.23	1.00	1.00	0.14	1.00	1.00	0.74	1.00		0.66	1.00	1.00
Satd. Flow (perm)	432	4252	1615	269	4715	1583	1414	1744		1227	1863	1583
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)	400	1605	5	35	880	175	10	80	75	40	20	85
RTOR Reduction (vph)	0	0	2	0	0	102	0	42	0	0	0	66
Lane Group Flow (vph)	400	1605	3	35	880	73	10	113	0	40	20	19
Heavy Vehicles (%)	2%	22%	0%	0%	10%	2%	0%	2%	0%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	50.0	42.2	42.2	34.4	30.6	30.6	18.0	18.0		18.0	18.0	18.0
Effective Green, g (s)	50.0	42.2	42.2	34.4	30.6	30.6	18.0	18.0		18.0	18.0	18.0
Actuated g/C Ratio	0.62	0.53	0.53	0.43	0.38	0.38	0.22	0.22		0.22	0.22	0.22
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	527	2242	851	188	1803	605	318	392		276	419	356
v/s Ratio Prot	c0.15	0.38		0.01	0.19			c0.06			0.01	
v/s Ratio Perm	c0.33		0.00	0.07		0.05	0.01			0.03		0.01
v/c Ratio	0.76	0.72	0.00	0.19	0.49	0.12	0.03	0.29		0.14	0.05	0.05
Uniform Delay, d1	8.8	14.3	8.9	13.3	18.8	16.0	24.2	25.7		24.8	24.3	24.3
Progression Factor	2.45	2.07	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.1	1.3	0.0	0.5	0.9	0.4	0.2	1.9		1.1	0.2	0.3
Delay (s)	25.8	31.0	8.9	13.7	19.7	16.4	24.4	27.5		25.9	24.5	24.6
Level of Service	C	C	A	B	B	B	C	C		C	C	C
Approach Delay (s)		29.9			19.0			27.4			25.0	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1470	20	45	1075	300	5	5	15	345	10	555
Future Volume (vph)	120	1470	20	45	1075	300	5	5	15	345	10	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		55.0	30.0		55.0	0.0		0.0	100.0		100.0
Storage Lanes	1		1	1		1	2		0	2		1
Taper Length (m)	55.0			90.0			7.5			45.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.887				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4673	1404	1752	4287	1482	2633	1536	0	3467	1900	1599
Flt Permitted	0.165			0.175			0.950			0.950		
Satd. Flow (perm)	299	4673	1404	323	4287	1482	2633	1536	0	3467	1900	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			205			300		15				418
Link Speed (k/h)		60			60			50				70
Link Distance (m)		200.7			870.8			218.1				564.0
Travel Time (s)		12.0			52.2			15.7				29.0
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 (%)	5%	11%	15%	3%	21%	9%	33%	0%	13%	1%	0%	1%
Adj. Flow (vph)	120	1470	20	45	1075	300	5	5	15	345	10	555
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	1470	20	45	1075	300	5	20	0	345	10	555
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2				7.2
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	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	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	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
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	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		5.0	10.0	10.0

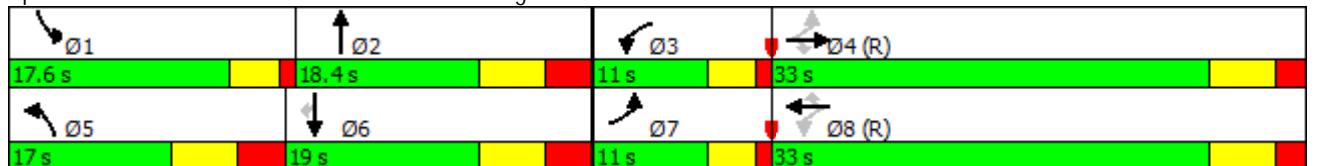


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	26.0	26.0	11.0	26.0	26.0	17.0	17.0		9.5	17.0	17.0
Total Split (s)	11.0	33.0	33.0	11.0	33.0	33.0	17.0	18.4		17.6	19.0	19.0
Total Split (%)	13.8%	41.3%	41.3%	13.8%	41.3%	41.3%	21.3%	23.0%		22.0%	23.8%	23.8%
Maximum Green (s)	7.0	27.0	27.0	7.0	27.0	27.0	10.0	11.4		13.6	12.0	12.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	3.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	4.0	4.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0				
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		21.0				
Pedestrian Calls (#/hr)		0	0		0	0		0				
Act Effct Green (s)	37.6	31.4	31.4	36.8	29.2	29.2	10.0	10.6		24.6	25.6	25.6
Actuated g/C Ratio	0.47	0.39	0.39	0.46	0.36	0.36	0.12	0.13		0.31	0.32	0.32
v/c Ratio	0.45	0.80	0.03	0.16	0.69	0.41	0.02	0.09		0.32	0.02	0.70
Control Delay	16.8	27.4	0.1	11.8	25.1	4.5	30.8	18.5		25.0	23.5	13.5
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	16.8	27.4	0.1	11.8	25.1	4.5	30.8	18.5		25.0	23.5	13.5
LOS	B	C	A	B	C	A	C	B		C	C	B
Approach Delay		26.3			20.3			21.0			18.0	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	22.2
Intersection LOS:	C
Intersection Capacity Utilization:	80.1%
ICU Level of Service:	D
Analysis Period (min):	15

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



Queues

2031 Total AM - Remedial Measures

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	120	1470	20	45	1075	300	5	20	345	10	555
v/c Ratio	0.45	0.80	0.03	0.16	0.69	0.41	0.02	0.09	0.32	0.02	0.70
Control Delay	16.8	27.4	0.1	11.8	25.1	4.5	30.8	18.5	25.0	23.5	13.5
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	16.8	27.4	0.1	11.8	25.1	4.5	30.8	18.5	25.0	23.5	13.5
Queue Length 50th (m)	9.8	82.1	0.0	3.5	54.9	0.0	0.3	0.7	18.4	1.0	15.0
Queue Length 95th (m)	18.8	#113.3	0.0	8.6	70.7	16.4	2.0	6.7	39.9	5.8	#85.6
Internal Link Dist (m)		176.7			846.8			194.1		540.0	
Turn Bay Length (m)	130.0		55.0	30.0		55.0			100.0		100.0
Base Capacity (vph)	264	1834	675	273	1564	731	329	231	1067	607	796
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.80	0.03	0.16	0.69	0.41	0.02	0.09	0.32	0.02	0.70

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

2031 Total AM - Remedial Measures

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1470	20	45	1075	300	5	5	15	345	10	555
Future Volume (vph)	120	1470	20	45	1075	300	5	5	15	345	10	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		4.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	4673	1404	1752	4287	1482	2633	1536		3467	1900	1599
Flt Permitted	0.17	1.00	1.00	0.18	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	299	4673	1404	324	4287	1482	2633	1536		3467	1900	1599
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	1470	20	45	1075	300	5	5	15	345	10	555
RTOR Reduction (vph)	0	0	14	0	0	215	0	14	0	0	0	284
Lane Group Flow (vph)	120	1470	6	45	1075	86	5	6	0	345	10	271
Heavy Vehicles (%)	5%	11%	15%	3%	21%	9%	33%	0%	13%	1%	0%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Actuated Green, G (s)	29.8	24.2	24.2	27.0	22.8	22.8	2.0	6.0		24.6	25.6	25.6
Effective Green, g (s)	29.8	24.2	24.2	27.0	22.8	22.8	2.0	6.0		24.6	25.6	25.6
Actuated g/C Ratio	0.37	0.30	0.30	0.34	0.29	0.29	0.02	0.08		0.31	0.32	0.32
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	4.0	4.0		3.0	3.0	3.0
Lane Grp Cap (vph)	210	1413	424	184	1221	422	65	115		1066	608	511
v/s Ratio Prot	c0.04	c0.31		0.01	0.25		0.00	0.00		c0.10	0.01	
v/s Ratio Perm	0.17		0.00	0.07		0.06						c0.17
v/c Ratio	0.57	1.04	0.01	0.24	0.88	0.20	0.08	0.05		0.32	0.02	0.53
Uniform Delay, d1	18.0	27.9	19.5	19.8	27.3	21.7	38.1	34.4		21.3	18.6	22.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.7	35.1	0.1	0.7	9.3	1.1	0.7	0.3		0.2	0.0	3.9
Delay (s)	21.7	63.0	19.6	20.5	36.6	22.8	38.8	34.6		21.5	18.6	26.2
Level of Service	C	E	B	C	D	C	D	C		C	B	C
Approach Delay (s)		59.4			33.1			35.5			24.3	
Approach LOS		E			C			D			C	

