Appendix M

2026 Future Total Conditions Synchro Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	203	390	529	88	196	65	983	263	262	2125	12
Future Volume (vph)	11	203	390	529	88	196	65	983	263	262	2125	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	140.0		0.0	135.0		80.0	180.0		50.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	65.0			100.0			70.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.98			0.97			0.96			0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	1863	1583	3433	1792	1553	1719	3343	1485	1770	3406	1336
Flt Permitted	0.698			0.423			0.062			0.162		
Satd. Flow (perm)	1200	1863	1556	1529	1792	1503	112	3343	1425	302	3406	1289
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121			202			245			91
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		296.6			291.2			731.4			120.4	
Travel Time (s)		17.8			17.5			43.9			7.2	
Confl. Peds. (#/hr)	11					11	5		7	7		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	9%	2%	2%	2%	6%	4%	5%	8%	7%	2%	6%	18%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	4	0	0	6
Adj. Flow (vph)	11	209	402	545	91	202	67	1013	271	270	2191	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	209	402	545	91	202	67	1013	271	270	2191	12
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	1.02	1.00	1.00	1.03
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	20.0	20.0	6.0	20.0	20.0
Minimum Split (s)	10.5	36.7	36.7	10.5	36.7	36.7	10.5	36.5	36.5	10.5	36.5	36.5
Total Split (s)	10.5	36.7	36.7	10.5	36.7	36.7	10.5	64.3	64.3	28.5	82.3	82.3
Total Split (%)	7.5%	26.2%	26.2%	7.5%	26.2%	26.2%	7.5%	45.9%	45.9%	20.4%	58.8%	58.8%
Maximum Green (s)	6.5	30.0	30.0	6.5	30.0	30.0	6.5	57.8	57.8	24.5	75.8	75.8
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)					7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)					23.0	23.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)					11	11		7	7		5	5
Act Effct Green (s)	37.9	29.0	29.0	40.6	35.3	35.3	75.7	66.8	66.8	89.8	78.9	78.9
Actuated g/C Ratio	0.27	0.21	0.21	0.29	0.25	0.25	0.54	0.48	0.48	0.64	0.56	0.56
v/c Ratio	0.03	0.54	0.96	1.02	0.20	0.38	0.50	0.64	0.34	0.74	1.14	0.02
Control Delay	34.2	55.1	73.4	90.8	44.0	8.0	43.0	29.2	6.7	26.4	100.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	55.1	73.4	90.8	44.0	8.0	43.0	29.2	6.7	26.4	100.6	0.0
LOS	C	E	E	F	D	A	D	C	A	C	F	A
Approach Delay		66.6			65.7			25.4			92.0	
Approach LOS		E			E			C			F	
Queue Length 50th (m)	2.2	54.4	85.4	67.3	19.9	0.0	6.2	143.7	1.9	32.0	~403.8	0.0
Queue Length 95th (m)	7.2	81.7	#151.2	#113.8	38.9	21.6	22.8	186.6	32.1	57.9	#445.8	0.0
Internal Link Dist (m)		272.6			267.2			707.4			96.4	
Turn Bay Length (m)	70.0		70.0	140.0			135.0		80.0	180.0		50.0
Base Capacity (vph)	349	399	428	532	452	530	135	1594	807	450	1919	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.52	0.94	1.02	0.20	0.38	0.50	0.64	0.34	0.60	1.14	0.02

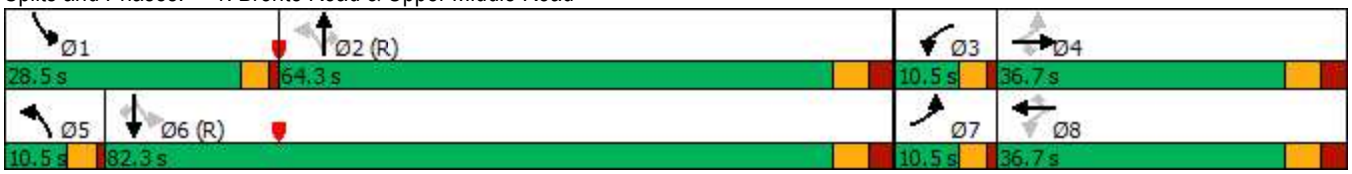
Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 67.8	Intersection LOS: E
Intersection Capacity Utilization 112.3%	ICU Level of Service H
Analysis Period (min) 15	

~ 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.

Splits and Phases: 1: Bronte Road & Upper Middle Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	203	390	529	88	196	65	983	263	262	2125	12
Future Volume (vph)	11	203	390	529	88	196	65	983	263	262	2125	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00	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	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1556	3433	1792	1504	1719	3343	1426	1769	3406	1289
Flt Permitted	0.70	1.00	1.00	0.42	1.00	1.00	0.06	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	1205	1863	1556	1530	1792	1504	112	3343	1426	301	3406	1289
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	11	209	402	545	91	202	67	1013	271	270	2191	12
RTOR Reduction (vph)	0	0	94	0	0	151	0	0	132	0	0	6
Lane Group Flow (vph)	11	209	308	545	91	51	67	1013	139	270	2191	6
Confl. Peds. (#/hr)	11					11	5		7	7		5
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	9%	2%	2%	2%	6%	4%	5%	8%	7%	2%	6%	18%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	4	0	0	6
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	34.0	31.4	31.4	41.8	35.3	35.3	69.6	64.4	64.4	84.9	75.7	75.7
Effective Green, g (s)	34.0	31.4	31.4	41.8	35.3	35.3	69.6	64.4	64.4	84.9	75.7	75.7
Actuated g/C Ratio	0.24	0.22	0.22	0.30	0.25	0.25	0.50	0.46	0.46	0.61	0.54	0.54
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	417	348	545	451	379	115	1537	655	355	1841	696
v/s Ratio Prot	0.00	0.11		c0.05	0.05		0.02	0.30		c0.09	c0.64	
v/s Ratio Perm	0.01		0.20	c0.25		0.03	0.27		0.10	0.37		0.01
v/c Ratio	0.04	0.50	0.89	1.00	0.20	0.13	0.58	0.66	0.21	0.76	1.19	0.01
Uniform Delay, d1	40.4	47.5	52.6	50.3	41.2	40.5	31.9	29.3	22.6	19.1	32.1	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.61	0.95	1.35	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.0	22.5	38.6	0.2	0.2	6.6	2.0	0.7	9.3	91.3	0.0
Delay (s)	40.4	48.4	75.1	88.8	41.5	40.7	58.0	29.8	31.2	28.3	123.4	14.9
Level of Service	D	D	E	F	D	D	E	C	C	C	F	B
Approach Delay (s)		65.5			72.1			31.5			112.5	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	79.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	112.3%	ICU Level of Service	H
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)	21	0	63	172	0	95	21	1193	54	30	3100	7
Future Volume (vph)	21	0	63	172	0	95	21	1193	54	30	3100	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		0.0	15.0		15.0	15.0		15.0
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	0.95	1.00	1.00	0.95	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	3539	1583	1770	3539	1583
Flt Permitted	0.646			0.713			0.038			0.181		
Satd. Flow (perm)	1203	1583	0	1328	1583	0	71	3539	1583	337	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			96				22			19
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		42.5			50.2			458.5			731.4	
Travel Time (s)		3.1			3.6			27.5			43.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	0	68	187	0	103	23	1297	59	33	3370	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	68	0	187	103	0	23	1297	59	33	3370	8
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		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	35.5	35.5		35.5	35.5		35.5	35.5	35.5	35.5	35.5	35.5
Total Split (s)	35.5	35.5		35.5	35.5		104.5	104.5	104.5	104.5	104.5	104.5
Total Split (%)	25.4%	25.4%		25.4%	25.4%		74.6%	74.6%	74.6%	74.6%	74.6%	74.6%
Maximum Green (s)	30.0	30.0		30.0	30.0		99.0	99.0	99.0	99.0	99.0	99.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.2	2.2		2.2	2.2		1.8	1.8	1.8	1.8	1.8	1.8
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)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
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)	23.0	23.0		23.0	23.0		23.0	23.0	23.0	23.0	23.0	23.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	24.1	24.1		24.1	24.1		104.9	104.9	104.9	104.9	104.9	104.9
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.75	0.75	0.75	0.75	0.75	0.75
v/c Ratio	0.11	0.24		0.82	0.29		0.43	0.49	0.05	0.13	1.27	0.01
Control Delay	47.5	36.8		82.4	12.2		47.5	15.3	6.8	9.0	146.7	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	36.8		82.4	12.2		47.5	15.3	6.8	9.0	146.7	2.0
LOS	D	D		F	B		D	B	A	A	F	A
Approach Delay		39.5			57.4			15.5			145.0	
Approach LOS		D			E			B			F	
Queue Length 50th (m)	5.7	12.3		52.8	1.7		4.4	133.8	6.1	3.3	~653.4	0.0
Queue Length 95th (m)	13.8	25.8		78.8	17.7		m6.0	137.7	m8.7	m3.9	m#590.6	m0.0
Internal Link Dist (m)		18.5			26.2			434.5			707.4	
Turn Bay Length (m)	15.0			15.0			15.0		15.0	15.0		15.0
Base Capacity (vph)	257	354		284	414		53	2652	1191	252	2652	1191
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.19		0.66	0.25		0.43	0.49	0.05	0.13	1.27	0.01

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 85 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 103.7 Intersection LOS: F
Intersection Capacity Utilization 111.1% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

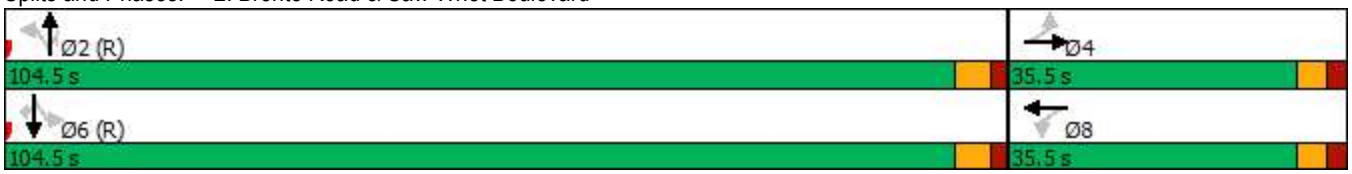
Queue shown is maximum after two cycles.

