Appendix N

2031 Future Background 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	525	88	196	72	1072	271	289	2342	13
Future Volume (vph)	11	203	390	525	88	196	72	1072	271	289	2342	13
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	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	0.99		0.98			0.97			0.96	1.00		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	4222	1485	1770	4302	1336
Flt Permitted	0.698			0.422			0.068			0.125		
Satd. Flow (perm)	1200	1863	1556	1525	1792	1503	123	4222	1424	232	4302	1289
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121			202			273			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	541	91	202	74	1105	279	298	2414	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	209	402	541	91	202	74	1105	279	298	2414	13
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	12.2	38.4	38.4	10.5	58.5	58.5	32.6	80.6	80.6
Total Split (%)	7.5%	26.2%	26.2%	8.7%	27.4%	27.4%	7.5%	41.8%	41.8%	23.3%	57.6%	57.6%
Maximum Green (s)	6.5	30.0	30.0	8.2	31.7	31.7	6.5	52.0	52.0	28.6	74.1	74.1
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	43.0	37.0	37.0	69.9	61.0	61.0	88.1	77.2	77.2
Actuated g/C Ratio	0.27	0.21	0.21	0.31	0.26	0.26	0.50	0.44	0.44	0.63	0.55	0.55
v/c Ratio	0.03	0.54	0.96	0.93	0.19	0.37	0.55	0.60	0.36	0.80	1.02	0.02
Control Delay	33.1	55.1	73.4	67.6	42.5	7.7	48.9	37.9	12.9	39.8	54.9	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	33.1	55.1	73.4	67.6	42.5	7.7	48.9	37.9	12.9	39.8	54.9	0.1
LOS	C	E	E	E	D	A	D	D	B	D	D	A
Approach Delay		66.5			50.4			33.7			53.0	
Approach LOS		E			D			C			D	
Queue Length 50th (m)	2.2	54.4	85.4	65.5	19.6	0.0	11.8	89.8	20.7	49.0	~321.3	0.0
Queue Length 95th (m)	7.1	81.7	#151.2	#99.7	38.3	21.2	#26.7	129.2	37.4	81.4	#353.6	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	579	473	546	135	1840	774	460	2371	751
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	0.93	0.19	0.37	0.55	0.60	0.36	0.65	1.02	0.02

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 82.6 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

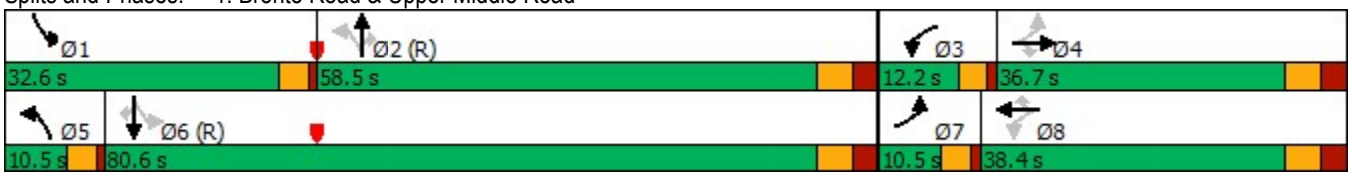
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 49.1	Intersection LOS: D
Intersection Capacity Utilization 98.7%	ICU Level of Service F
Analysis Period (min) 15	

* User Entered Value

~ 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	525	88	196	72	1072	271	289	2342	13
Future Volume (vph)	11	203	390	525	88	196	72	1072	271	289	2342	13
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	*0.80	1.00	1.00	*0.80	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	4222	1425	1769	4302	1289
Flt Permitted	0.70	1.00	1.00	0.42	1.00	1.00	0.07	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	1205	1863	1556	1526	1792	1504	123	4222	1425	232	4302	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	541	91	202	74	1105	279	298	2414	13
RTOR Reduction (vph)	0	0	94	0	0	149	0	0	159	0	0	6
Lane Group Flow (vph)	11	209	308	541	91	53	74	1105	120	298	2414	7
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	43.6	37.0	37.0	63.9	58.7	58.7	83.2	74.0	74.0
Effective Green, g (s)	34.0	31.4	31.4	43.6	37.0	37.0	63.9	58.7	58.7	83.2	74.0	74.0
Actuated g/C Ratio	0.24	0.22	0.22	0.31	0.26	0.26	0.46	0.42	0.42	0.59	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)	300	417	348	586	473	397	115	1770	597	362	2273	681
v/s Ratio Prot	0.00	0.11		c0.05	0.05		0.02	0.26		c0.12	c0.56	
v/s Ratio Perm	0.01		0.20	c0.23		0.04	0.27		0.08	0.37		0.01
v/c Ratio	0.04	0.50	0.89	0.92	0.19	0.13	0.64	0.62	0.20	0.82	1.06	0.01
Uniform Delay, d1	40.4	47.5	52.6	47.0	39.9	39.3	32.8	32.0	25.8	28.3	33.0	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.52	1.15	3.26	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.0	22.5	20.3	0.2	0.2	10.9	1.6	0.7	14.0	37.9	0.0
Delay (s)	40.4	48.4	75.1	67.3	40.1	39.4	60.6	38.5	84.7	42.3	70.9	15.7
Level of Service	D	D	E	E	D	D	E	D	F	D	E	B
Approach Delay (s)		65.5			57.6			48.4			67.5	
Approach LOS		E			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	60.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	98.7%	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)	5	0	16	169	0	95	6	1311	52	30	3421	2
Future Volume (vph)	5	0	16	169	0	95	6	1311	52	30	3421	2
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	*0.80	1.00	1.00	*0.80	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	4471	1583	1770	4471	1583
Flt Permitted	0.643			0.746			0.038			0.127		
Satd. Flow (perm)	1198	1583	0	1390	1583	0	71	4471	1583	237	4471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			74				24			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)	5	0	17	184	0	103	7	1425	57	33	3718	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	17	0	184	103	0	7	1425	57	33	3718	2
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)	23.2	23.2		23.2	23.2		105.8	105.8	105.8	105.8	105.8	105.8
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.76	0.76	0.76	0.76	0.76	0.76
v/c Ratio	0.03	0.06		0.80	0.32		0.13	0.42	0.05	0.18	1.10	0.00
Control Delay	45.4	16.3		80.0	19.2		15.0	13.1	5.6	5.2	60.3	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	16.3		80.0	19.2		15.0	13.1	5.6	5.2	60.3	0.0
LOS	D	B		E	B		B	B	A	A	E	A
Approach Delay		22.9			58.2			12.8			59.8	
Approach LOS		C			E			B			E	
Queue Length 50th (m)	1.3	0.0		52.0	7.2		1.0	126.2	6.5	1.8	~512.0	0.0
Queue Length 95th (m)	5.2	6.4		76.4	23.5		m1.7	120.2	7.5	m2.5	m#535.5	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)	256	354		297	397		53	3378	1201	179	3378	1200
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	0.05		0.62	0.26		0.13	0.42	0.05	0.18	1.10	0.00