Intersection Summary

HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	10	5	560	2115	505
Future Volume (vph)	120	10	5	560	2115	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	50.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		100.0			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91
Frt		0.850			0.971	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1444	1380	1203	4472	4841	0
Flt Permitted	0.950		0.045			
Satd. Flow (perm)	1444	1380	57	4472	4841	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		10			133	
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)	120	10	5	560	2115	505
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	10	5	560	2620	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	
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	1	1	2	2	
Detector Template	Left	Right	Left	Thru	Thru	
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	2.0	2.0	0.6	0.6	
Detector 1 Type	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	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	2			8	4	
Permitted Phases		2	8			
Detector Phase	2	2	8	8	4	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	

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

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

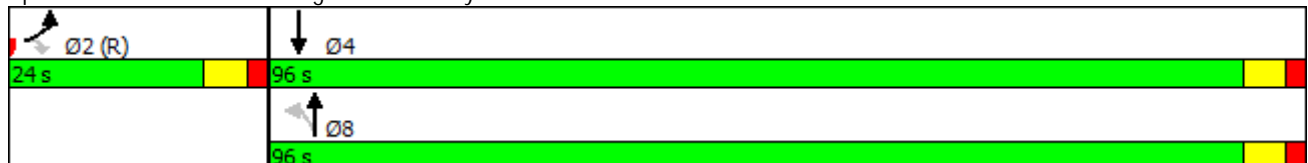


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	
Total Split (s)	24.0	24.0	96.0	96.0	96.0	
Total Split (%)	20.0%	20.0%	80.0%	80.0%	80.0%	
Maximum Green (s)	18.0	18.0	90.0	90.0	90.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effct Green (s)	19.7	19.7	88.3	88.3	88.3	
Actuated g/C Ratio	0.16	0.16	0.74	0.74	0.74	
v/c Ratio	0.51	0.04	0.12	0.17	0.73	
Control Delay	55.1	22.3	11.2	4.8	9.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	55.1	22.3	11.2	4.8	9.8	
LOS	E	C	B	A	A	
Approach Delay	52.6			4.9	9.8	
Approach LOS	D			A	A	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBL and 6:, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	10.6
Intersection LOS:	B
Intersection Capacity Utilization	68.8%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 11: Trafalgar Rd & Hornby Rd



Queues
11: Trafalgar Rd & Hornby Rd

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



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	120	10	5	560	2620
v/c Ratio	0.51	0.04	0.12	0.17	0.73
Control Delay	55.1	22.3	11.2	4.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	22.3	11.2	4.8	9.8
Queue Length 50th (m)	27.9	0.0	0.3	12.5	104.5
Queue Length 95th (m)	48.7	5.2	2.1	16.1	119.1
Internal Link Dist (m)	30.4			111.9	191.8
Turn Bay Length (m)		50.0	30.0		
Base Capacity (vph)	237	235	42	3354	3664
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.04	0.12	0.17	0.72
Intersection Summary					

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

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	10	5	560	2115	505
Future Volume (vph)	120	10	5	560	2115	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1444	1380	1203	4472	4842	
Flt Permitted	0.95	1.00	0.05	1.00	1.00	
Satd. Flow (perm)	1444	1380	57	4472	4842	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	10	5	560	2115	505
RTOR Reduction (vph)	0	8	0	0	35	0
Lane Group Flow (vph)	120	2	5	560	2585	0
Heavy Vehicles (%)	25%	17%	50%	16%	5%	0%
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	2			8	4	
Permitted Phases		2	8			
Actuated Green, G (s)	19.7	19.7	88.3	88.3	88.3	
Effective Green, g (s)	19.7	19.7	88.3	88.3	88.3	
Actuated g/C Ratio	0.16	0.16	0.74	0.74	0.74	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	226	41	3290	3562	
v/s Ratio Prot	c0.08			0.13	c0.53	
v/s Ratio Perm		0.00	0.09			
v/c Ratio	0.51	0.01	0.12	0.17	0.73	
Uniform Delay, d1	45.7	42.0	4.6	4.8	9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.5	0.1	1.3	0.0	0.8	
Delay (s)	53.3	42.0	5.9	4.8	9.7	
Level of Service	D	D	A	A	A	
Approach Delay (s)	52.4			4.8	9.7	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

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

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖			↕	
Traffic Volume (vph)	15	820	235	20	280	5	20	20	50	35	40	25
Future Volume (vph)	15	820	235	20	280	5	20	20	50	35	40	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970			0.998			0.893			0.966	
Flt Protected		0.999			0.997		0.950				0.983	
Satd. Flow (prot)	0	1792	0	0	1798	0	1805	1513	0	0	1743	0
Flt Permitted		0.999			0.997		0.950				0.983	
Satd. Flow (perm)	0	1792	0	0	1798	0	1805	1513	0	0	1743	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)	15	820	235	20	280	5	20	20	50	35	40	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1070	0	0	305	0	20	70	0	0	100	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	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	80.6%
ICU Level of Service	D
Analysis Period (min)	15

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

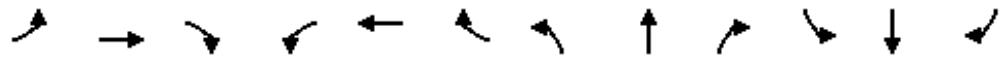
2031 Total AM - Remedial Measures
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Volume (veh/h)	15	820	235	20	280	5	20	20	50	35	40	25
Future Volume (Veh/h)	15	820	235	20	280	5	20	20	50	35	40	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)	15	820	235	20	280	5	20	20	50	35	40	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	285			1055			1335	1292	938	1350	1408	282
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	285			1055			1335	1292	938	1350	1408	282
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 %	99			97			79	87	83	61	70	97
cM capacity (veh/h)	1211			668			95	157	301	89	134	761
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	1070	305	20	70	100							
Volume Left	15	20	20	0	35							
Volume Right	235	5	0	50	25							
cSH	1211	668	95	239	138							
Volume to Capacity	0.01	0.03	0.21	0.29	0.72							
Queue Length 95th (m)	0.3	0.7	5.9	9.4	33.4							
Control Delay (s)	0.4	1.0	52.6	26.2	79.6							
Lane LOS	A	A	F	D	F							
Approach Delay (s)	0.4	1.0	32.1		79.6							
Approach LOS			D		F							
Intersection Summary												
Average Delay			7.4									
Intersection Capacity Utilization			80.6%		ICU Level of Service				D			
Analysis Period (min)			15									