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.

Splits and Phases: 2: Bronte Road & Saw Whet Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	0	63	172	0	95	21	1193	54	30	3100	7
Future Volume (vph)	21	0	63	172	0	95	21	1193	54	30	3100	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.85		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	3539	1583	1770	3539	1583
Flt Permitted	0.65	1.00		0.71	1.00		0.04	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1204	1583		1328	1583		71	3539	1583	336	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	0	68	187	0	103	23	1297	59	33	3370	8
RTOR Reduction (vph)	0	16	0	0	79	0	0	0	6	0	0	2
Lane Group Flow (vph)	23	52	0	187	24	0	23	1297	53	33	3370	6
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	24.1	24.1		24.1	24.1		104.9	104.9	104.9	104.9	104.9	104.9
Effective Green, g (s)	24.1	24.1		24.1	24.1		104.9	104.9	104.9	104.9	104.9	104.9
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.75	0.75	0.75	0.75	0.75	0.75
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5
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)	207	272		228	272		53	2651	1186	251	2651	1186
v/s Ratio Prot		0.03			0.01			0.37			c0.95	
v/s Ratio Perm	0.02			c0.14			0.32		0.03	0.10		0.00
v/c Ratio	0.11	0.19		0.82	0.09		0.43	0.49	0.05	0.13	1.27	0.01
Uniform Delay, d1	48.9	49.6		55.9	48.7		6.5	6.9	4.6	4.9	17.5	4.4
Progression Factor	1.00	1.00		1.00	1.00		1.90	1.95	1.77	1.40	1.35	2.43
Incremental Delay, d2	0.2	0.3		20.5	0.1		20.3	0.5	0.1	0.1	122.3	0.0
Delay (s)	49.1	50.0		76.3	48.8		32.8	14.1	8.1	6.9	146.1	10.7
Level of Service	D	D		E	D		C	B	A	A	F	B
Approach Delay (s)		49.8			66.6			14.2			144.4	
Approach LOS		D			E			B			F	

Intersection Summary			
HCM 2000 Control Delay	103.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
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)	1	0	1	161	0	65	0	1250	78	149	3175	0
Future Volume (vph)	1	0	1	161	0	65	0	1250	78	149	3175	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		40.0	35.0		30.0	70.0		0.0
Storage Lanes	0		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			20.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99				0.98			0.98			
Frt		0.932				0.850			0.850			
Flt Protected		0.976		0.950						0.950		
Satd. Flow (prot)	0	1680	0	1530	0	1392	1863	3406	1439	1770	3471	0
Flt Permitted		0.976		0.757						0.153		
Satd. Flow (perm)	0	1680	0	1219	0	1368	1863	3406	1406	285	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54				67			56			
Link Speed (k/h)		20			20			60			60	
Link Distance (m)		78.7			109.0			435.9			458.5	
Travel Time (s)		14.2			19.6			26.2			27.5	
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	18%	2%	16%	2%	6%	10%	2%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	5	0	0	6
Adj. Flow (vph)	1	0	1	166	0	67	0	1289	80	154	3273	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	166	0	67	0	1289	80	154	3273	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	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	1	2	1	1	2	
Detector Template	Left	Thru		Left		Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0		2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0		2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8		8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0		10.0	15.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	24.2	24.2		35.2		35.2	34.9	34.9	34.9	9.5	34.9	
Total Split (s)	35.2	35.2		35.2		35.2	88.2	88.2	88.2	16.6	104.8	
Total Split (%)	25.1%	25.1%		25.1%		25.1%	63.0%	63.0%	63.0%	11.9%	74.9%	
Maximum Green (s)	29.0	29.0		29.0		29.0	82.3	82.3	82.3	12.6	98.9	
Yellow Time (s)	3.1	3.1		3.1		3.1	3.7	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.1	3.1		3.1		3.1	2.2	2.2	2.2	1.0	2.2	
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.2		6.2		6.2	5.9	5.9	5.9	4.0	5.9	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.6	3.6	3.6	3.0	3.6	
Recall Mode	None	None		None		None	C-Max	C-Max	C-Max	None	C-Max	
Walk Time (s)				7.0		7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)				22.0		22.0	22.0	22.0	22.0		22.0	
Pedestrian Calls (#/hr)				0		0	0	0	0		0	
Act Effct Green (s)		23.3		23.3		23.3		91.8	91.8	106.5	104.6	
Actuated g/C Ratio		0.17		0.17		0.17		0.66	0.66	0.76	0.75	
v/c Ratio		0.01		0.82		0.24		0.58	0.09	0.50	1.26	
Control Delay		0.0		85.8		12.2		15.0	8.5	3.6	131.1	
Queue Delay		0.0		0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay		0.0		85.8		12.2		15.0	8.5	3.6	131.1	
LOS		A		F		B		B	A	A	F	
Approach Delay					64.6			14.7			125.4	
Approach LOS					E			B			F	
Queue Length 50th (m)		0.0		46.9		0.0		66.6	3.7	3.2	~632.3	
Queue Length 95th (m)		0.0		71.9		13.4		97.0	m10.6	m2.7	m#445.1	
Internal Link Dist (m)		54.7			85.0			411.9			434.5	
Turn Bay Length (m)						40.0			30.0	70.0		
Base Capacity (vph)		390		252		336		2232	940	350	2594	
Starvation Cap Reductn		0		0		0		0	0	0	0	
Spillback Cap Reductn		0		0		0		0	0	0	0	
Storage Cap Reductn		0		0		0		0	0	0	0	
Reduced v/c Ratio		0.01		0.66		0.20		0.58	0.09	0.44	1.26	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 128.8 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.26

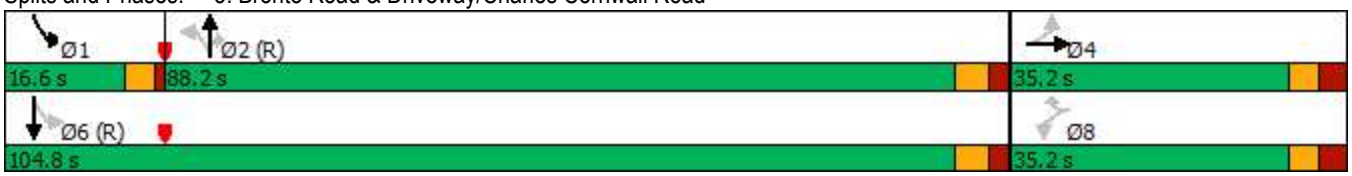
Intersection Signal Delay: 92.4	Intersection LOS: F
Intersection Capacity Utilization 129.0%	ICU Level of Service H
Analysis Period (min) 15	

~ 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.

Splits and Phases: 3: Bronte Road & Driveway/Charles Cornwall Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	1	161	0	65	0	1250	78	149	3175	0
Future Volume (vph)	1	0	1	161	0	65	0	1250	78	149	3175	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.2		6.2		6.2		5.9	5.9	4.0	5.9	
Lane Util. Factor		1.00		1.00		1.00		0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00		0.98		1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00		1.00	1.00	1.00	1.00	
Frt		0.93		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1679		1530		1366		3406	1406	1770	3471	
Flt Permitted		0.98		0.76		1.00		1.00	1.00	0.15	1.00	
Satd. Flow (perm)		1679		1218		1366		3406	1406	286	3471	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	0	1	166	0	67	0	1289	80	154	3273	0
RTOR Reduction (vph)	0	2	0	0	0	56	0	0	19	0	0	0
Lane Group Flow (vph)	0	0	0	166	0	11	0	1289	61	154	3273	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	2%	2%	2%	18%	2%	16%	2%	6%	10%	2%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	5	0	0	6
Turn Type	Perm	NA		Perm		Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)		23.3		23.3		23.3		91.7	91.7	104.6	104.6	
Effective Green, g (s)		23.3		23.3		23.3		91.7	91.7	104.6	104.6	
Actuated g/C Ratio		0.17		0.17		0.17		0.66	0.66	0.75	0.75	
Clearance Time (s)		6.2		6.2		6.2		5.9	5.9	4.0	5.9	
Vehicle Extension (s)		3.0		3.0		3.0		3.6	3.6	3.0	3.6	
Lane Grp Cap (vph)		279		202		227		2230	920	308	2593	
v/s Ratio Prot								0.38		0.03	c0.94	
v/s Ratio Perm		0.00		c0.14		0.01			0.04	0.34		
v/c Ratio		0.00		0.82		0.05		0.58	0.07	0.50	1.26	
Uniform Delay, d1		48.6		56.3		49.0		13.4	8.7	9.2	17.7	
Progression Factor		1.00		1.00		1.00		0.97	1.93	0.61	0.28	
Incremental Delay, d2		0.0		22.8		0.1		0.8	0.1	0.1	118.3	
Delay (s)		48.7		79.1		49.1		13.9	16.9	5.7	123.3	
Level of Service		D		E		D		B	B	A	F	
Approach Delay (s)		48.7			70.5			14.1			118.0	
Approach LOS		D			E			B			F	