Intersection Summary	
Area Type: Other	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 80 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 47.0	Intersection LOS: D
Intersection Capacity Utilization 91.3%	ICU Level of Service F
Analysis Period (min) 15	

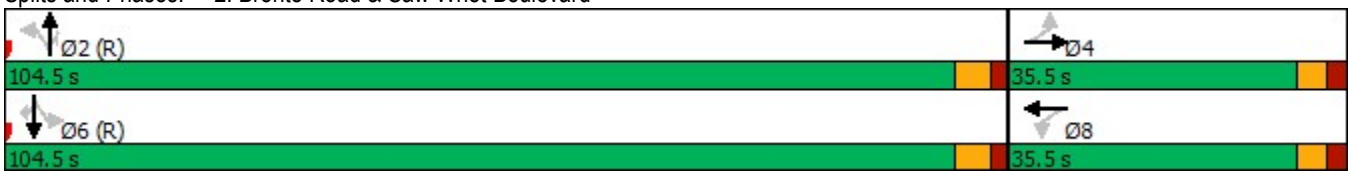
* User Entered Value

~ 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)	5	0	16	169	0	95	6	1311	52	30	3421	2
Future Volume (vph)	5	0	16	169	0	95	6	1311	52	30	3421	2
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	*0.80	1.00	1.00	*0.80	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	4471	1583	1770	4471	1583
Flt Permitted	0.64	1.00		0.75	1.00		0.04	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	1198	1583		1390	1583		70	4471	1583	237	4471	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)	5	0	17	184	0	103	7	1425	57	33	3718	2
RTOR Reduction (vph)	0	14	0	0	62	0	0	0	6	0	0	0
Lane Group Flow (vph)	5	3	0	184	41	0	7	1425	51	33	3718	2
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)	23.2	23.2		23.2	23.2		105.8	105.8	105.8	105.8	105.8	105.8
Effective Green, g (s)	23.2	23.2		23.2	23.2		105.8	105.8	105.8	105.8	105.8	105.8
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.76	0.76	0.76	0.76	0.76	0.76
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)	198	262		230	262		52	3378	1196	179	3378	1196
v/s Ratio Prot		0.00			0.03			0.32			c0.83	
v/s Ratio Perm	0.00			c0.13			0.10		0.03	0.14		0.00
v/c Ratio	0.03	0.01		0.80	0.16		0.13	0.42	0.04	0.18	1.10	0.00
Uniform Delay, d1	48.9	48.8		56.2	50.0		4.7	6.1	4.3	4.9	17.1	4.2
Progression Factor	1.00	1.00		1.00	1.00		1.38	1.92	1.58	0.62	0.50	1.00
Incremental Delay, d2	0.1	0.0		17.8	0.3		4.8	0.3	0.1	1.0	47.7	0.0
Delay (s)	49.0	48.8		73.9	50.3		11.2	12.1	6.9	4.0	56.3	4.2
Level of Service	D	D		E	D		B	B	A	A	E	A
Approach Delay (s)		48.9			65.5			11.9			55.8	
Approach LOS		D			E			B			E	

Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	91.3%	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)	1	0	1	161	0	65	0	1354	78	149	3432	0
Future Volume (vph)	1	0	1	161	0	65	0	1354	78	149	3432	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	*0.80	1.00	1.00	*0.80	0.91
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	4302	1439	1770	4385	0
Flt Permitted		0.976		0.757						0.114		
Satd. Flow (perm)	0	1680	0	1219	0	1368	1863	4302	1405	212	4385	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	1396	80	154	3538	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2	0	166	0	67	0	1396	80	154	3538	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	86.8	86.8	86.8	18.0	104.8	
Total Split (%)	25.1%	25.1%		25.1%		25.1%	62.0%	62.0%	62.0%	12.9%	74.9%	
Maximum Green (s)	29.0	29.0		29.0		29.0	80.9	80.9	80.9	14.0	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		91.3	91.3	106.5	104.6	
Actuated g/C Ratio		0.17		0.17		0.17		0.65	0.65	0.76	0.75	
v/c Ratio		0.01		0.82		0.24		0.50	0.09	0.58	1.08	
Control Delay		0.0		85.8		12.2		13.8	8.2	10.7	47.6	
Queue Delay		0.0		0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay		0.0		85.8		12.2		13.8	8.2	10.7	47.6	
LOS		A		F		B		B	A	B	D	
Approach Delay					64.6			13.5			46.1	
Approach LOS					E			B			D	
Queue Length 50th (m)		0.0		46.9		0.0		53.3	3.0	0.0	~493.4	
Queue Length 95th (m)		0.0		71.9		13.4		77.2	m11.9	m0.0	m#434.5	
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		2804	935	317	3277	
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		0.50	0.09	0.49	1.08	

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: 1.08

Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 107.6%	ICU Level of Service G
Analysis Period (min) 15	

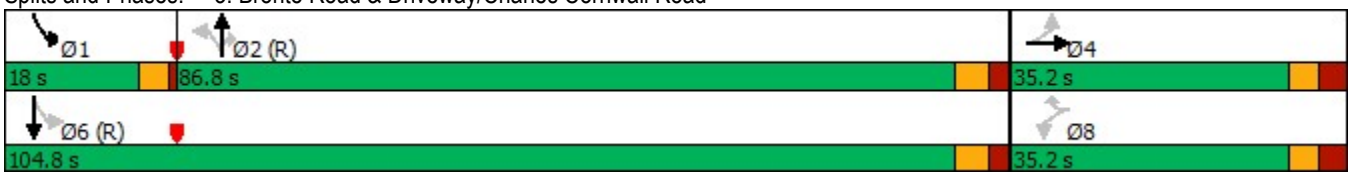
* User Entered Value

~ 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	1354	78	149	3432	0
Future Volume (vph)	1	0	1	161	0	65	0	1354	78	149	3432	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		*0.80	1.00	1.00	*0.80	
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		4302	1406	1770	4385	
Flt Permitted		0.98		0.76		1.00		1.00	1.00	0.11	1.00	
Satd. Flow (perm)		1679		1218		1366		4302	1406	213	4385	
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	1396	80	154	3538	0
RTOR Reduction (vph)	0	2	0	0	0	56	0	0	20	0	0	0
Lane Group Flow (vph)	0	0	0	166	0	11	0	1396	60	154	3538	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		91.2	91.2	104.6	104.6	
Effective Green, g (s)		23.3		23.3		23.3		91.2	91.2	104.6	104.6	
Actuated g/C Ratio		0.17		0.17		0.17		0.65	0.65	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		2802	915	263	3276	
v/s Ratio Prot								0.32		0.04	c0.81	
v/s Ratio Perm		0.00		c0.14		0.01			0.04	0.40		
v/c Ratio		0.00		0.82		0.05		0.50	0.07	0.59	1.08	
Uniform Delay, d1		48.6		56.3		49.0		12.6	8.9	8.6	17.7	
Progression Factor		1.00		1.00		1.00		0.97	1.77	1.47	0.41	
Incremental Delay, d2		0.0		22.8		0.1		0.5	0.1	0.3	36.6	
Delay (s)		48.7		79.1		49.1		12.8	15.9	13.0	43.9	
Level of Service		D		E		D		B	B	B	D	
Approach Delay (s)		48.7			70.5			13.0			42.6	
Approach LOS		D			E			B			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.1
Intersection Capacity Utilization	107.6%	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	17	0	44	0	1419	241	269	3331	1
Future Volume (vph)	0	0	0	17	0	44	0	1419	241	269	3331	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	*0.80	1.00	1.00	*0.80	0.91
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	4343	1583	1770	4385	0
Flt Permitted				0.950	0.950					0.093		
Satd. Flow (perm)	0	1863	0	1681	1681	1555	1863	4343	1543	173	4385	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						112			151			
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	1448	246	274	3399	1
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	8	9	45	0	1448	246	274	3400	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		41.0	41.0	41.0	52.0	52.0	52.0	18.0	70.0	
Total Split (%)	20.7%	20.7%		29.3%	29.3%	29.3%	37.1%	37.1%	37.1%	12.9%	50.0%	
Maximum Green (s)	22.3	22.3		35.1	35.1	35.1	45.3	45.3	45.3	14.0	63.3	
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)				16.7	16.7	16.7		81.1	81.1	116.6	115.2	
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		0.58	0.26	0.58	0.94	
Control Delay				48.9	49.1	1.2		11.5	2.6	34.7	10.5	
Queue Delay				0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay				48.9	49.1	1.2		11.5	2.6	34.7	10.5	
LOS				D	D	A		B	A	C	B	
Approach Delay					14.3			10.2			12.3	
Approach LOS					B			B			B	
Queue Length 50th (m)				2.3	2.5	0.0		79.5	0.9	50.4	115.0	
Queue Length 95th (m)				7.1	7.5	0.0		93.2	m15.4	m46.7	m#413.7	
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)				421	421	473		2515	957	472	3609	
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	0.10		0.58	0.26	0.58	0.94	