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

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	550	260	170	155	15	35	630	75	45	2255	50
Future Volume (vph)	55	550	260	170	155	15	35	630	75	45	2255	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		115.0	75.0		0.0	40.0		20.0	50.0		20.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	80.0			80.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	3539	1568	1687	3347	0	1444	4150	1357	1480	4848	1292
Flt Permitted	0.644			0.159			0.058			0.377		
Satd. Flow (perm)	1123	3539	1568	282	3347	0	88	4150	1357	587	4848	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126		7				126			126
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		223.8			665.2			264.1			262.0	
Travel Time (s)		13.4			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)	55	550	260	170	155	15	35	630	75	45	2255	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	550	260	170	170	0	35	630	75	45	2255	50
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	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
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	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
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	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		7.0	25.0	25.0	7.0	25.0	25.0

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

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

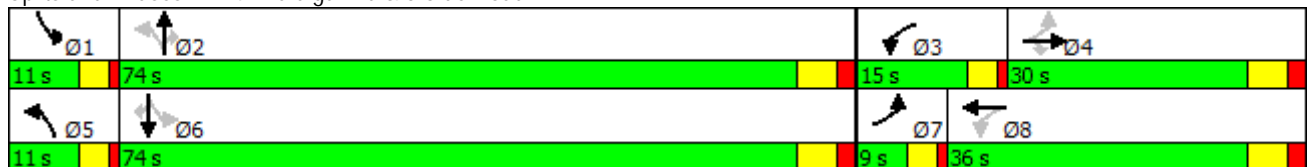


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	9.0	22.0	22.0	9.0	22.0		11.0	32.0	32.0	11.0	32.0	32.0
Total Split (s)	9.0	30.0	30.0	15.0	36.0		11.0	74.0	74.0	11.0	74.0	74.0
Total Split (%)	6.9%	23.1%	23.1%	11.5%	27.7%		8.5%	56.9%	56.9%	8.5%	56.9%	56.9%
Maximum Green (s)	5.0	24.0	24.0	11.0	30.0		7.0	68.0	68.0	7.0	68.0	68.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	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	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	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			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	30.4	23.4	23.4	40.4	31.4		75.6	68.1	68.1	76.4	70.3	70.3
Actuated g/C Ratio	0.24	0.18	0.18	0.32	0.25		0.59	0.54	0.54	0.60	0.55	0.55
v/c Ratio	0.19	0.84	0.66	0.81	0.20		0.28	0.28	0.10	0.11	0.84	0.07
Control Delay	34.3	63.4	33.9	63.0	38.7		15.1	17.1	0.5	10.3	28.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	63.4	33.9	63.0	38.7		15.1	17.1	0.5	10.3	28.5	0.2
LOS	C	E	C	E	D		B	B	A	B	C	A
Approach Delay		52.7			50.8			15.3			27.5	
Approach LOS		D			D			B			C	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	127.2
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	32.3
Intersection LOS:	C
Intersection Capacity Utilization:	82.4%
ICU Level of Service:	E
Analysis Period (min):	15

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



Queues

2031 Total AM - Remedial Measures

14: Trafalgar Rd & 5 Side Road

Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	550	260	170	170	35	630	75	45	2255	50
v/c Ratio	0.19	0.84	0.66	0.81	0.20	0.28	0.28	0.10	0.11	0.84	0.07
Control Delay	34.3	63.4	33.9	63.0	38.7	15.1	17.1	0.5	10.3	28.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	63.4	33.9	63.0	38.7	15.1	17.1	0.5	10.3	28.5	0.2
Queue Length 50th (m)	10.5	76.2	33.7	34.9	18.8	3.4	33.8	0.0	4.4	192.2	0.0
Queue Length 95th (m)	21.1	#103.5	65.3	#65.8	29.4	7.8	42.6	1.1	9.5	216.6	0.0
Internal Link Dist (m)		199.8			641.2		240.1			238.0	
Turn Bay Length (m)	40.0		115.0	75.0		40.0		20.0	50.0		20.0
Base Capacity (vph)	289	669	398	211	831	127	2222	784	401	2678	769
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	0.19	0.82	0.65	0.81	0.20	0.28	0.28	0.10	0.11	0.84	0.07

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	550	260	170	155	15	35	630	75	45	2255	50
Future Volume (vph)	55	550	260	170	155	15	35	630	75	45	2255	50
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		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1656	3539	1568	1687	3346		1444	4150	1357	1480	4848	1292
Flt Permitted	0.64	1.00	1.00	0.16	1.00		0.06	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	1123	3539	1568	283	3346		88	4150	1357	587	4848	1292
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	550	260	170	155	15	35	630	75	45	2255	50
RTOR Reduction (vph)	0	0	102	0	5	0	0	0	35	0	0	23
Lane Group Flow (vph)	55	550	158	170	165	0	35	630	40	45	2255	27
Heavy Vehicles (%)	9%	2%	3%	7%	1%	63%	25%	25%	19%	22%	7%	25%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	28.2	24.3	24.3	39.3	31.4		73.0	68.9	68.9	75.8	70.3	70.3
Effective Green, g (s)	28.2	24.3	24.3	39.3	31.4		73.0	68.9	68.9	75.8	70.3	70.3
Actuated g/C Ratio	0.22	0.19	0.19	0.30	0.24		0.56	0.53	0.53	0.58	0.54	0.54
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	260	663	293	204	810		92	2204	720	380	2627	700
v/s Ratio Prot	0.01	0.16		c0.07	0.05		c0.01	0.15		0.01	c0.47	
v/s Ratio Perm	0.04		0.10	c0.18			0.20		0.03	0.06		0.02
v/c Ratio	0.21	0.83	0.54	0.83	0.20		0.38	0.29	0.06	0.12	0.86	0.04
Uniform Delay, d1	41.1	50.7	47.6	36.7	39.2		21.1	16.8	14.7	11.6	25.4	13.9
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	0.4	9.5	3.4	24.3	0.3		2.6	0.3	0.1	0.1	3.9	0.1
Delay (s)	41.5	60.2	51.1	60.9	39.4		23.7	17.1	14.8	11.8	29.4	14.0
Level of Service	D	E	D	E	D		C	B	B	B	C	B
Approach Delay (s)		56.2			50.2			17.2			28.7	
Approach LOS		E			D			B			C	

Intersection Summary

HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	129.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
19: Trafalgar Road & "Street B"

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	0	35	115	0	40	85	485	470	160	1880	105
Future Volume (vph)	40	0	35	115	0	40	85	485	470	160	1880	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	105.0		0.0	50.0		50.0	50.0		50.0
Storage Lanes	1		0	1		0	1		1	1		1
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	0.91	1.00	1.00	0.91	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	5085	1583	1770	5085	1583
Flt Permitted	0.731			0.734			0.114			0.449		
Satd. Flow (perm)	1362	1583	0	1367	1583	0	212	5085	1583	836	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		161			407				470			96
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		142.2			131.5			68.3			90.8	
Travel Time (s)		10.2			9.5			3.1			4.1	
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
Adj. Flow (vph)	40	0	35	115	0	40	85	485	470	160	1880	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	35	0	115	40	0	85	485	470	160	1880	105
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	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
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	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
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	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0		24.0	24.0		9.5	24.0	24.0	9.5	24.0	24.0

Lanes, Volumes, Timings
19: Trafalgar Road & "Street B"