Intersection Summary			
HCM 2000 Control Delay	87.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.1
Intersection Capacity Utilization	129.0%	ICU Level of Service	H
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)	0	0	0	17	0	44	0	1310	241	269	3088	1
Future Volume (vph)	0	0	0	17	0	44	0	1310	241	269	3088	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	45.0		0.0	35.0		70.0	115.0		0.0
Storage Lanes	0		0	1		1	1		1	1		0
Taper Length (m)	7.5			50.0			65.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.98			0.97		1.00	
Frt						0.850			0.850			
Flt Protected				0.950	0.950					0.950		
Satd. Flow (prot)	0	1863	0	1681	1681	1583	1863	3438	1583	1770	3471	0
Flt Permitted				0.950	0.950					0.117		
Satd. Flow (perm)	0	1863	0	1681	1681	1555	1863	3438	1542	218	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						112			128			
Link Speed (k/h)		20			50			60			60	
Link Distance (m)		52.6			84.3			299.0			435.9	
Travel Time (s)		9.5			6.1			17.9			26.2	
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	4%	2%
Adj. Flow (vph)	0	0	0	17	0	45	0	1337	246	274	3151	1
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	8	9	45	0	1337	246	274	3152	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
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	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
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												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4		4	2		2	6		
Detector Phase	8	8		4	4	4	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	15.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	24.7	24.7		36.9	36.9	36.9	41.7	41.7	41.7	10.5	24.7	
Total Split (s)	29.0	29.0		42.0	42.0	42.0	51.0	51.0	51.0	18.0	69.0	
Total Split (%)	20.7%	20.7%		30.0%	30.0%	30.0%	36.4%	36.4%	36.4%	12.9%	49.3%	
Maximum Green (s)	22.3	22.3		36.1	36.1	36.1	44.3	44.3	44.3	14.0	62.3	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.0	3.0		2.2	2.2	2.2	3.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.7		5.9	5.9	5.9	6.7	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Walk Time (s)				7.0	7.0	7.0	7.0	7.0	7.0		0.0	
Flash Dont Walk (s)				24.0	24.0	24.0	28.0	28.0	28.0		0.0	
Pedestrian Calls (#/hr)				1	1	1	0	0	0		0	
Act Effct Green (s)				16.8	16.8	16.8		81.1	81.1	116.5	115.1	
Actuated g/C Ratio				0.12	0.12	0.12		0.58	0.58	0.83	0.82	
v/c Ratio				0.04	0.04	0.16		0.67	0.26	0.55	1.10	
Control Delay				48.8	49.0	1.2		14.6	4.5	26.9	61.7	
Queue Delay				0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay				48.8	49.0	1.2		14.6	4.5	26.9	61.7	
LOS				D	D	A		B	A	C	E	
Approach Delay					14.3			13.1			59.0	
Approach LOS					B			B			E	
Queue Length 50th (m)				2.3	2.5	0.0		88.7	1.4	42.2	~552.6	
Queue Length 95th (m)				7.1	7.5	0.0		147.4	m28.6	m30.7	m#423.5	
Internal Link Dist (m)		28.6			60.3			275.0			411.9	
Turn Bay Length (m)				45.0					70.0	115.0		
Base Capacity (vph)				433	433	484		1990	946	499	2854	
Starvation Cap Reductn				0	0	0		0	0	0	0	
Spillback Cap Reductn				0	0	0		0	0	0	0	
Storage Cap Reductn				0	0	0		0	0	0	0	
Reduced v/c Ratio				0.02	0.02	0.09		0.67	0.26	0.55	1.10	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 27 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10

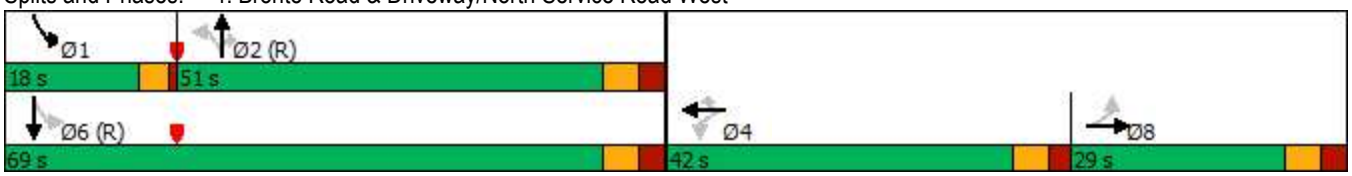
Intersection Signal Delay: 44.1	Intersection LOS: D
Intersection Capacity Utilization 122.9%	ICU Level of Service H
Analysis Period (min) 15	

~ 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.

Splits and Phases: 4: Bronte Road & Driveway/North Service Road West



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	17	0	44	0	1310	241	269	3088	1
Future Volume (vph)	0	0	0	17	0	44	0	1310	241	269	3088	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9		6.7	6.7	4.0	6.7	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frpb, ped/bikes				1.00	1.00	0.98		1.00	0.98	1.00	1.00	
Flpb, ped/bikes				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1681	1546		3438	1547	1770	3471	
Flt Permitted				0.95	0.95	1.00		1.00	1.00	0.12	1.00	
Satd. Flow (perm)				1681	1681	1546		3438	1547	218	3471	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	17	0	45	0	1337	246	274	3151	1
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	55	0	0	0
Lane Group Flow (vph)	0	0	0	8	9	5	0	1337	191	274	3152	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	4%	2%
Turn Type				Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4		4	2		2	6		
Actuated Green, G (s)				14.8	14.8	14.8		79.9	79.9	112.6	112.6	
Effective Green, g (s)				14.8	14.8	14.8		79.9	79.9	112.6	112.6	
Actuated g/C Ratio				0.11	0.11	0.11		0.57	0.57	0.80	0.80	
Clearance Time (s)				5.9	5.9	5.9		6.7	6.7	4.0	6.7	
Vehicle Extension (s)				5.0	5.0	5.0		5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)				177	177	163		1962	882	493	2791	
v/s Ratio Prot								0.39		0.11	c0.91	
v/s Ratio Perm				0.00	0.01	0.00			0.12	0.33		
v/c Ratio				0.05	0.05	0.03		0.68	0.22	0.56	1.13	
Uniform Delay, d1				56.3	56.3	56.2		21.1	14.7	21.0	13.7	
Progression Factor				1.00	1.00	1.00		0.59	0.48	1.75	0.70	
Incremental Delay, d2				0.2	0.3	0.2		1.4	0.4	0.1	58.7	
Delay (s)				56.5	56.5	56.3		13.8	7.5	36.9	68.3	
Level of Service				E	E	E		B	A	D	E	
Approach Delay (s)		0.0			56.4			12.8			65.8	
Approach LOS		A			E			B			E	

Intersection Summary			
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	122.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	193	300	1250	0	0	1959
Future Volume (vph)	193	300	1250	0	0	1959
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	90.0		0.0	0.0	
Storage Lanes	2	1		0	0	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1568	3471	0	0	3505
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1568	3471	0	0	3505
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		40				
Link Speed (k/h)	60		60			60
Link Distance (m)	65.9		376.8			299.0
Travel Time (s)	4.0		22.6			17.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	3%	4%	2%	2%	3%
Adj. Flow (vph)	210	326	1359	0	0	2129
Shared Lane Traffic (%)						
Lane Group Flow (vph)	210	326	1359	0	0	2129
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		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		15	25	
Number of Detectors	1	1	2			2
Detector Template	Left	Right	Thru			Thru
Leading Detector (m)	2.0	2.0	10.0			10.0
Trailing Detector (m)	0.0	0.0	0.0			0.0
Detector 1 Position(m)	0.0	0.0	0.0			0.0
Detector 1 Size(m)	2.0	2.0	0.6			0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0			0.0
Detector 1 Delay (s)	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	NA			NA
Protected Phases	8		2			6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8				
Detector Phase	8	8	2			6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0			20.0
Minimum Split (s)	24.7	24.7	36.5			26.5
Total Split (s)	24.7	24.7	45.3			45.3
Total Split (%)	35.3%	35.3%	64.7%			64.7%
Maximum Green (s)	18.0	18.0	38.8			38.8
Yellow Time (s)	3.7	3.7	3.7			3.7
All-Red Time (s)	3.0	3.0	2.8			2.8
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.7	6.7	6.5			6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Recall Mode	None	None	C-Max			C-Max
Act Effct Green (s)	16.3	16.3	40.5			40.5
Actuated g/C Ratio	0.23	0.23	0.58			0.58
v/c Ratio	0.27	0.83	0.68			1.05
Control Delay	22.4	41.1	21.2			49.2
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	22.4	41.1	21.2			49.2
LOS	C	D	C			D
Approach Delay	33.7		21.2			49.2
Approach LOS	C		C			D
Queue Length 50th (m)	11.8	36.2	129.3			~207.8
Queue Length 95th (m)	20.1	#74.7	m130.3			m248.4
Internal Link Dist (m)	41.9		352.8			275.0
Turn Bay Length (m)		90.0				
Base Capacity (vph)	857	432	2010			2029
Starvation Cap Reductn	0	0	0			0
Spillback Cap Reductn	0	0	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.25	0.75	0.68			1.05

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 14 (20%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 37.7 Intersection LOS: D
Intersection Capacity Utilization 73.5% ICU Level of Service D
Analysis Period (min) 15

~ 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.