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: 0.94

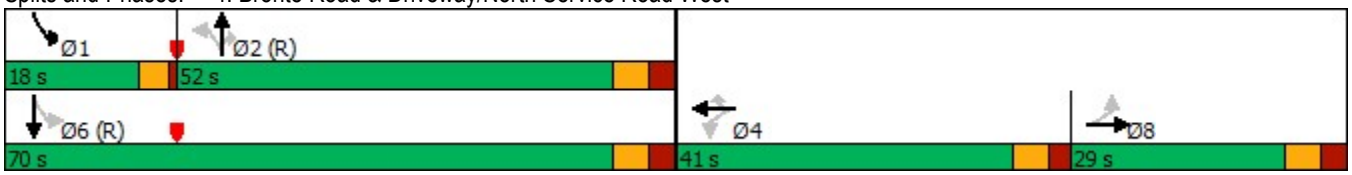
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 101.9%	ICU Level of Service G
Analysis Period (min) 15	

* User Entered Value

\# 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	1419	241	269	3331	1
Future Volume (vph)	0	0	0	17	0	44	0	1419	241	269	3331	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		*0.80	1.00	1.00	*0.80	
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		4343	1547	1770	4384	
Flt Permitted				0.95	0.95	1.00		1.00	1.00	0.09	1.00	
Satd. Flow (perm)				1681	1681	1546		4343	1547	173	4384	
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	1448	246	274	3399	1
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	65	0	0	0
Lane Group Flow (vph)	0	0	0	8	9	5	0	1448	181	274	3400	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)				14.7	14.7	14.7		79.9	79.9	112.7	112.7	
Effective Green, g (s)				14.7	14.7	14.7		79.9	79.9	112.7	112.7	
Actuated g/C Ratio				0.10	0.10	0.10		0.57	0.57	0.81	0.81	
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)				176	176	162		2478	882	467	3529	
v/s Ratio Prot								0.33		0.12	c0.78	
v/s Ratio Perm				0.00	0.01	0.00			0.12	0.35		
v/c Ratio				0.05	0.05	0.03		0.58	0.21	0.59	0.96	
Uniform Delay, d1				56.3	56.4	56.2		19.4	14.6	25.4	11.9	
Progression Factor				1.00	1.00	1.00		0.52	0.29	1.58	0.63	
Incremental Delay, d2				0.2	0.3	0.2		0.8	0.4	0.2	1.1	
Delay (s)				56.6	56.6	56.4		10.9	4.7	40.4	8.5	
Level of Service				E	E	E		B	A	D	A	
Approach Delay (s)		0.0			56.5			10.0			10.9	
Approach LOS		A			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	101.9%	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)	193	290	1370	0	0	2092
Future Volume (vph)	193	290	1370	0	0	2092
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	*0.80	1.00	1.00	*0.80
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1568	4385	0	0	4427
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1568	4385	0	0	4427
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		29				
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	315	1489	0	0	2274
Shared Lane Traffic (%)						
Lane Group Flow (vph)	210	315	1489	0	0	2274
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)	16.2	16.2	40.6			40.6
Actuated g/C Ratio	0.23	0.23	0.58			0.58
v/c Ratio	0.27	0.82	0.59			0.89
Control Delay	22.4	41.2	17.7			22.9
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	22.4	41.2	17.7			22.9
LOS	C	D	B			C
Approach Delay	33.7		17.7			22.9
Approach LOS	C		B			C
Queue Length 50th (m)	11.8	36.1	104.4			159.8
Queue Length 95th (m)	20.1	#73.3	m117.0			217.9
Internal Link Dist (m)	41.9		352.8			275.0
Turn Bay Length (m)		90.0				
Base Capacity (vph)	857	424	2540			2564
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	0.74	0.59			0.89

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: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 22.4 Intersection LOS: C
Intersection Capacity Utilization 59.8% ICU Level of Service B
Analysis Period (min) 15

* User Entered Value
\# 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	290	1370	0	0	2092
Future Volume (vph)	193	290	1370	0	0	2092
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	*0.80			*0.80
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3335	1568	4385			4427
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3335	1568	4385			4427
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	315	1489	0	0	2274
RTOR Reduction (vph)	0	22	0	0	0	0
Lane Group Flow (vph)	210	293	1489	0	0	2274
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)	16.2	16.2	40.6			40.6
Effective Green, g (s)	16.2	16.2	40.6			40.6
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)	771	362	2543			2567
v/s Ratio Prot	0.06		0.34			c0.51
v/s Ratio Perm		c0.19				
v/c Ratio	0.27	0.81	0.59			0.89
Uniform Delay, d1	22.1	25.4	9.3			12.7
Progression Factor	1.00	1.00	1.75			1.57
Incremental Delay, d2	0.2	12.5	0.5			1.8
Delay (s)	22.3	37.9	16.9			21.8
Level of Service	C	D	B			C
Approach Delay (s)	31.6		16.9			21.8
Approach LOS	C		B			C