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

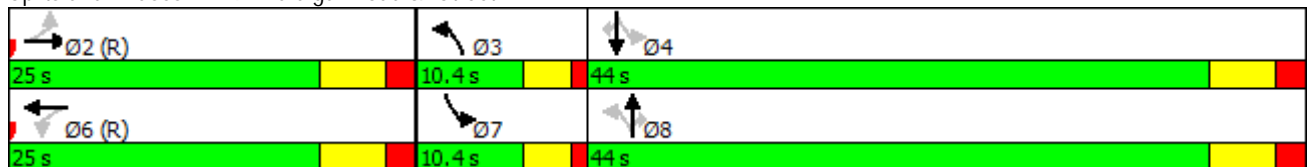


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	25.0	25.0		25.0	25.0		10.4	44.0	44.0	10.4	44.0	44.0
Total Split (%)	31.5%	31.5%		31.5%	31.5%		13.1%	55.4%	55.4%	13.1%	55.4%	55.4%
Maximum Green (s)	19.0	19.0		19.0	19.0		6.4	38.0	38.0	6.4	38.0	38.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
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	C-Max	C-Max		C-Max	C-Max		None	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)	11.0	11.0		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	0	0
Act Effct Green (s)	22.6	22.6		22.6	22.6		42.6	34.4	34.4	43.6	36.5	36.5
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.43	0.43	0.55	0.46	0.46
v/c Ratio	0.10	0.06		0.30	0.05		0.36	0.22	0.49	0.30	0.81	0.13
Control Delay	24.6	0.2		27.2	0.1		10.4	13.7	3.2	8.1	21.5	3.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	0.2		27.2	0.1		10.4	13.7	3.2	8.1	21.5	3.6
LOS	C	A		C	A		B	B	A	A	C	A
Approach Delay		13.2			20.2			8.7			19.6	
Approach LOS		B			C			A			B	

Intersection Summary

Area Type: Other
 Cycle Length: 79.4
 Actuated Cycle Length: 79.4
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 16.2 Intersection LOS: B
 Intersection Capacity Utilization 67.4% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 19: Trafalgar Road & "Street B"



Queues
19: Trafalgar Road & "Street B"

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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	35	115	40	85	485	470	160	1880	105
v/c Ratio	0.10	0.06	0.30	0.05	0.36	0.22	0.49	0.30	0.81	0.13
Control Delay	24.6	0.2	27.2	0.1	10.4	13.7	3.2	8.1	21.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	0.2	27.2	0.1	10.4	13.7	3.2	8.1	21.5	3.6
Queue Length 50th (m)	5.0	0.0	15.2	0.0	4.6	15.4	0.0	9.0	85.9	0.7
Queue Length 95th (m)	12.9	0.0	30.2	0.0	9.5	21.7	14.9	16.3	105.2	8.5
Internal Link Dist (m)		118.2		107.5		44.3			66.8	
Turn Bay Length (m)	50.0		105.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	387	566	389	742	239	2433	1002	533	2433	807
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.06	0.30	0.05	0.36	0.20	0.47	0.30	0.77	0.13
Intersection Summary										

HCM Signalized Intersection Capacity Analysis
 19: Trafalgar Road & "Street B"

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



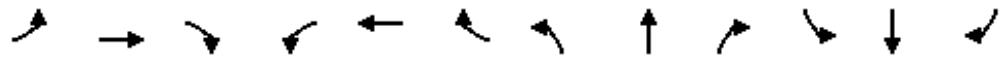
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	0	35	115	0	40	85	485	470	160	1880	105
Future Volume (vph)	40	0	35	115	0	40	85	485	470	160	1880	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1583		1770	1583		1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.73	1.00		0.11	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	1362	1583		1368	1583		212	5085	1583	837	5085	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	0	35	115	0	40	85	485	470	160	1880	105
RTOR Reduction (vph)	0	25	0	0	29	0	0	0	262	0	0	52
Lane Group Flow (vph)	40	10	0	115	11	0	85	485	208	160	1880	53
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	21.8	21.8		21.8	21.8		40.3	35.2	35.2	42.9	36.5	36.5
Effective Green, g (s)	21.8	21.8		21.8	21.8		40.3	35.2	35.2	42.9	36.5	36.5
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.51	0.44	0.44	0.54	0.46	0.46
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	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)	373	434		375	434		207	2254	701	527	2337	727
v/s Ratio Prot		0.01			0.01		c0.03	0.10		0.02	c0.37	
v/s Ratio Perm	0.03			c0.08			0.18		0.13	0.14		0.03
v/c Ratio	0.11	0.02		0.31	0.03		0.41	0.22	0.30	0.30	0.80	0.07
Uniform Delay, d1	21.5	21.0		22.8	21.0		13.0	13.6	14.2	9.2	18.4	12.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1		2.1	0.1		1.3	0.0	0.2	0.3	2.1	0.0
Delay (s)	22.1	21.1		24.9	21.1		14.3	13.6	14.4	9.6	20.5	12.0
Level of Service	C	C		C	C		B	B	B	A	C	B
Approach Delay (s)		21.6			23.9			14.0			19.3	
Approach LOS		C			C			B			B	

Intersection Summary		
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.60	B
Actuated Cycle Length (s)	79.4	Sum of lost time (s)
Intersection Capacity Utilization	67.4%	16.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Lanes, Volumes, Timings
4: Sixth Line South/"Street A" & Steeles Avenue

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	740	10	120	2370	30	5	25	55	175	80	395
Future Volume (vph)	175	740	10	120	2370	30	5	25	55	175	80	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		30.0	50.0		30.0	50.0		0.0	70.0		135.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	7.5			100.0			7.5			7.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t			0.850			0.850		0.897				0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4252	1615	1805	4715	1583	1805	1694	0	1770	1863	1583
Fl _t Permitted	0.052			0.359			0.705			0.705		
Satd. Flow (perm)	97	4252	1615	682	4715	1583	1340	1694	0	1313	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			59			92		55				124
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		463.9			497.0			166.1			330.6	
Travel Time (s)		20.9			22.4			12.0			23.8	
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 (%)	2%	22%	0%	0%	10%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	175	740	10	120	2370	30	5	25	55	175	80	395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	175	740	10	120	2370	30	5	80	0	175	80	395
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			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	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	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	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	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
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	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		6
Detector Phase	7	4	4	3	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0

Lanes, Volumes, Timings
4: Sixth Line South/"Street A" & Steeles Avenue

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

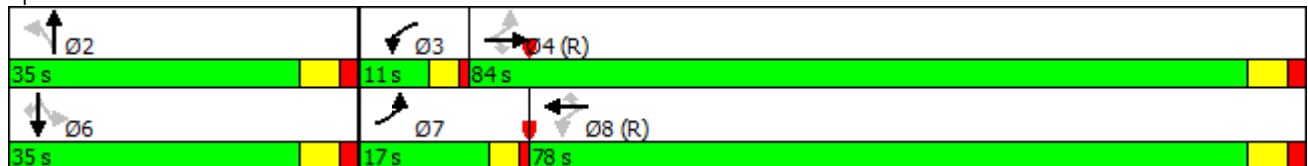


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	9.5	24.0	24.0	11.0	24.0	24.0	24.0	24.0		24.0	24.0	24.0
Total Split (s)	17.0	84.0	84.0	11.0	78.0	78.0	35.0	35.0		35.0	35.0	35.0
Total Split (%)	13.1%	64.6%	64.6%	8.5%	60.0%	60.0%	26.9%	26.9%		26.9%	26.9%	26.9%
Maximum Green (s)	13.0	78.0	78.0	7.0	72.0	72.0	29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	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	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)		7.0	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	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effct Green (s)	90.5	78.1	78.1	82.2	73.3	73.3	29.0	29.0		29.0	29.0	29.0
Actuated g/C Ratio	0.70	0.60	0.60	0.63	0.56	0.56	0.22	0.22		0.22	0.22	0.22
v/c Ratio	0.81	0.29	0.01	0.24	0.89	0.03	0.02	0.19		0.60	0.19	0.88
Control Delay	56.6	12.9	0.0	8.0	30.6	0.1	39.8	17.3		55.0	42.5	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	56.6	12.9	0.0	8.0	30.6	0.1	39.8	17.3		55.0	42.5	54.8
LOS	E	B	A	A	C	A	D	B		E	D	D
Approach Delay		21.0			29.1			18.7			53.4	
Approach LOS		C			C			B			D	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.89
Intersection Signal Delay:	30.9
Intersection Capacity Utilization:	89.4%
Analysis Period (min):	15
Intersection LOS:	C
ICU Level of Service:	E