Splits and Phases: 5: Bronte Road & QEW WB Off Ramp

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	193	300	1250	0	0	1959
Future Volume (vph)	193	300	1250	0	0	1959
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.5			6.5
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3335	1568	3471			3505
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3335	1568	3471			3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	326	1359	0	0	2129
RTOR Reduction (vph)	0	31	0	0	0	0
Lane Group Flow (vph)	210	295	1359	0	0	2129
Heavy Vehicles (%)	5%	3%	4%	2%	2%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	16.3	16.3	40.5			40.5
Effective Green, g (s)	16.3	16.3	40.5			40.5
Actuated g/C Ratio	0.23	0.23	0.58			0.58
Clearance Time (s)	6.7	6.7	6.5			6.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	776	365	2008			2027
v/s Ratio Prot	0.06		0.39			c0.61
v/s Ratio Perm		c0.19				
v/c Ratio	0.27	0.81	0.68			1.05
Uniform Delay, d1	22.0	25.4	10.2			14.8
Progression Factor	1.00	1.00	1.91			1.66
Incremental Delay, d2	0.2	12.4	0.8			24.2
Delay (s)	22.2	37.8	20.3			48.8
Level of Service	C	D	C			D
Approach Delay (s)	31.7		20.3			48.8
Approach LOS	C		C			D

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
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)	7	1	2	359	2	607	3	830	232	688	1422	9
Future Volume (vph)	7	1	2	359	2	607	3	830	232	688	1422	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	130.0		125.0	120.0		95.0	255.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			65.0			95.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor									0.97		1.00	
Frt		0.900			0.868	0.850			0.850		0.999	
Flt Protected	0.950			0.950	0.994		0.950			0.950		
Satd. Flow (prot)	1770	1676	0	1665	1424	1461	1770	3374	1583	1770	3468	0
Flt Permitted	0.950			0.950	0.994		0.164			0.126		
Satd. Flow (perm)	1770	1676	0	1665	1424	1461	305	3374	1539	235	3468	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)					281	350			227			
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		53.2			37.5			215.0			376.8	
Travel Time (s)		4.8			3.4			12.9			22.6	
Confl. Bikes (#/hr)									5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	3%	2%	5%	2%	7%	2%	2%	4%	2%
Adj. Flow (vph)	8	1	2	390	2	660	3	902	252	748	1546	10
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	8	3	0	351	351	350	3	902	252	748	1556	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
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	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4			2		1	6	
Permitted Phases						4	2		2	6		
Detector Phase	8	8		4	4	4	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		10.0	10.0	10.0	20.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	36.7	36.7		36.7	36.7	36.7	36.5	36.5	36.5	11.5	36.5	
Total Split (s)	36.7	36.7		50.0	50.0	50.0	38.3	38.3	38.3	15.0	53.3	
Total Split (%)	26.2%	26.2%		35.7%	35.7%	35.7%	27.4%	27.4%	27.4%	10.7%	38.1%	
Maximum Green (s)	30.0	30.0		43.3	43.3	43.3	31.8	31.8	31.8	11.0	46.8	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.8	2.8	2.8	1.0	2.8	
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)	6.7	6.7		6.7	6.7	6.7	6.5	6.5	6.5	4.0	6.5	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	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	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Walk Time (s)				7.0	7.0	7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)				23.0	23.0	23.0	23.0	23.0	23.0		23.0	
Pedestrian Calls (#/hr)				0	0	0	0	0	0		0	
Act Effct Green (s)	7.1	7.1		35.8	35.8	35.8	31.8	31.8	31.8	88.0	85.5	
Actuated g/C Ratio	0.05	0.05		0.26	0.26	0.26	0.23	0.23	0.23	0.63	0.61	
v/c Ratio	0.09	0.04		0.83	0.61	0.55	0.04	1.18	0.48	1.08	0.74	
Control Delay	65.6	64.0		65.1	14.0	7.1	44.7	139.8	11.0	78.5	25.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	65.6	64.0		65.1	14.0	7.1	44.7	139.8	11.0	78.5	25.8	
LOS	E	E		E	B	A	D	F	B	E	C	
Approach Delay		65.1			28.8			111.5			42.9	
Approach LOS		E			C			F			D	
Queue Length 50th (m)	2.3	0.9		101.4	17.5	0.0	0.7	~165.1	5.8	214.2	185.6	
Queue Length 95th (m)	8.3	4.3		133.2	50.9	25.1	3.6	#208.3	31.0	m#278.4	m207.2	
Internal Link Dist (m)		29.2			13.5			191.0			352.8	
Turn Bay Length (m)	10.0			130.0		125.0	120.0		95.0	255.0		
Base Capacity (vph)	379	359		514	634	693	69	766	525	692	2116	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.01		0.68	0.55	0.51	0.04	1.18	0.48	1.08	0.74	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 88 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 57.2 Intersection LOS: E

Intersection Capacity Utilization 98.2% ICU Level of Service F

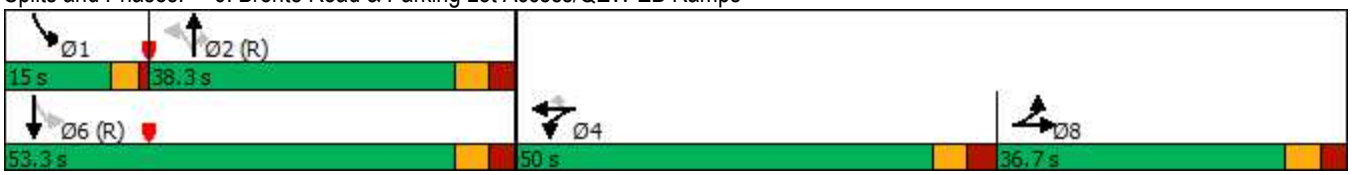
Analysis Period (min) 15

~ 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.

Splits and Phases: 6: Bronte Road & Parking Lot Access/QEW EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	1	2	359	2	607	3	830	232	688	1422	9
Future Volume (vph)	7	1	2	359	2	607	3	830	232	688	1422	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7	6.7	6.5	6.5	6.5	4.0	6.5	
Lane Util. Factor	1.00	1.00		0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.90		1.00	0.87	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1676		1665	1424	1461	1770	3374	1537	1770	3468	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.16	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	1770	1676		1665	1424	1461	305	3374	1537	235	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	1	2	390	2	660	3	902	252	748	1546	10
RTOR Reduction (vph)	0	0	0	0	209	261	0	0	182	0	0	0
Lane Group Flow (vph)	8	3	0	351	142	90	3	902	70	748	1556	0
Confl. Bikes (#/hr)									5			5
Heavy Vehicles (%)	2%	2%	2%	3%	2%	5%	2%	7%	2%	2%	4%	2%
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4			2		1	6	
Permitted Phases						4	2		2	6		
Actuated Green, G (s)	2.9	2.9		35.8	35.8	35.8	27.7	27.7	27.7	81.4	81.4	
Effective Green, g (s)	2.9	2.9		35.8	35.8	35.8	27.7	27.7	27.7	81.4	81.4	
Actuated g/C Ratio	0.02	0.02		0.26	0.26	0.26	0.20	0.20	0.20	0.58	0.58	
Clearance Time (s)	6.7	6.7		6.7	6.7	6.7	6.5	6.5	6.5	4.0	6.5	
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)	36	34		425	364	373	60	667	304	681	2016	
v/s Ratio Prot	c0.00	0.00		c0.21	0.10			c0.27		c0.39	0.45	
v/s Ratio Perm						0.06	0.01		0.05	0.25		
v/c Ratio	0.22	0.09		0.83	0.39	0.24	0.05	1.35	0.23	1.10	0.77	
Uniform Delay, d1	67.4	67.3		49.2	43.1	41.3	45.5	56.1	47.2	38.5	22.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.13	
Incremental Delay, d2	3.1	1.1		12.4	0.7	0.3	1.6	168.3	1.8	51.2	0.8	
Delay (s)	70.6	68.4		61.5	43.8	41.6	47.1	224.5	48.9	89.0	26.0	
Level of Service	E	E		E	D	D	D	F	D	F	C	
Approach Delay (s)		70.0			49.0			185.8			46.5	
Approach LOS		E			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	82.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.9
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
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)	7	74	114	258	155	252	294	1977	383	241	1237	18
Future Volume (vph)	7	74	114	258	155	252	294	1977	383	241	1237	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	140.0		0.0	135.0		80.0	180.0		50.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	65.0			100.0			70.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.98			0.97			0.97			0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3400	1863	1583	1770	3539	1558	1770	3471	1473
Flt Permitted	0.653			0.561			0.111			0.054		
Satd. Flow (perm)	1208	1863	1550	2008	1863	1542	207	3539	1518	101	3471	1435
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121			185			233			122
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		296.6			291.2			731.4			120.4	
Travel Time (s)		17.8			17.5			43.9			7.2	
Confl. Peds. (#/hr)	6					6	1		1	1		1
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	4%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	4	0	0	6
Adj. Flow (vph)	7	79	121	274	165	268	313	2103	407	256	1316	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	79	121	274	165	268	313	2103	407	256	1316	19
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	1.02	1.00	1.00	1.03
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	20.0	20.0	6.0	20.0	20.0
Minimum Split (s)	10.5	36.7	36.7	10.5	36.7	36.7	10.5	36.5	36.5	10.5	36.5	36.5
Total Split (s)	11.2	23.8	23.8	19.6	32.2	32.2	12.6	84.0	84.0	12.6	84.0	84.0
Total Split (%)	8.0%	17.0%	17.0%	14.0%	23.0%	23.0%	9.0%	60.0%	60.0%	9.0%	60.0%	60.0%
Maximum Green (s)	7.2	17.1	17.1	15.6	25.5	25.5	8.6	77.5	77.5	8.6	77.5	77.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)					7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)					23.0	23.0		23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)					6	6		1	1		1	1
Act Effct Green (s)	21.2	12.3	12.3	33.1	28.3	28.3	94.9	77.5	77.5	94.9	77.5	77.5
Actuated g/C Ratio	0.15	0.09	0.09	0.24	0.20	0.20	0.68	0.55	0.55	0.68	0.55	0.55
v/c Ratio	0.03	0.48	0.49	0.44	0.44	0.59	1.02	1.07	0.43	1.04	0.69	0.02
Control Delay	39.1	70.3	16.5	46.1	53.0	21.5	85.1	74.2	8.7	109.3	24.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	70.3	16.5	46.1	53.0	21.5	85.1	74.2	8.7	109.3	24.8	0.1
LOS	D	E	B	D	D	C	F	E	A	F	C	A
Approach Delay		37.8			38.4			66.0			38.1	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	1.6	22.5	0.0	34.5	41.7	20.3	~57.2	~357.5	25.6	~61.7	140.1	0.0
Queue Length 95th (m)	5.6	38.7	19.3	45.1	67.8	53.5	#116.8	#400.1	49.7	#145.0	166.0	0.0
Internal Link Dist (m)		272.6			267.2			707.4			96.4	
Turn Bay Length (m)	70.0		70.0	140.0			135.0		80.0	180.0		50.0
Base Capacity (vph)	220	227	295	630	376	459	306	1959	944	245	1921	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.35	0.41	0.43	0.44	0.58	1.02	1.07	0.43	1.04	0.69	0.02