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
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	603	3	913	232	655	1561	9
Future Volume (vph)	7	1	2	359	2	603	3	913	232	655	1561	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	*0.80	1.00	1.00	*0.80	0.91
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	4262	1583	1770	4380	0
Flt Permitted	0.950			0.950	0.994		0.144			0.126		
Satd. Flow (perm)	1770	1676	0	1665	1424	1461	268	4262	1539	235	4380	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)					280	347			252		1	
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	655	3	992	252	712	1697	10
Shared Lane Traffic (%)				10%		47%						
Lane Group Flow (vph)	8	3	0	351	349	347	3	992	252	712	1707	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	0.05	1.02	0.46	1.03	0.64	
Control Delay	65.6	64.0		65.1	13.9	7.1	45.0	88.0	8.0	66.9	21.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	65.6	64.0		65.1	13.9	7.1	45.0	88.0	8.0	66.9	21.5	
LOS	E	E		E	B	A	D	F	A	E	C	
Approach Delay		65.1			28.8			71.7			34.9	
Approach LOS		E			C			E			C	
Queue Length 50th (m)	2.3	0.9		101.4	17.2	0.0	0.7	~127.9	0.0	203.6	93.3	
Queue Length 95th (m)	8.3	4.3		133.2	50.9	25.1	3.6	#162.7	23.3	m#327.0	153.7	
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	633	691	60	968	544	692	2674	
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	0.50	0.05	1.02	0.46	1.03	0.64	

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: 1.03
Intersection Signal Delay: 43.3 Intersection LOS: D

Intersection Capacity Utilization 91.1% ICU Level of Service F

Analysis Period (min) 15

* User Entered Value

~ Volume exceeds capacity, queue is theoretically infinite.

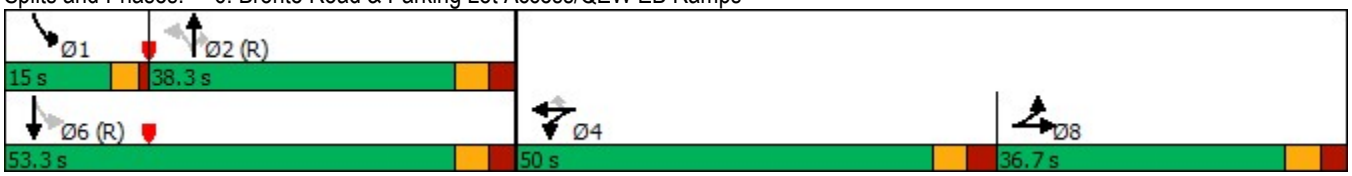
Queue shown is maximum after two cycles.

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	603	3	913	232	655	1561	9
Future Volume (vph)	7	1	2	359	2	603	3	913	232	655	1561	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	*0.80	1.00	1.00	*0.80	
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	4262	1537	1770	4381	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.14	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	1770	1676		1665	1424	1461	269	4262	1537	235	4381	
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	655	3	992	252	712	1697	10
RTOR Reduction (vph)	0	0	0	0	208	258	0	0	202	0	0	0
Lane Group Flow (vph)	8	3	0	351	141	89	3	992	50	712	1707	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	53	843	304	681	2547	
v/s Ratio Prot	c0.00	0.00		c0.21	0.10			c0.23		c0.37	0.39	
v/s Ratio Perm						0.06	0.01		0.03	0.24		
v/c Ratio	0.22	0.09		0.83	0.39	0.24	0.06	1.18	0.16	1.05	0.67	
Uniform Delay, d1	67.4	67.3		49.2	43.0	41.3	45.6	56.1	46.6	38.5	20.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.05	
Incremental Delay, d2	3.1	1.1		12.4	0.7	0.3	2.0	91.8	1.2	37.8	0.7	
Delay (s)	70.6	68.4		61.5	43.7	41.6	47.6	148.0	47.7	74.5	21.8	
Level of Service	E	E		E	D	D	D	F	D	E	C	
Approach Delay (s)		70.0			49.0			127.5			37.3	
Approach LOS		E			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	63.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.9
Intersection Capacity Utilization	91.1%	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	244	155	252	325	2173	409	265	1353	20
Future Volume (vph)	7	74	114	244	155	252	325	2173	409	265	1353	20
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	*0.80	1.00	1.00	*0.80	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	4471	1558	1770	4385	1473
Flt Permitted	0.653			0.578			0.077			0.059		
Satd. Flow (perm)	1209	1863	1556	2068	1863	1543	143	4471	1518	110	4385	1433
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121			198			268			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	260	165	268	346	2312	435	282	1439	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	79	121	260	165	268	346	2312	435	282	1439	21
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	32.4	79.8	79.8	13.0	60.4	60.4
Total Split (%)	7.5%	26.2%	26.2%	7.5%	26.2%	26.2%	23.1%	57.0%	57.0%	9.3%	43.1%	43.1%
Maximum Green (s)	6.5	30.0	30.0	6.5	30.0	30.0	28.4	73.3	73.3	9.0	53.9	53.9
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)	23.8	14.9	14.9	27.3	23.3	23.3	98.5	73.3	73.3	96.5	71.4	71.4
Actuated g/C Ratio	0.17	0.11	0.11	0.20	0.17	0.17	0.70	0.52	0.52	0.69	0.51	0.51
v/c Ratio	0.03	0.40	0.44	0.56	0.53	0.64	0.86	0.99	0.47	0.78	0.64	0.03
Control Delay	40.3	62.2	13.4	53.1	59.4	22.0	57.9	32.8	7.0	53.6	28.6	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	40.3	62.2	13.4	53.1	59.4	22.0	57.9	32.8	7.0	53.6	28.6	0.1
LOS	D	E	B	D	E	C	E	C	A	D	C	A
Approach Delay		32.9			42.6			31.9			32.3	
Approach LOS		C			D			C			C	
Queue Length 50th (m)	1.7	22.5	0.0	35.3	45.1	18.3	83.8	225.6	23.9	57.2	120.6	0.0
Queue Length 95th (m)	5.3	34.5	17.2	41.3	65.2	47.1	m85.2	m#304.0	m26.9	#170.1	183.2	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)	233	399	428	464	399	486	440	2340	922	361	2235	790
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	0.20	0.28	0.56	0.41	0.55	0.79	0.99	0.47	0.78	0.64	0.03