Splits and Phases: 4: Sixth Line South/"Street A" & Steeles Avenue



Queues
4: Sixth Line South/"Street A" & Steeles Avenue

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	175	740	10	120	2370	30	5	80	175	80	395
v/c Ratio	0.81	0.29	0.01	0.24	0.89	0.03	0.02	0.19	0.60	0.19	0.88
Control Delay	56.6	12.9	0.0	8.0	30.6	0.1	39.8	17.3	55.0	42.5	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	12.9	0.0	8.0	30.6	0.1	39.8	17.3	55.0	42.5	54.8
Queue Length 50th (m)	29.3	33.5	0.0	9.4	201.9	0.0	1.1	5.4	42.7	17.6	74.0
Queue Length 95th (m)	#63.8	41.5	0.0	15.9	227.9	0.0	4.7	19.1	68.8	32.2	#132.5
Internal Link Dist (m)		439.9			473.0			142.1		306.6	
Turn Bay Length (m)	85.0		30.0	50.0		30.0	50.0		70.0		135.0
Base Capacity (vph)	235	2554	993	492	2659	932	298	420	292	415	449
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	0.74	0.29	0.01	0.24	0.89	0.03	0.02	0.19	0.60	0.19	0.88

Intersection Summary

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

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	740	10	120	2370	30	5	25	55	175	80	395
Future Volume (vph)	175	740	10	120	2370	30	5	25	55	175	80	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4252	1615	1805	4715	1583	1805	1693		1770	1863	1583
Flt Permitted	0.05	1.00	1.00	0.36	1.00	1.00	0.70	1.00		0.70	1.00	1.00
Satd. Flow (perm)	96	4252	1615	682	4715	1583	1339	1693		1313	1863	1583
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)	175	740	10	120	2370	30	5	25	55	175	80	395
RTOR Reduction (vph)	0	0	4	0	0	13	0	43	0	0	0	96
Lane Group Flow (vph)	175	740	6	120	2370	17	5	37	0	175	80	299
Heavy Vehicles (%)	2%	22%	0%	0%	10%	2%	0%	2%	0%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	89.0	78.1	78.1	80.2	73.3	73.3	29.0	29.0		29.0	29.0	29.0
Effective Green, g (s)	89.0	78.1	78.1	80.2	73.3	73.3	29.0	29.0		29.0	29.0	29.0
Actuated g/C Ratio	0.68	0.60	0.60	0.62	0.56	0.56	0.22	0.22		0.22	0.22	0.22
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	216	2554	970	480	2658	892	298	377		292	415	353
v/s Ratio Prot	c0.07	0.17		0.01	c0.50			0.02			0.04	
v/s Ratio Perm	0.48		0.00	0.14		0.01	0.00			0.13		c0.19
v/c Ratio	0.81	0.29	0.01	0.25	0.89	0.02	0.02	0.10		0.60	0.19	0.85
Uniform Delay, d1	38.5	12.5	10.4	10.2	24.9	12.5	39.4	40.1		45.3	41.0	48.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.0	0.3	0.0	0.3	5.0	0.0	0.1	0.5		8.8	1.0	21.4
Delay (s)	58.5	12.8	10.4	10.5	29.9	12.5	39.5	40.6		54.1	42.0	69.8
Level of Service	E	B	B	B	C	B	D	D		D	D	E
Approach Delay (s)		21.5			28.8			40.6			62.1	
Approach LOS		C			C			D			E	

Intersection Summary

HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	1515	25	180	2095	320	85	45	155	370	30	95
Future Volume (vph)	340	1515	25	180	2095	320	85	45	155	370	30	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		55.0	30.0		55.0	0.0		0.0	100.0		100.0
Storage Lanes	1		1	1		1	2		0	2		1
Taper Length (m)	55.0			90.0			7.5			45.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Fr _t			0.850			0.850		0.884				0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	4631	1615	1770	4848	1599	3367	1654	0	3400	1900	1583
Fl _t Permitted	0.068			0.122			0.950			0.950		
Satd. Flow (perm)	129	4631	1615	227	4848	1599	3367	1654	0	3400	1900	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			185		113				127
Link Speed (k/h)		60			60			50			70	
Link Distance (m)		200.7			870.8			218.1			564.0	
Travel Time (s)		12.0			52.2			15.7			29.0	
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 (%)	0%	12%	0%	2%	7%	1%	4%	0%	2%	3%	0%	2%
Adj. Flow (vph)	340	1515	25	180	2095	320	85	45	155	370	30	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	1515	25	180	2095	320	85	200	0	370	30	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	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	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	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
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	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		5.0	10.0	10.0

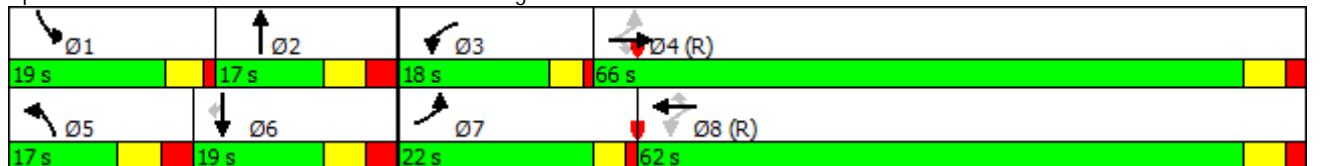


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	26.0	26.0	11.0	26.0	26.0	17.0	17.0		9.5	17.0	17.0
Total Split (s)	22.0	66.0	66.0	18.0	62.0	62.0	17.0	17.0		19.0	19.0	19.0
Total Split (%)	18.3%	55.0%	55.0%	15.0%	51.7%	51.7%	14.2%	14.2%		15.8%	15.8%	15.8%
Maximum Green (s)	18.0	60.0	60.0	14.0	56.0	56.0	10.0	10.0		14.5	12.0	12.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	3.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		4.5	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	4.0	4.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0				
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		21.0				
Pedestrian Calls (#/hr)		0	0		0	0		0				
Act Effct Green (s)	80.0	63.2	63.2	68.8	56.0	56.0	10.0	10.0		14.5	15.4	15.4
Actuated g/C Ratio	0.67	0.53	0.53	0.57	0.47	0.47	0.08	0.08		0.12	0.13	0.13
v/c Ratio	1.01	0.62	0.03	0.67	0.93	0.38	0.30	0.83		0.90	0.12	0.30
Control Delay	75.6	18.8	0.0	26.9	38.5	9.6	54.9	51.5		78.0	50.9	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	75.6	18.8	0.0	26.9	38.5	9.6	54.9	51.5		78.0	50.9	6.3
LOS	E	B	A	C	D	A	D	D		E	D	A
Approach Delay		28.8			34.1			52.5			62.6	
Approach LOS		C			C			D			E	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.01
Intersection Signal Delay:	35.9
Intersection LOS:	D
Intersection Capacity Utilization:	99.7%
ICU Level of Service:	F
Analysis Period (min):	15