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 35 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 52.9	Intersection LOS: D
Intersection Capacity Utilization 98.4%	ICU Level of Service F
Analysis Period (min) 15	

~ 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.

Splits and Phases: 1: Bronte Road & Upper Middle Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	74	114	258	155	252	294	1977	383	241	1237	18
Future Volume (vph)	7	74	114	258	155	252	294	1977	383	241	1237	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	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	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1762	1863	1548	3400	1863	1543	1770	3539	1518	1770	3471	1435
Flt Permitted	0.65	1.00	1.00	0.56	1.00	1.00	0.11	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)	1211	1863	1548	2007	1863	1543	207	3539	1518	100	3471	1435
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	7	79	121	274	165	268	313	2103	407	256	1316	19
RTOR Reduction (vph)	0	0	108	0	0	148	0	0	110	0	0	9
Lane Group Flow (vph)	7	79	13	274	165	120	313	2103	297	256	1316	10
Confl. Peds. (#/hr)	6					6	1		1	1		1
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	4%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	4	0	0	6
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	16.9	15.5	15.5	33.7	28.3	28.3	89.1	74.2	74.2	89.1	74.2	74.2
Effective Green, g (s)	16.9	15.5	15.5	33.7	28.3	28.3	89.1	74.2	74.2	89.1	74.2	74.2
Actuated g/C Ratio	0.12	0.11	0.11	0.24	0.20	0.20	0.64	0.53	0.53	0.64	0.53	0.53
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	151	206	171	624	376	311	298	1875	804	241	1839	760
v/s Ratio Prot	0.00	0.04		c0.04	0.09		0.11	c0.59		c0.11	0.38	
v/s Ratio Perm	0.01		0.01	c0.06		0.08	0.56		0.20	0.56		0.01
v/c Ratio	0.05	0.38	0.08	0.44	0.44	0.39	1.05	1.12	0.37	1.06	0.72	0.01
Uniform Delay, d1	54.3	57.8	55.8	44.0	48.9	48.3	33.7	32.9	19.2	49.2	24.9	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.2	0.2	0.5	0.8	0.8	65.9	62.5	1.3	75.4	2.4	0.0
Delay (s)	54.5	59.0	56.0	44.5	49.7	49.1	99.7	95.4	20.5	124.6	27.3	15.6
Level of Service	D	E	E	D	D	D	F	F	C	F	C	B
Approach Delay (s)		57.1			47.5			85.1			42.8	
Approach LOS		E			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	66.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
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)	14	0	40	106	0	60	66	2652	177	99	1518	23
Future Volume (vph)	14	0	40	106	0	60	66	2652	177	99	1518	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		0.0	15.0		15.0	15.0		15.0
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	0.95	1.00	1.00	0.95	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	3539	1583	1770	3539	1583
Flt Permitted	0.715			0.729			0.141			0.037		
Satd. Flow (perm)	1332	1583	0	1358	1583	0	263	3539	1583	69	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			55				51			18
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		42.5			50.2			458.5			731.4	
Travel Time (s)		3.1			3.6			27.5			43.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	43	115	0	65	72	2883	192	108	1650	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	43	0	115	65	0	72	2883	192	108	1650	25
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		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	35.5	35.5		35.5	35.5		35.5	35.5	35.5	9.5	35.5	35.5
Total Split (s)	35.5	35.5		35.5	35.5		104.5	104.5	104.5	9.5	104.5	104.5
Total Split (%)	23.7%	23.7%		23.7%	23.7%		69.9%	69.9%	69.9%	6.4%	69.9%	69.9%
Maximum Green (s)	30.0	30.0		30.0	30.0		99.0	99.0	99.0	5.0	99.0	99.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7	3.7	3.5	3.7	3.7
All-Red Time (s)	2.2	2.2		2.2	2.2		1.8	1.8	1.8	1.0	1.8	1.8
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)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							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	None		None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		23.0	23.0	23.0		23.0	23.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0		0	0
Act Effct Green (s)	18.0	18.0		18.0	18.0		104.5	104.5	104.5	121.5	120.5	120.5
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.70	0.70	0.70	0.81	0.81	0.81
v/c Ratio	0.09	0.18		0.71	0.27		0.39	1.17	0.17	0.58	0.58	0.02
Control Delay	56.6	11.6		85.0	20.1		18.4	103.2	6.5	41.6	6.7	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	11.6		85.0	20.1		18.4	103.2	6.5	41.6	6.7	2.0
LOS	E	B		F	C		B	F	A	D	A	A
Approach Delay		23.3			61.6			95.4			8.8	
Approach LOS		C			E			F			A	
Queue Length 50th (m)	4.2	0.0		35.1	2.8		8.8	~563.6	13.7	15.7	83.2	0.4
Queue Length 95th (m)	11.1	9.1		55.3	17.0		23.9	#617.0	25.9	#42.8	126.6	2.8
Internal Link Dist (m)		18.5			26.2			434.5			707.4	
Turn Bay Length (m)	15.0			15.0			15.0		15.0	15.0		15.0
Base Capacity (vph)	267	359		272	361		183	2473	1121	187	2853	1279
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.12		0.42	0.18		0.39	1.17	0.17	0.58	0.58	0.02

Intersection Summary

Area Type: Other
Cycle Length: 149.5
Actuated Cycle Length: 149.5
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 63.5 Intersection LOS: E
Intersection Capacity Utilization 104.0% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 2: Bronte Road & Saw Whet Boulevard

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	40	106	0	60	66	2652	177	99	1518	23
Future Volume (vph)	14	0	40	106	0	60	66	2652	177	99	1518	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.85		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	3539	1583	1770	3539	1583
Flt Permitted	0.71	1.00		0.73	1.00		0.14	1.00	1.00	0.04	1.00	1.00
Satd. Flow (perm)	1331	1583		1358	1583		263	3539	1583	68	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	43	115	0	65	72	2883	192	108	1650	25
RTOR Reduction (vph)	0	38	0	0	48	0	0	0	15	0	0	3
Lane Group Flow (vph)	15	5	0	115	17	0	72	2883	177	108	1650	22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	18.0	18.0		18.0	18.0		104.4	104.4	104.4	120.5	120.5	120.5
Effective Green, g (s)	18.0	18.0		18.0	18.0		104.4	104.4	104.4	120.5	120.5	120.5
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.70	0.70	0.70	0.81	0.81	0.81
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5	5.5	4.5	5.5	5.5
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)	160	190		163	190		183	2471	1105	186	2852	1275
v/s Ratio Prot		0.00			0.01			c0.81		0.04	c0.47	
v/s Ratio Perm	0.01			c0.08			0.27		0.11	0.42		0.01
v/c Ratio	0.09	0.03		0.71	0.09		0.39	1.17	0.16	0.58	0.58	0.02
Uniform Delay, d1	58.5	58.0		63.2	58.4		9.4	22.5	7.7	50.3	5.3	2.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1		13.0	0.2		6.2	79.8	0.3	4.6	0.9	0.0
Delay (s)	58.7	58.1		76.2	58.6		15.6	102.4	8.0	54.9	6.1	2.9
Level of Service	E	E		E	E		B	F	A	D	A	A
Approach Delay (s)		58.3			69.9			94.6			9.0	
Approach LOS		E			E			F			A	