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: 0.99	
Intersection Signal Delay: 33.4	Intersection LOS: C
Intersection Capacity Utilization 86.7%	ICU Level of Service E
Analysis Period (min) 15	

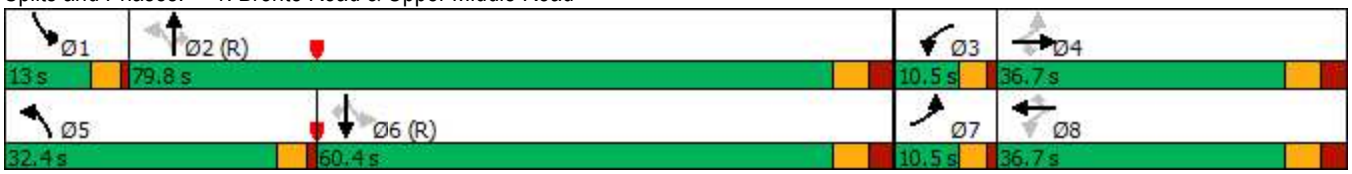
* User Entered Value

\# 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: 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	244	155	252	325	2173	409	265	1353	20
Future Volume (vph)	7	74	114	244	155	252	325	2173	409	265	1353	20
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	*0.80	1.00	1.00	*0.80	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	1551	3400	1863	1541	1770	4471	1518	1770	4385	1435
Flt Permitted	0.65	1.00	1.00	0.58	1.00	1.00	0.08	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1211	1863	1551	2068	1863	1541	144	4471	1518	109	4385	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	260	165	268	346	2312	435	282	1439	21
RTOR Reduction (vph)	0	0	105	0	0	165	0	0	134	0	0	11
Lane Group Flow (vph)	7	79	16	260	165	103	346	2312	301	282	1439	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)	19.4	18.1	18.1	28.6	23.3	23.3	96.2	70.1	70.1	92.2	68.1	68.1
Effective Green, g (s)	19.4	18.1	18.1	28.6	23.3	23.3	96.2	70.1	70.1	92.2	68.1	68.1
Actuated g/C Ratio	0.14	0.13	0.13	0.20	0.17	0.17	0.69	0.50	0.50	0.66	0.49	0.49
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)	172	240	200	484	310	256	402	2238	760	357	2132	698
v/s Ratio Prot	0.00	0.04		c0.02	0.09		c0.16	c0.52		0.14	0.33	
v/s Ratio Perm	0.01		0.01	c0.08		0.07	0.43		0.20	0.38		0.01
v/c Ratio	0.04	0.33	0.08	0.54	0.53	0.40	0.86	1.03	0.40	0.79	0.67	0.01
Uniform Delay, d1	52.2	55.4	53.6	49.2	53.4	52.1	39.4	35.0	21.8	44.0	27.5	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.38	0.73	0.86	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.8	0.2	1.2	1.8	1.0	6.3	20.7	0.5	11.1	1.7	0.0
Delay (s)	52.2	56.2	53.8	50.4	55.1	53.2	60.5	46.3	19.2	55.1	29.2	18.6
Level of Service	D	E	D	D	E	D	E	D	B	E	C	B
Approach Delay (s)		54.7			52.6			44.1			33.3	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	10	104	0	59	16	2921	174	99	1670	6
Future Volume (vph)	4	0	10	104	0	59	16	2921	174	99	1670	6
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	*0.80	1.00	1.00	*0.80	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	4471	1583	1770	4471	1583
Flt Permitted	0.715			0.750			0.076			0.037		
Satd. Flow (perm)	1332	1583	0	1397	1583	0	142	4471	1583	69	4471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			62				62			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)	4	0	11	113	0	64	17	3175	189	108	1815	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	11	0	113	64	0	17	3175	189	108	1815	7
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		95.0	95.0	95.0	9.5	104.5	104.5
Total Split (%)	25.4%	25.4%		25.4%	25.4%		67.9%	67.9%	67.9%	6.8%	74.6%	74.6%
Maximum Green (s)	30.0	30.0		30.0	30.0		89.5	89.5	89.5	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							Lead	Lead	Lead	Lag		
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)	16.7	16.7		16.7	16.7		102.8	102.8	102.8	113.3	112.3	112.3
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.73	0.73	0.73	0.81	0.80	0.80
v/c Ratio	0.03	0.05		0.68	0.26		0.16	0.97	0.16	0.93	0.51	0.01
Control Delay	51.0	0.4		78.5	15.2		3.6	9.7	0.7	101.7	11.3	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	0.4		78.5	15.2		3.6	9.7	0.7	101.7	11.3	3.8
LOS	D	A		E	B		A	A	A	F	B	A
Approach Delay		13.9			55.6			9.2			16.4	
Approach LOS		B			E			A			B	
Queue Length 50th (m)	1.1	0.0		32.1	0.5		0.4	29.6	0.0	12.4	73.0	0.0
Queue Length 95th (m)	4.7	0.0		51.4	14.3		m0.5	m#400.0	m0.6	m#55.9	213.2	m0.5
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)	285	387		299	387		104	3283	1178	116	3587	1273
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	0.01	0.03		0.38	0.17		0.16	0.97	0.16	0.93	0.51	0.01