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



Queues

2031 Total PM - Remedial Measures

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	340	1515	25	180	2095	320	85	200	370	30	95
v/c Ratio	1.01	0.62	0.03	0.67	0.93	0.38	0.30	0.83	0.90	0.12	0.30
Control Delay	75.6	18.8	0.0	26.9	38.5	9.6	54.9	51.5	78.0	50.9	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	18.8	0.0	26.9	38.5	9.6	54.9	51.5	78.0	50.9	6.3
Queue Length 50th (m)	~69.7	86.6	0.0	15.2	174.3	19.0	10.4	21.2	47.3	6.9	0.0
Queue Length 95th (m)	#126.3	113.7	m0.0	36.5	199.3	40.5	18.8	#62.2	#75.4	16.7	8.8
Internal Link Dist (m)		176.7			846.8			194.1		540.0	
Turn Bay Length (m)	130.0		55.0	30.0		55.0			100.0		100.0
Base Capacity (vph)	337	2438	914	316	2262	844	280	241	410	244	313
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	1.01	0.62	0.03	0.57	0.93	0.38	0.30	0.83	0.90	0.12	0.30

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2031 Total PM - Remedial Measures

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	1515	25	180	2095	320	85	45	155	370	30	95
Future Volume (vph)	340	1515	25	180	2095	320	85	45	155	370	30	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		4.5	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1805	4631	1615	1770	4848	1599	3367	1653		3400	1900	1583
Flt Permitted	0.07	1.00	1.00	0.12	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	130	4631	1615	228	4848	1599	3367	1653		3400	1900	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	1515	25	180	2095	320	85	45	155	370	30	95
RTOR Reduction (vph)	0	0	12	0	0	101	0	102	0	0	0	83
Lane Group Flow (vph)	340	1515	13	180	2095	219	85	98	0	370	30	12
Heavy Vehicles (%)	0%	12%	0%	2%	7%	1%	4%	0%	2%	3%	0%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Actuated Green, G (s)	76.6	61.8	61.8	65.4	54.6	54.6	8.0	11.4		14.5	15.4	15.4
Effective Green, g (s)	76.6	61.8	61.8	65.4	54.6	54.6	8.0	11.4		14.5	15.4	15.4
Actuated g/C Ratio	0.64	0.51	0.51	0.55	0.46	0.46	0.07	0.10		0.12	0.13	0.13
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		4.5	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	4.0	4.0		3.0	3.0	3.0
Lane Grp Cap (vph)	334	2384	831	263	2205	727	224	157		410	243	203
v/s Ratio Prot	c0.15	0.33		0.06	0.43		0.03	c0.06		c0.11	c0.02	
v/s Ratio Perm	c0.50		0.01	0.31		0.14						0.01
v/c Ratio	1.02	0.64	0.02	0.68	0.95	0.30	0.38	0.62		0.90	0.12	0.06
Uniform Delay, d1	39.9	21.0	14.2	15.5	31.4	20.7	53.6	52.2		52.1	46.3	45.9
Progression Factor	0.89	0.87	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	46.0	0.9	0.0	7.2	10.6	1.1	1.5	8.4		22.5	1.0	0.6
Delay (s)	81.3	19.3	14.3	22.7	42.0	21.7	55.1	60.7		74.6	47.4	46.5
Level of Service	F	B	B	C	D	C	E	E		E	D	D
Approach Delay (s)		30.4			38.1			59.0			67.6	
Approach LOS		C			D			E			E	

Intersection Summary

HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

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

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	520	10	5	1855	635	225
Future Volume (vph)	520	10	5	1855	635	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	50.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		100.0			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91
Frt		0.850			0.961	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	5085	4912	0
Flt Permitted	0.950		0.277			
Satd. Flow (perm)	1805	1615	526	5085	4912	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		6			123	
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)	520	10	5	1855	635	225
Shared Lane Traffic (%)						
Lane Group Flow (vph)	520	10	5	1855	860	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	
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	1	1	2	2	
Detector Template	Left	Right	Left	Thru	Thru	
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	2.0	2.0	0.6	0.6	
Detector 1 Type	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	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	2			8	4	
Permitted Phases		2	8			
Detector Phase	2	2	8	8	4	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	

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

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

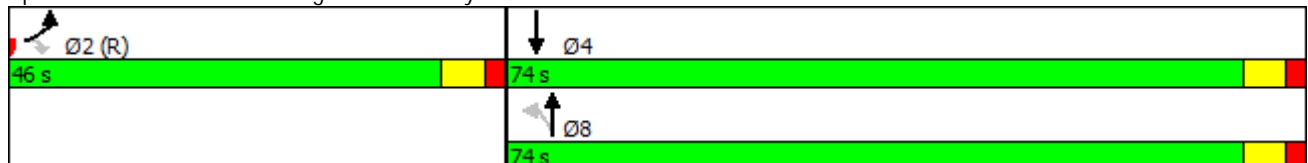


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	
Total Split (s)	46.0	46.0	74.0	74.0	74.0	
Total Split (%)	38.3%	38.3%	61.7%	61.7%	61.7%	
Maximum Green (s)	40.0	40.0	68.0	68.0	68.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effct Green (s)	50.8	50.8	57.2	57.2	57.2	
Actuated g/C Ratio	0.42	0.42	0.48	0.48	0.48	
v/c Ratio	0.68	0.01	0.02	0.77	0.36	
Control Delay	35.1	16.4	14.4	27.9	16.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.1	16.4	14.4	27.9	16.6	
LOS	D	B	B	C	B	
Approach Delay	34.7			27.9	16.6	
Approach LOS	C			C	B	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBL and 6:, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 26.0
 Intersection LOS: C
 Intersection Capacity Utilization 74.7%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 11: Trafalgar Rd & Hornby Rd



Queues
11: Trafalgar Rd & Hornby Rd

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



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	520	10	5	1855	860
v/c Ratio	0.68	0.01	0.02	0.77	0.36
Control Delay	35.1	16.4	14.4	27.9	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	16.4	14.4	27.9	16.6
Queue Length 50th (m)	103.5	0.6	0.7	133.8	40.2
Queue Length 95th (m)	#161.6	4.5	2.6	134.5	44.2
Internal Link Dist (m)	30.4			111.9	191.8
Turn Bay Length (m)		50.0	30.0		
Base Capacity (vph)	764	687	298	2881	2836
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	0.01	0.02	0.64	0.30

Intersection Summary

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

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

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	520	10	5	1855	635	225
Future Volume (vph)	520	10	5	1855	635	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	5085	4911	
Flt Permitted	0.95	1.00	0.28	1.00	1.00	
Satd. Flow (perm)	1805	1615	526	5085	4911	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	520	10	5	1855	635	225
RTOR Reduction (vph)	0	3	0	0	64	0
Lane Group Flow (vph)	520	7	5	1855	796	0
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	2			8	4	
Permitted Phases		2	8			
Actuated Green, G (s)	50.8	50.8	57.2	57.2	57.2	
Effective Green, g (s)	50.8	50.8	57.2	57.2	57.2	
Actuated g/C Ratio	0.42	0.42	0.48	0.48	0.48	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	764	683	250	2423	2340	
v/s Ratio Prot	c0.29			c0.36	0.16	
v/s Ratio Perm		0.00	0.01			
v/c Ratio	0.68	0.01	0.02	0.77	0.34	
Uniform Delay, d1	28.0	20.0	16.6	25.9	19.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.9	0.0	0.0	1.5	0.1	
Delay (s)	32.9	20.1	16.6	27.4	19.7	
Level of Service	C	C	B	C	B	
Approach Delay (s)	32.6			27.3	19.7	
Approach LOS	C			C	B	