Intersection Summary			
HCM 2000 Control Delay	63.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	149.5	Sum of lost time (s)	15.5
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
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)	0	0	0	138	0	110	1	2792	175	89	1611	0
Future Volume (vph)	0	0	0	138	0	110	1	2792	175	89	1611	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		40.0	35.0		30.0	70.0		0.0
Storage Lanes	0		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			20.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.98			0.98			
Frt						0.850			0.850			
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1863	0	1770	0	1583	1770	3505	1388	1770	3471	0
Flt Permitted				0.757			0.130			0.040		
Satd. Flow (perm)	0	1863	0	1410	0	1557	242	3505	1356	75	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						89			56			
Link Speed (k/h)		20			20			60			60	
Link Distance (m)		78.7			109.0			435.9			458.5	
Travel Time (s)		14.2			19.6			26.2			27.5	
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	14%	2%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	5	0	0	6
Adj. Flow (vph)	0	0	0	142	0	113	1	2878	180	92	1661	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	142	0	113	1	2878	180	92	1661	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	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	1	2	1	1	2	
Detector Template	Left	Thru		Left		Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0		2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0		2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type				Perm		Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8		8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0		10.0	15.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	24.2	24.2		35.2		35.2	34.9	34.9	34.9	9.5	34.9	
Total Split (s)	40.6	40.6		40.6		40.6	88.2	88.2	88.2	11.2	99.4	
Total Split (%)	29.0%	29.0%		29.0%		29.0%	63.0%	63.0%	63.0%	8.0%	71.0%	
Maximum Green (s)	34.4	34.4		34.4		34.4	82.3	82.3	82.3	7.2	93.5	
Yellow Time (s)	3.1	3.1		3.1		3.1	3.7	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.1	3.1		3.1		3.1	2.2	2.2	2.2	1.0	2.2	
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.2		6.2		6.2	5.9	5.9	5.9	4.0	5.9	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.6	3.6	3.6	3.0	3.6	
Recall Mode	None	None		None		None	C-Max	C-Max	C-Max	None	C-Max	
Walk Time (s)				7.0		7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)				22.0		22.0	22.0	22.0	22.0		22.0	
Pedestrian Calls (#/hr)				0		0	0	0	0		0	
Act Effct Green (s)				19.4		19.4	95.7	95.7	95.7	110.4	108.5	
Actuated g/C Ratio				0.14		0.14	0.68	0.68	0.68	0.79	0.78	
v/c Ratio				0.73		0.39	0.01	1.20	0.19	0.56	0.62	
Control Delay				77.9		18.8	1.0	105.6	0.1	34.4	8.7	
Queue Delay				0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay				77.9		18.8	1.0	105.6	0.1	34.4	8.7	
LOS				E		B	A	F	A	C	A	
Approach Delay					51.7			99.4			10.0	
Approach LOS					D			F			B	
Queue Length 50th (m)				40.2		6.2	0.0	~546.8	0.0	9.2	95.1	
Queue Length 95th (m)				61.0		23.7	m0.0	m#359.6	m0.0	29.3	145.0	
Internal Link Dist (m)		54.7			85.0			411.9			434.5	
Turn Bay Length (m)						40.0	35.0		30.0	70.0		
Base Capacity (vph)				346		449	165	2396	944	169	2689	
Starvation Cap Reductn				0		0	0	0	0	0	0	
Spillback Cap Reductn				0		0	0	0	0	0	0	
Storage Cap Reductn				0		0	0	0	0	0	0	
Reduced v/c Ratio				0.41		0.25	0.01	1.20	0.19	0.54	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103.6 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20

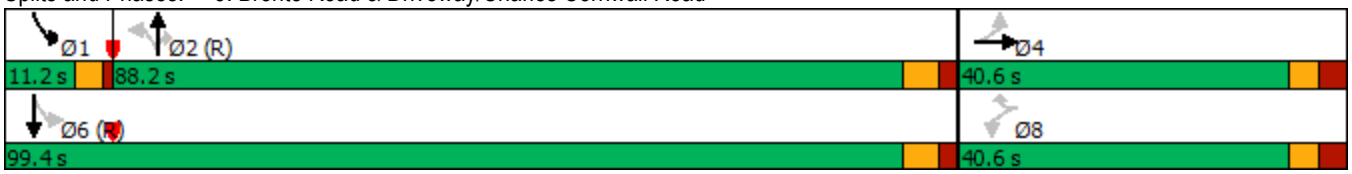
Intersection Signal Delay: 66.1	Intersection LOS: E
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

~ 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.

Splits and Phases: 3: Bronte Road & Driveway/Charles Cornwall Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	138	0	110	1	2792	175	89	1611	0
Future Volume (vph)	0	0	0	138	0	110	1	2792	175	89	1611	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.2		6.2	5.9	5.9	5.9	4.0	5.9	
Lane Util. Factor				1.00		1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes				1.00		0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes				1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt				1.00		0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected				0.95		1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1770		1552	1770	3505	1357	1770	3471	
Flt Permitted				0.76		1.00	0.13	1.00	1.00	0.04	1.00	
Satd. Flow (perm)				1410		1552	242	3505	1357	75	3471	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	142	0	113	1	2878	180	92	1661	0
RTOR Reduction (vph)	0	0	0	0	0	77	0	0	18	0	0	0
Lane Group Flow (vph)	0	0	0	142	0	36	1	2878	162	92	1661	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	14%	2%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	5	0	0	6
Turn Type				Perm		Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)				19.4		19.4	95.7	95.7	95.7	108.5	108.5	
Effective Green, g (s)				19.4		19.4	95.7	95.7	95.7	108.5	108.5	
Actuated g/C Ratio				0.14		0.14	0.68	0.68	0.68	0.78	0.78	
Clearance Time (s)				6.2		6.2	5.9	5.9	5.9	4.0	5.9	
Vehicle Extension (s)				3.0		3.0	3.6	3.6	3.6	3.0	3.6	
Lane Grp Cap (vph)				195		215	165	2395	927	164	2690	
v/s Ratio Prot								c0.82		0.04	c0.48	
v/s Ratio Perm				c0.10		0.02	0.00		0.12	0.40		
v/c Ratio				0.73		0.17	0.01	1.20	0.18	0.56	0.62	
Uniform Delay, d1				57.8		53.2	7.0	22.1	8.0	42.6	6.8	
Progression Factor				1.00		1.00	0.08	0.41	0.00	1.00	1.00	
Incremental Delay, d2				12.7		0.4	0.0	91.2	0.0	4.3	1.1	
Delay (s)				70.5		53.6	0.6	100.1	0.1	46.9	7.9	
Level of Service				E		D	A	F	A	D	A	
Approach Delay (s)		0.0			63.0			94.2			9.9	
Approach LOS		A			E			F			A	

Intersection Summary			
HCM 2000 Control Delay	63.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.1
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
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)	0	0	0	129	0	155	0	2739	74	88	1664	2
Future Volume (vph)	0	0	0	129	0	155	0	2739	74	88	1664	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	45.0		0.0	35.0		70.0	115.0		0.0
Storage Lanes	0		0	1		1	1		1	1		0
Taper Length (m)	7.5			50.0			65.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.98			0.97		1.00	
Frt						0.850			0.850			
Flt Protected				0.950	0.950					0.950		
Satd. Flow (prot)	0	1863	0	1681	1681	1583	1863	3505	1583	1770	3471	0
Flt Permitted				0.950	0.950					0.047		
Satd. Flow (perm)	0	1863	0	1681	1681	1553	1863	3505	1540	88	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						160			106			
Link Speed (k/h)		20			50			60			60	
Link Distance (m)		52.6			84.3			299.0			435.9	
Travel Time (s)		9.5			6.1			17.9			26.2	
Confl. Peds. (#/hr)	2					2			2	2		
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%	2%
Adj. Flow (vph)	0	0	0	133	0	160	0	2824	76	91	1715	2
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	66	67	160	0	2824	76	91	1717	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
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	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
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												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4		4	2		2	6		
Detector Phase	8	8		4	4	4	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	15.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	24.7	24.7		36.9	36.9	36.9	41.7	41.7	41.7	10.5	24.7	
Total Split (s)	13.0	13.0		39.0	39.0	39.0	77.0	77.0	77.0	11.0	88.0	
Total Split (%)	9.3%	9.3%		27.9%	27.9%	27.9%	55.0%	55.0%	55.0%	7.9%	62.9%	
Maximum Green (s)	6.3	6.3		33.1	33.1	33.1	70.3	70.3	70.3	7.0	81.3	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.0	3.0		2.2	2.2	2.2	3.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.7		5.9	5.9	5.9	6.7	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Walk Time (s)				7.0	7.0	7.0	7.0	7.0	7.0		0.0	
Flash Dont Walk (s)				24.0	24.0	24.0	28.0	28.0	28.0		0.0	
Pedestrian Calls (#/hr)				2	2	2	2	2	2		0	
Act Effct Green (s)				33.1	33.1	33.1		81.5	81.5	97.0	94.3	
Actuated g/C Ratio				0.24	0.24	0.24		0.58	0.58	0.69	0.67	
v/c Ratio				0.17	0.17	0.33		1.38	0.08	0.55	0.73	
Control Delay				43.9	44.0	8.0		197.1	0.6	35.3	13.9	
Queue Delay				0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay				43.9	44.0	8.0		197.1	0.6	35.3	13.9	
LOS				D	D	A		F	A	D	B	
Approach Delay					24.3			191.9			15.0	
Approach LOS					C			F			B	
Queue Length 50th (m)				16.2	16.5	0.0		~572.1	0.0	12.1	112.8	
Queue Length 95th (m)				30.7	31.0	18.7		m#485.2	m0.0	m30.1	131.6	
Internal Link Dist (m)		28.6			60.3			275.0			411.9	
Turn Bay Length (m)				45.0					70.0	115.0		
Base Capacity (vph)				397	397	489		2040	940	168	2337	
Starvation Cap Reductn				0	0	0		15	0	0	0	
Spillback Cap Reductn				0	0	0		0	0	0	0	
Storage Cap Reductn				0	0	0		0	0	0	0	
Reduced v/c Ratio				0.17	0.17	0.33		1.39	0.08	0.54	0.73	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 85 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.38