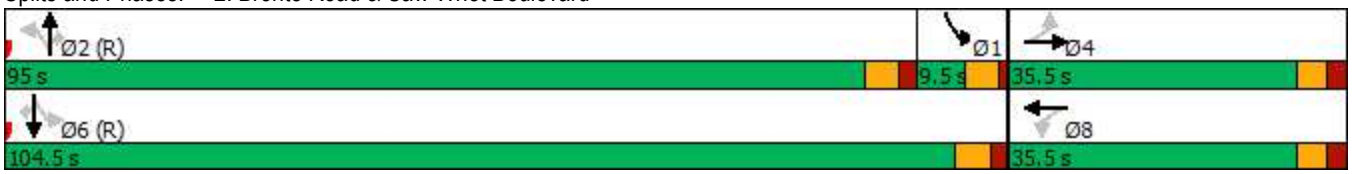
Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 127 (91%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 13.2 Intersection LOS: B
Intersection Capacity Utilization 87.3% ICU Level of Service E
Analysis Period (min) 15
* User Entered Value

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)	4	0	10	104	0	59	16	2921	174	99	1670	6
Future Volume (vph)	4	0	10	104	0	59	16	2921	174	99	1670	6
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	*0.80	1.00	1.00	*0.80	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	4471	1583	1770	4471	1583
Flt Permitted	0.72	1.00		0.75	1.00		0.08	1.00	1.00	0.04	1.00	1.00
Satd. Flow (perm)	1332	1583		1398	1583		141	4471	1583	69	4471	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)	4	0	11	113	0	64	17	3175	189	108	1815	7
RTOR Reduction (vph)	0	10	0	0	55	0	0	0	16	0	0	1
Lane Group Flow (vph)	4	1	0	113	9	0	17	3175	173	108	1815	6
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)	16.7	16.7		16.7	16.7		102.8	102.8	102.8	113.3	112.3	112.3
Effective Green, g (s)	16.7	16.7		16.7	16.7		102.8	102.8	102.8	113.3	112.3	112.3
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.73	0.73	0.73	0.81	0.80	0.80
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)	158	188		166	188		103	3282	1162	116	3586	1269
v/s Ratio Prot		0.00			0.01			c0.71		c0.03	0.41	
v/s Ratio Perm	0.00			c0.08			0.12		0.11	0.72		0.00
v/c Ratio	0.03	0.01		0.68	0.05		0.17	0.97	0.15	0.93	0.51	0.00
Uniform Delay, d1	54.5	54.3		59.1	54.6		5.6	17.1	5.5	61.0	4.6	2.8
Progression Factor	1.00	1.00		1.00	1.00		0.30	0.20	0.15	1.09	2.15	8.07
Incremental Delay, d2	0.1	0.0		10.9	0.1		1.2	4.3	0.1	55.2	0.4	0.0
Delay (s)	54.5	54.4		70.0	54.7		2.9	7.8	0.9	121.6	10.4	22.2
Level of Service	D	D		E	D		A	A	A	F	B	C
Approach Delay (s)		54.4			64.5			7.4			16.6	
Approach LOS		D			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	138	0	110	1	3002	175	89	1732	0
Future Volume (vph)	0	0	0	138	0	110	1	3002	175	89	1732	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	*0.80	1.00	1.00	*0.80	0.91
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	4427	1388	1770	4385	0
Flt Permitted				0.757			0.088			0.040		
Satd. Flow (perm)	0	1863	0	1410	0	1556	164	4427	1357	75	4385	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						64			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	3095	180	92	1786	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	142	0	113	1	3095	180	92	1786	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)	35.2	35.2		35.2		35.2	95.3	95.3	95.3	9.5	104.8	
Total Split (%)	25.1%	25.1%		25.1%		25.1%	68.1%	68.1%	68.1%	6.8%	74.9%	
Maximum Green (s)	29.0	29.0		29.0		29.0	89.4	89.4	89.4	5.5	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)				19.3		19.3	96.4	96.4	96.4	110.5	108.6	
Actuated g/C Ratio				0.14		0.14	0.69	0.69	0.69	0.79	0.78	
v/c Ratio				0.73		0.42	0.01	1.02	0.19	0.58	0.53	
Control Delay				78.3		28.9	1.0	25.9	0.7	44.7	2.5	
Queue Delay				0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay				78.3		28.9	1.0	25.9	0.7	44.7	2.5	
LOS				E		C	A	C	A	D	A	
Approach Delay					56.4			24.5			4.6	
Approach LOS					E			C			A	
Queue Length 50th (m)				40.2		12.9	0.0	~408.8	2.0	10.0	5.2	
Queue Length 95th (m)				61.1		30.9	m0.0	m338.4	m3.1	#34.4	48.1	
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)				292		373	112	3048	951	158	3400	
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				0.49		0.30	0.01	1.02	0.19	0.58	0.53	

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: 1.02

Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 82.2%	ICU Level of Service E
Analysis Period (min) 15	