Intersection Summary

HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Volume (vph)	5	315	40	20	755	25	105	55	30	10	25	10
Future Volume (vph)	5	315	40	20	755	25	105	55	30	10	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.996			0.947			0.970	
Flt Protected		0.999			0.999		0.950				0.989	
Satd. Flow (prot)	0	1816	0	0	1788	0	1805	1697	0	0	1783	0
Flt Permitted		0.999			0.999		0.950				0.989	
Satd. Flow (perm)	0	1816	0	0	1788	0	1805	1697	0	0	1783	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	315	40	20	755	25	105	55	30	10	25	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	360	0	0	800	0	105	85	0	0	45	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	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	71.9%
ICU Level of Service	C
Analysis Period (min)	15

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

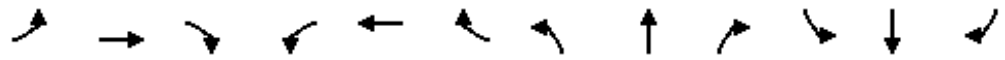
2031 Total PM - Remedial Measures
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Volume (veh/h)	5	315	40	20	755	25	105	55	30	10	25	10
Future Volume (Veh/h)	5	315	40	20	755	25	105	55	30	10	25	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	315	40	20	755	25	105	55	30	10	25	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	780			355			1175	1165	335	1210	1172	768
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	780			355			1175	1165	335	1210	1172	768
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 %	99			98			28	71	96	91	87	98
cM capacity (veh/h)	786			1215			147	191	674	112	189	405
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	360	800	105	85	45							
Volume Left	5	20	105	0	10							
Volume Right	40	25	0	30	10							
cSH	786	1215	147	256	183							
Volume to Capacity	0.01	0.02	0.72	0.33	0.25							
Queue Length 95th (m)	0.2	0.4	33.6	11.2	7.4							
Control Delay (s)	0.2	0.4	75.3	25.9	31.0							
Lane LOS	A	A	F	D	D							
Approach Delay (s)	0.2	0.4	53.2		31.0							
Approach LOS			F		D							
Intersection Summary												
Average Delay			8.5									
Intersection Capacity Utilization			71.9%		ICU Level of Service				C			
Analysis Period (min)			15									

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

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	235	70	125	530	55	175	2215	190	15	1015	95
Future Volume (vph)	75	235	70	125	530	55	175	2215	190	15	1015	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		115.0	75.0		0.0	40.0		20.0	50.0		20.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	80.0			80.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.986				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	3539	1482	1805	3559	0	1770	4988	1615	1583	4940	1509
Flt Permitted	0.240			0.571			0.204			0.095		
Satd. Flow (perm)	418	3539	1482	1085	3559	0	380	4988	1615	158	4940	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133		11				133			133
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		223.8			665.2			264.1			262.0	
Travel Time (s)		13.4			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)	75	235	70	125	530	55	175	2215	190	15	1015	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	235	70	125	585	0	175	2215	190	15	1015	95
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	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
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	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
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	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0		7.0	25.0	25.0	7.0	25.0	25.0

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

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

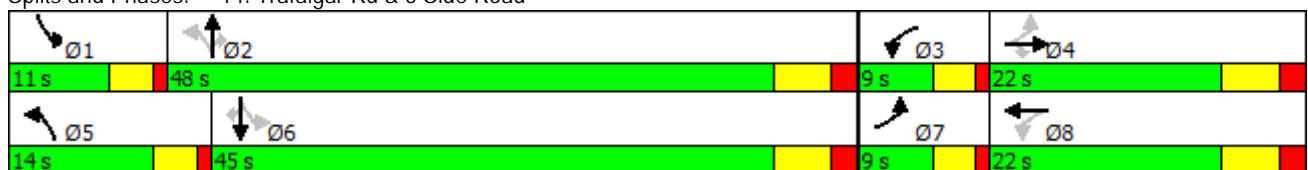


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	9.0	22.0	22.0	9.0	22.0		11.0	32.0	32.0	11.0	32.0	32.0
Total Split (s)	9.0	22.0	22.0	9.0	22.0		14.0	48.0	48.0	11.0	45.0	45.0
Total Split (%)	10.0%	24.4%	24.4%	10.0%	24.4%		15.6%	53.3%	53.3%	12.2%	50.0%	50.0%
Maximum Green (s)	5.0	16.0	16.0	5.0	16.0		10.0	42.0	42.0	7.0	39.0	39.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	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	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	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			20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	22.8	15.8	15.8	23.6	17.7		54.0	50.0	50.0	48.0	39.0	39.0
Actuated g/C Ratio	0.26	0.18	0.18	0.27	0.20		0.61	0.56	0.56	0.54	0.44	0.44
v/c Ratio	0.43	0.37	0.19	0.38	0.82		0.47	0.79	0.20	0.08	0.47	0.13
Control Delay	31.4	34.4	1.6	28.3	45.7		11.9	19.1	4.5	8.1	18.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	34.4	1.6	28.3	45.7		11.9	19.1	4.5	8.1	18.7	1.7
LOS	C	C	A	C	D		B	B	A	A	B	A
Approach Delay		27.8			42.6			17.5			17.1	
Approach LOS		C			D			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	89
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	22.0
Intersection LOS:	C
Intersection Capacity Utilization:	85.9%
ICU Level of Service:	E
Analysis Period (min):	15

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



Queues
14: Trafalgar Rd & 5 Side Road

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



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	235	70	125	585	175	2215	190	15	1015	95
v/c Ratio	0.43	0.37	0.19	0.38	0.82	0.47	0.79	0.20	0.08	0.47	0.13
Control Delay	31.4	34.4	1.6	28.3	45.7	11.9	19.1	4.5	8.1	18.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	34.4	1.6	28.3	45.7	11.9	19.1	4.5	8.1	18.7	1.7
Queue Length 50th (m)	10.0	20.0	0.0	17.0	54.5	12.6	100.6	4.1	1.0	46.8	0.0
Queue Length 95th (m)	20.8	31.3	1.2	31.3	#86.5	21.7	#178.0	17.4	3.3	58.7	4.4
Internal Link Dist (m)		199.8			641.2		240.1			238.0	
Turn Bay Length (m)	40.0		115.0	75.0		40.0		20.0	50.0		20.0
Base Capacity (vph)	176	636	375	328	714	386	2803	965	197	2164	736
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	0.43	0.37	0.19	0.38	0.82	0.45	0.79	0.20	0.08	0.47	0.13