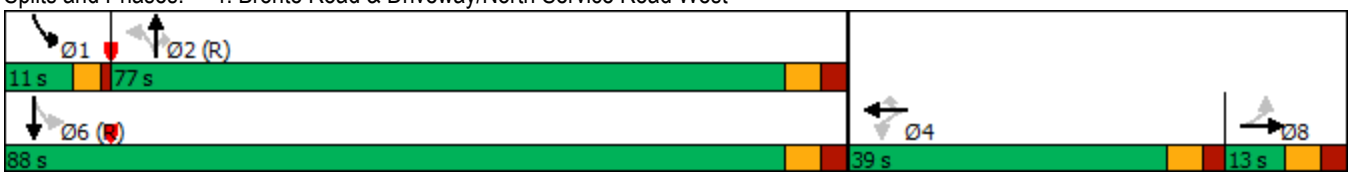
Intersection Signal Delay: 118.1	Intersection LOS: F
Intersection Capacity Utilization 97.1%	ICU Level of Service F
Analysis Period (min) 15	

~ 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.

Splits and Phases: 4: Bronte Road & Driveway/North Service Road West



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	129	0	155	0	2739	74	88	1664	2
Future Volume (vph)	0	0	0	129	0	155	0	2739	74	88	1664	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9		6.7	6.7	4.0	6.7	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frpb, ped/bikes				1.00	1.00	0.98		1.00	0.97	1.00	1.00	
Flpb, ped/bikes				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1681	1553		3505	1540	1770	3471	
Flt Permitted				0.95	0.95	1.00		1.00	1.00	0.05	1.00	
Satd. Flow (perm)				1681	1681	1553		3505	1540	87	3471	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	133	0	160	0	2824	76	91	1715	2
RTOR Reduction (vph)	0	0	0	0	0	122	0	0	32	0	0	0
Lane Group Flow (vph)	0	0	0	66	67	38	0	2824	44	91	1717	0
Confl. Peds. (#/hr)	2					2			2	2		
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%	2%
Turn Type				Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4		4	2		2	6		
Actuated Green, G (s)				33.1	33.1	33.1		81.5	81.5	94.3	94.3	
Effective Green, g (s)				33.1	33.1	33.1		81.5	81.5	94.3	94.3	
Actuated g/C Ratio				0.24	0.24	0.24		0.58	0.58	0.67	0.67	
Clearance Time (s)				5.9	5.9	5.9		6.7	6.7	4.0	6.7	
Vehicle Extension (s)				5.0	5.0	5.0		5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)				397	397	367		2040	896	164	2337	
v/s Ratio Prot								c0.81		0.03	c0.49	
v/s Ratio Perm				0.04	0.04	0.02			0.03	0.34		
v/c Ratio				0.17	0.17	0.10		1.38	0.05	0.55	0.73	
Uniform Delay, d1				42.5	42.5	41.8		29.2	12.6	34.1	14.8	
Progression Factor				1.00	1.00	1.00		0.78	0.56	1.35	0.81	
Incremental Delay, d2				0.4	0.4	0.3		173.2	0.0	3.2	1.7	
Delay (s)				42.9	42.9	42.1		196.1	7.0	49.1	13.6	
Level of Service				D	D	D		F	A	D	B	
Approach Delay (s)		0.0			42.5			191.2			15.4	
Approach LOS		A			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	118.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	232	655	2091	0	0	1096
Future Volume (vph)	232	655	2091	0	0	1096
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	90.0		0.0	0.0	
Storage Lanes	2	1		0	0	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3433	1583	3505	0	0	3505
Flt Permitted	0.950					
Satd. Flow (perm)	3433	1583	3505	0	0	3505
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		7				
Link Speed (k/h)	60		60			60
Link Distance (m)	65.9		376.8			299.0
Travel Time (s)	4.0		22.6			17.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Adj. Flow (vph)	252	712	2273	0	0	1191
Shared Lane Traffic (%)						
Lane Group Flow (vph)	252	712	2273	0	0	1191
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		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		15	25	
Number of Detectors	1	1	2			2
Detector Template	Left	Right	Thru			Thru
Leading Detector (m)	2.0	2.0	10.0			10.0
Trailing Detector (m)	0.0	0.0	0.0			0.0
Detector 1 Position(m)	0.0	0.0	0.0			0.0
Detector 1 Size(m)	2.0	2.0	0.6			0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0			0.0
Detector 1 Delay (s)	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	NA			NA
Protected Phases	8		2			6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8				
Detector Phase	8	8	2			6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0			20.0
Minimum Split (s)	24.7	24.7	36.5			26.5
Total Split (s)	46.0	46.0	94.0			94.0
Total Split (%)	32.9%	32.9%	67.1%			67.1%
Maximum Green (s)	39.3	39.3	87.5			87.5
Yellow Time (s)	3.7	3.7	3.7			3.7
All-Red Time (s)	3.0	3.0	2.8			2.8
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.7	6.7	6.5			6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Recall Mode	None	None	C-Max			C-Max
Act Effct Green (s)	39.3	39.3	87.5			87.5
Actuated g/C Ratio	0.28	0.28	0.62			0.62
v/c Ratio	0.26	1.59	1.04			0.54
Control Delay	40.0	307.7	37.4			9.8
Queue Delay	0.0	0.0	26.9			0.0
Total Delay	40.0	307.7	64.3			9.8
LOS	D	F	E			A
Approach Delay	237.7		64.3			9.8
Approach LOS	F		E			A
Queue Length 50th (m)	29.4	~295.4	~382.3			36.0
Queue Length 95th (m)	41.7	#375.1	m71.8			60.6
Internal Link Dist (m)	41.9		352.8			275.0
Turn Bay Length (m)		90.0				
Base Capacity (vph)	963	449	2190			2190
Starvation Cap Reductn	0	0	0			0
Spillback Cap Reductn	0	1	882			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.26	1.59	1.74			0.54

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 67 (48%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.59
Intersection Signal Delay: 87.4 Intersection LOS: F
Intersection Capacity Utilization 109.4% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 5: Bronte Road & QEW WB Off Ramp

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	232	655	2091	0	0	1096
Future Volume (vph)	232	655	2091	0	0	1096
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.5			6.5
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3505			3505
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3505			3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	712	2273	0	0	1191
RTOR Reduction (vph)	0	5	0	0	0	0
Lane Group Flow (vph)	252	707	2273	0	0	1191
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	39.3	39.3	87.5			87.5
Effective Green, g (s)	39.3	39.3	87.5			87.5
Actuated g/C Ratio	0.28	0.28	0.62			0.62
Clearance Time (s)	6.7	6.7	6.5			6.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	963	444	2190			2190
v/s Ratio Prot	0.07		c0.65			0.34
v/s Ratio Perm		c0.45				
v/c Ratio	0.26	1.59	1.04			0.54
Uniform Delay, d1	39.1	50.4	26.2			14.9
Progression Factor	1.00	1.00	0.65			0.60
Incremental Delay, d2	0.1	277.0	18.9			0.7
Delay (s)	39.2	327.4	36.0			9.7
Level of Service	D	F	D			A
Approach Delay (s)	252.0		36.0			9.7
Approach LOS	F		D			A