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	235	70	125	530	55	175	2215	190	15	1015	95
Future Volume (vph)	75	235	70	125	530	55	175	2215	190	15	1015	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	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	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1656	3539	1482	1805	3559		1770	4988	1615	1583	4940	1509
Flt Permitted	0.24	1.00	1.00	0.57	1.00		0.20	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	418	3539	1482	1085	3559		381	4988	1615	158	4940	1509
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	75	235	70	125	530	55	175	2215	190	15	1015	95
RTOR Reduction (vph)	0	0	57	0	9	0	0	0	62	0	0	52
Lane Group Flow (vph)	75	235	13	125	576	0	175	2215	128	15	1015	43
Heavy Vehicles (%)	9%	2%	9%	0%	0%	0%	2%	4%	0%	14%	5%	7%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	20.7	16.7	16.7	22.7	17.7		55.4	50.0	50.0	43.6	42.2	42.2
Effective Green, g (s)	20.7	16.7	16.7	22.7	17.7		55.4	50.0	50.0	43.6	42.2	42.2
Actuated g/C Ratio	0.22	0.18	0.18	0.24	0.19		0.60	0.54	0.54	0.47	0.45	0.45
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	146	634	265	303	676		363	2678	867	95	2239	683
v/s Ratio Prot	0.02	0.07		c0.02	c0.16		c0.05	c0.44		0.00	0.21	
v/s Ratio Perm	0.09		0.01	0.08			0.24		0.08	0.07		0.03
v/c Ratio	0.51	0.37	0.05	0.41	0.85		0.48	0.83	0.15	0.16	0.45	0.06
Uniform Delay, d1	29.9	33.6	31.6	28.6	36.4		9.5	17.9	10.8	15.9	17.5	14.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	0.8	0.2	0.9	11.1		1.0	3.1	0.4	0.8	0.7	0.2
Delay (s)	32.9	34.3	31.8	29.6	47.5		10.5	21.0	11.2	16.7	18.2	14.5
Level of Service	C	C	C	C	D		B	C	B	B	B	B
Approach Delay (s)		33.6			44.3			19.6			17.8	
Approach LOS		C			D			B			B	

Intersection Summary

HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	93.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
19: Trafalgar Road & "Street B"

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	0	165	465	0	195	120	1470	245	85	505	140
Future Volume (vph)	195	0	165	465	0	195	120	1470	245	85	505	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	105.0		0.0	50.0		50.0	50.0		50.0
Storage Lanes	1		0	1		0	1		1	1		1
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	0.91	1.00	1.00	0.91	1.00
Frt		0.850			0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	5085	1583	1770	5085	1583
Flt Permitted	0.635			0.612			0.440			0.180		
Satd. Flow (perm)	1183	1583	0	1140	1583	0	820	5085	1583	335	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		252			280				224			160
Link Speed (k/h)		50			50			80			80	
Link Distance (m)		142.2			131.5			68.3			90.8	
Travel Time (s)		10.2			9.5			3.1			4.1	
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
Adj. Flow (vph)	195	0	165	465	0	195	120	1470	245	85	505	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	165	0	465	195	0	120	1470	245	85	505	140
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	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
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	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.0	24.0		9.0	24.0		9.0	24.0	24.0	9.0	24.0	24.0

Lanes, Volumes, Timings
19: Trafalgar Road & "Street B"

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

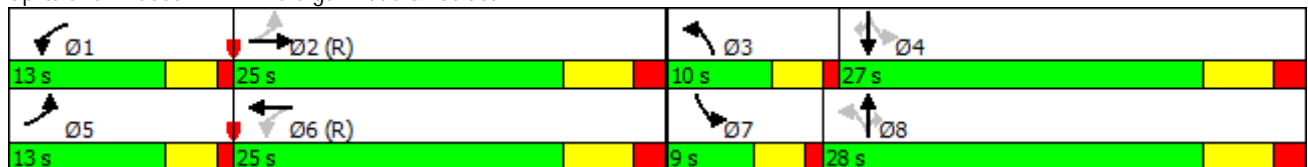


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	13.0	25.0		13.0	25.0		10.0	28.0	28.0	9.0	27.0	27.0
Total Split (%)	17.3%	33.3%		17.3%	33.3%		13.3%	37.3%	37.3%	12.0%	36.0%	36.0%
Maximum Green (s)	9.0	19.0		9.0	19.0		6.0	22.0	22.0	5.0	21.0	21.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	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)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
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	None	C-Max		None	C-Max		None	None	None	None	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)	29.6	19.0		31.6	20.2		29.8	23.0	23.0	28.2	22.2	22.2
Actuated g/C Ratio	0.39	0.25		0.42	0.27		0.40	0.31	0.31	0.38	0.30	0.30
v/c Ratio	0.37	0.28		0.83	0.31		0.30	0.94	0.38	0.38	0.34	0.24
Control Delay	14.9	1.9		32.9	2.1		14.9	39.8	6.1	17.9	21.8	4.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	1.9		32.9	2.1		14.9	39.8	6.1	17.9	21.8	4.1
LOS	B	A		C	A		B	D	A	B	C	A
Approach Delay		8.9			23.8			33.7			18.0	
Approach LOS		A			C			C			B	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	26.2
Intersection LOS:	C
Intersection Capacity Utilization	85.8%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 19: Trafalgar Road & "Street B"



Queues
19: Trafalgar Road & "Street B"

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



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	195	165	465	195	120	1470	245	85	505	140
v/c Ratio	0.37	0.28	0.83	0.31	0.30	0.94	0.38	0.38	0.34	0.24
Control Delay	14.9	1.9	32.9	2.1	14.9	39.8	6.1	17.9	21.8	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	1.9	32.9	2.1	14.9	39.8	6.1	17.9	21.8	4.1
Queue Length 50th (m)	17.1	0.0	49.1	0.0	10.3	79.1	2.2	7.2	21.9	0.0
Queue Length 95th (m)	30.3	3.2	#102.3	4.5	20.2	#112.2	18.2	15.2	30.9	10.0
Internal Link Dist (m)		118.2		107.5		44.3			66.8	
Turn Bay Length (m)	50.0		105.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	543	589	562	630	402	1560	641	221	1506	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.28	0.83	0.31	0.30	0.94	0.38	0.38	0.34	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
19: Trafalgar Road & "Street B"

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑↑↑	↗	↖	↑↑↑	↗
Traffic Volume (vph)	195	0	165	465	0	195	120	1470	245	85	505	140
Future Volume (vph)	195	0	165	465	0	195	120	1470	245	85	505	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1583		1770	1583		1770	5085	1583	1770	5085	1583
Flt Permitted	0.64	1.00		0.61	1.00		0.44	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1183	1583		1141	1583		819	5085	1583	336	5085	1583
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)	195	0	165	465	0	195	120	1470	245	85	505	140
RTOR Reduction (vph)	0	125	0	0	145	0	0	0	155	0	0	99
Lane Group Flow (vph)	195	40	0	465	50	0	120	1470	90	85	505	41
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	26.8	18.2		29.2	19.4		27.8	23.0	23.0	26.2	22.2	22.2
Effective Green, g (s)	26.8	18.2		29.2	19.4		27.8	23.0	23.0	26.2	22.2	22.2
Actuated g/C Ratio	0.36	0.24		0.39	0.26		0.37	0.31	0.31	0.35	0.30	0.30
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	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)	490	384		526	409		364	1559	485	193	1505	468
v/s Ratio Prot	0.05	0.03		c0.12	0.03		0.02	c0.29		c0.02	0.10	
v/s Ratio Perm	0.10			c0.23			0.10		0.06	0.13		0.03
v/c Ratio	0.40	0.10		0.88	0.12		0.33	0.94	0.18	0.44	0.34	0.09
Uniform Delay, d1	17.4	22.1		20.0	21.3		15.9	25.4	19.1	18.4	20.6	19.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.5		16.1	0.6		0.5	11.8	0.2	1.6	0.1	0.1
Delay (s)	17.9	22.6		36.2	21.9		16.5	37.2	19.3	20.0	20.8	19.2
Level of Service	B	C		D	C		B	D	B	B	C	B
Approach Delay (s)		20.1			31.9			33.4			20.4	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.90	
Actuated Cycle Length (s)	75.0	Sum of lost time (s) 20.0
Intersection Capacity Utilization	85.8%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group