Intersection Summary			
HCM 2000 Control Delay	76.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
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)	6	0	4	214	1	867	1	1631	228	319	994	3
Future Volume (vph)	6	0	4	214	1	867	1	1631	228	319	994	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	130.0		125.0	120.0		95.0	255.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			65.0			95.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor									0.97		1.00	
Frt		0.850			0.857	0.850			0.850			
Flt Protected	0.950			0.950	0.998		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1681	1423	1475	1770	3539	1583	1770	3539	0
Flt Permitted	0.950			0.950	0.998		0.264			0.089		
Satd. Flow (perm)	1770	1583	0	1681	1423	1475	492	3539	1540	166	3539	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)					462	480			118			
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		53.2			37.5			215.0			376.8	
Travel Time (s)		4.8			3.4			12.9			22.6	
Confl. Bikes (#/hr)									5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	7	0	4	233	1	942	1	1773	248	347	1080	3
Shared Lane Traffic (%)				10%		49%						
Lane Group Flow (vph)	7	4	0	210	486	480	1	1773	248	347	1083	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
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	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4			2		1	6	
Permitted Phases						4	2		2	6		
Detector Phase	8	8		4	4	4	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		10.0	10.0	10.0	20.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	36.7	36.7		36.7	36.7	36.7	36.5	36.5	36.5	11.5	36.5	
Total Split (s)	36.7	36.7		49.0	49.0	49.0	42.3	42.3	42.3	12.0	54.3	
Total Split (%)	26.2%	26.2%		35.0%	35.0%	35.0%	30.2%	30.2%	30.2%	8.6%	38.8%	
Maximum Green (s)	30.0	30.0		42.3	42.3	42.3	35.8	35.8	35.8	8.0	47.8	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.7	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.8	2.8	2.8	1.0	2.8	
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)	6.7	6.7		6.7	6.7	6.7	6.5	6.5	6.5	4.0	6.5	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	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	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Walk Time (s)				7.0	7.0	7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)				23.0	23.0	23.0	23.0	23.0	23.0		23.0	
Pedestrian Calls (#/hr)				0	0	0	0	0	0		0	
Act Effct Green (s)	7.1	7.1		25.6	25.6	25.6	45.0	45.0	45.0	98.1	95.6	
Actuated g/C Ratio	0.05	0.05		0.18	0.18	0.18	0.32	0.32	0.32	0.70	0.68	
v/c Ratio	0.08	0.05		0.68	0.76	0.73	0.01	1.56	0.43	0.53	0.45	
Control Delay	65.3	64.8		63.9	13.7	10.6	36.0	289.1	21.9	29.0	18.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	65.3	64.8		63.9	13.7	10.6	36.0	289.1	21.9	29.0	18.4	
LOS	E	E		E	B	B	D	F	C	C	B	
Approach Delay		65.1			21.4			256.2			21.0	
Approach LOS		E			C			F			C	
Queue Length 50th (m)	2.0	1.1		60.9	6.4	0.0	0.2	~331.7	24.4	55.8	78.7	
Queue Length 95th (m)	7.4	5.4		83.4	47.2	34.1	1.8	#459.6	59.7	119.8	158.0	
Internal Link Dist (m)		29.2			13.5			191.0			352.8	
Turn Bay Length (m)	10.0			130.0		125.0	120.0		95.0	255.0		
Base Capacity (vph)	379	339		507	752	780	158	1137	574	650	2417	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.01		0.41	0.65	0.62	0.01	1.56	0.43	0.53	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 66 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.56
Intersection Signal Delay: 123.7 Intersection LOS: F

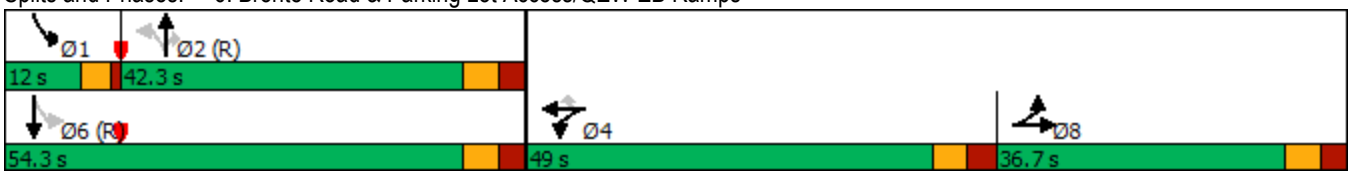
Intersection Capacity Utilization 103.3% ICU Level of Service G

Analysis Period (min) 15

~ 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.

Splits and Phases: 6: Bronte Road & Parking Lot Access/QEW EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	0	4	214	1	867	1	1631	228	319	994	3
Future Volume (vph)	6	0	4	214	1	867	1	1631	228	319	994	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7	6.7	6.5	6.5	6.5	4.0	6.5	
Lane Util. Factor	1.00	1.00		0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85		1.00	0.86	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1583		1681	1423	1475	1770	3539	1542	1770	3538	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.26	1.00	1.00	0.09	1.00	
Satd. Flow (perm)	1770	1583		1681	1423	1475	491	3539	1542	166	3538	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	0	4	233	1	942	1	1773	248	347	1080	3
RTOR Reduction (vph)	0	0	0	0	378	392	0	0	83	0	0	0
Lane Group Flow (vph)	7	4	0	210	108	88	1	1773	165	347	1083	0
Confl. Bikes (#/hr)									5			5
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4			2		1	6	
Permitted Phases						4	2		2	6		
Actuated Green, G (s)	2.9	2.9		25.6	25.6	25.6	41.0	41.0	41.0	91.6	91.6	
Effective Green, g (s)	2.9	2.9		25.6	25.6	25.6	41.0	41.0	41.0	91.6	91.6	
Actuated g/C Ratio	0.02	0.02		0.18	0.18	0.18	0.29	0.29	0.29	0.65	0.65	
Clearance Time (s)	6.7	6.7		6.7	6.7	6.7	6.5	6.5	6.5	4.0	6.5	
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)	36	32		307	260	269	143	1036	451	642	2314	
v/s Ratio Prot	c0.00	0.00		c0.12	0.08			c0.50		c0.18	0.31	
v/s Ratio Perm						0.06	0.00		0.11	0.17		
v/c Ratio	0.19	0.12		0.68	0.42	0.33	0.01	1.71	0.36	0.54	0.47	
Uniform Delay, d1	67.4	67.3		53.4	50.6	49.7	35.1	49.5	39.2	27.9	12.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.45	
Incremental Delay, d2	2.6	1.8		6.2	1.1	0.7	0.1	324.3	2.3	0.8	0.6	
Delay (s)	70.0	69.1		59.6	51.7	50.4	35.2	373.8	41.5	27.6	18.1	
Level of Service	E	E		E	D	D	D	F	D	C	B	
Approach Delay (s)		69.7			52.6			332.8			20.4	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	164.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.9
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	232	655	2091	0	0	1096
Future Volume (vph)	232	655	2091	0	0	1096
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	90.0		0.0	0.0	
Storage Lanes	2	1		0	0	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3433	1583	3505	0	0	3505
Flt Permitted	0.950					
Satd. Flow (perm)	3433	1583	3505	0	0	3505
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		4				
Link Speed (k/h)	60		60			60
Link Distance (m)	65.9		376.8			299.0
Travel Time (s)	4.0		22.6			17.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Adj. Flow (vph)	252	712	2273	0	0	1191
Shared Lane Traffic (%)						
Lane Group Flow (vph)	252	712	2273	0	0	1191
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.2		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		15	25	
Number of Detectors	1	1	2			2
Detector Template	Left	Right	Thru			Thru
Leading Detector (m)	2.0	2.0	10.0			10.0
Trailing Detector (m)	0.0	0.0	0.0			0.0
Detector 1 Position(m)	0.0	0.0	0.0			0.0
Detector 1 Size(m)	2.0	2.0	0.6			0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0			0.0
Detector 1 Delay (s)	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	NA			NA
Protected Phases	8		2			6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8				
Detector Phase	8	8	2			6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0			20.0
Minimum Split (s)	24.7	24.7	36.5			26.5
Total Split (s)	56.0	56.0	84.0			84.0
Total Split (%)	40.0%	40.0%	60.0%			60.0%
Maximum Green (s)	49.3	49.3	77.5			77.5
Yellow Time (s)	3.7	3.7	3.7			3.7
All-Red Time (s)	3.0	3.0	2.8			2.8
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.7	6.7	6.5			6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Recall Mode	None	None	C-Max			C-Max
Act Effct Green (s)	49.3	49.3	77.5			77.5
Actuated g/C Ratio	0.35	0.35	0.55			0.55
v/c Ratio	0.21	1.27	1.17			0.61
Control Delay	32.3	173.6	97.6			17.3
Queue Delay	0.0	0.0	1.7			0.0
Total Delay	32.3	173.6	99.2			17.3
LOS	C	F	F			B
Approach Delay	136.6		99.2			17.3
Approach LOS	F		F			B
Queue Length 50th (m)	26.3	~261.7	~423.3			55.9
Queue Length 95th (m)	37.3	#341.5	m71.8			102.9
Internal Link Dist (m)	41.9		352.8			275.0
Turn Bay Length (m)		90.0				
Base Capacity (vph)	1208	560	1940			1940
Starvation Cap Reductn	0	0	0			0
Spillback Cap Reductn	0	0	749			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.21	1.27	1.91			0.61

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 67 (48%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 85.3 Intersection LOS: F
Intersection Capacity Utilization 109.4% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 5: Bronte Road & QEW WB Off Ramp

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	232	655	2091	0	0	1096
Future Volume (vph)	232	655	2091	0	0	1096
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.5			6.5
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3505			3505
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3505			3505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	712	2273	0	0	1191
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	252	709	2273	0	0	1191
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	49.3	49.3	77.5			77.5
Effective Green, g (s)	49.3	49.3	77.5			77.5
Actuated g/C Ratio	0.35	0.35	0.55			0.55
Clearance Time (s)	6.7	6.7	6.5			6.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	1208	557	1940			1940
v/s Ratio Prot	0.07		c0.65			0.34
v/s Ratio Perm		c0.45				
v/c Ratio	0.21	1.27	1.17			0.61
Uniform Delay, d1	31.7	45.4	31.2			21.1
Progression Factor	1.00	1.00	0.54			0.76
Incremental Delay, d2	0.1	136.7	77.8			1.0
Delay (s)	31.8	182.0	94.6			17.1
Level of Service	C	F	F			B
Approach Delay (s)	142.8		94.6			17.1
Approach LOS	F		F			B

Intersection Summary			
HCM 2000 Control Delay	84.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			