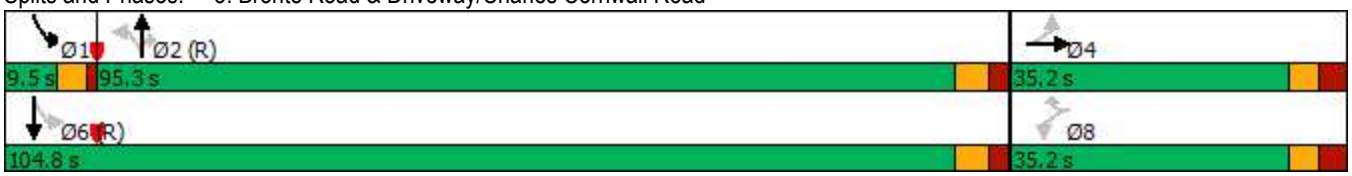
* User Entered Value

~ 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	3002	175	89	1732	0
Future Volume (vph)	0	0	0	138	0	110	1	3002	175	89	1732	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	*0.80	1.00	1.00	*0.80	
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	4427	1357	1770	4385	
Flt Permitted				0.76		1.00	0.09	1.00	1.00	0.04	1.00	
Satd. Flow (perm)				1410		1552	163	4427	1357	74	4385	
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	3095	180	92	1786	0
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	17	0	0	0
Lane Group Flow (vph)	0	0	0	142	0	58	1	3095	163	92	1786	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)				19.3		19.3	96.4	96.4	96.4	108.6	108.6	
Effective Green, g (s)				19.3		19.3	96.4	96.4	96.4	108.6	108.6	
Actuated g/C Ratio				0.14		0.14	0.69	0.69	0.69	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)				194		213	112	3048	934	156	3401	
v/s Ratio Prot								c0.70		0.03	c0.41	
v/s Ratio Perm				c0.10		0.04	0.01		0.12	0.42		
v/c Ratio				0.73		0.27	0.01	1.02	0.17	0.59	0.53	
Uniform Delay, d1				57.9		54.1	6.8	21.8	7.7	43.2	5.9	
Progression Factor				1.00		1.00	0.10	0.67	0.11	1.44	0.30	
Incremental Delay, d2				13.3		0.7	0.0	9.5	0.0	5.0	0.5	
Delay (s)				71.2		54.7	0.7	24.1	0.9	67.2	2.3	
Level of Service				E		D	A	C	A	E	A	
Approach Delay (s)		0.0			63.9			22.9			5.5	
Approach LOS		A			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.1
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	129	0	155	0	2939	74	88	1786	2
Future Volume (vph)	0	0	0	129	0	155	0	2939	74	88	1786	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	*0.80	1.00	1.00	*0.80	0.91
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	4427	1583	1770	4385	0
Flt Permitted				0.950	0.950					0.047		
Satd. Flow (perm)	0	1863	0	1681	1681	1553	1863	4427	1538	88	4385	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	3030	76	91	1841	2
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	66	67	160	0	3030	76	91	1843	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)	24.7	24.7		40.0	40.0	40.0	64.8	64.8	64.8	10.5	75.3	
Total Split (%)	17.6%	17.6%		28.6%	28.6%	28.6%	46.3%	46.3%	46.3%	7.5%	53.8%	
Maximum Green (s)	18.0	18.0		34.1	34.1	34.1	58.1	58.1	58.1	6.5	68.6	
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)				34.1	34.1	34.1		80.4	80.4	96.0	93.3	
Actuated g/C Ratio				0.24	0.24	0.24		0.57	0.57	0.69	0.67	
v/c Ratio				0.16	0.16	0.32		1.19	0.08	0.54	0.63	
Control Delay				43.0	43.1	7.8		108.1	0.6	30.3	13.0	
Queue Delay				0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay				43.0	43.1	7.8		108.1	0.6	30.3	13.0	
LOS				D	D	A		F	A	C	B	
Approach Delay					23.8			105.5			13.8	
Approach LOS					C			F			B	
Queue Length 50th (m)				16.1	16.3	0.0		~436.7	0.3	15.3	119.4	
Queue Length 95th (m)				30.4	30.7	18.5		m#394.6	m0.0	23.3	167.4	
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)				409	409	499		2542	928	167	2922	
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				0.16	0.16	0.32		1.19	0.08	0.54	0.63	

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: 1.19

Intersection Signal Delay: 67.8	Intersection LOS: E
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

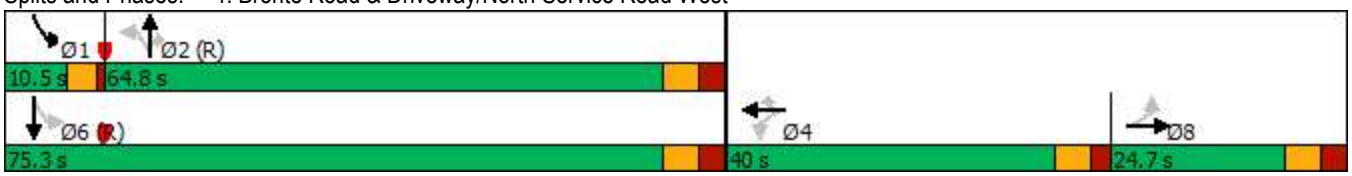
* User Entered Value

~ 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	2939	74	88	1786	2
Future Volume (vph)	0	0	0	129	0	155	0	2939	74	88	1786	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		*0.80	1.00	1.00	*0.80	
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		4427	1540	1770	4384	
Flt Permitted				0.95	0.95	1.00		1.00	1.00	0.05	1.00	
Satd. Flow (perm)				1681	1681	1553		4427	1540	88	4384	
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	3030	76	91	1841	2
RTOR Reduction (vph)	0	0	0	0	0	121	0	0	32	0	0	0
Lane Group Flow (vph)	0	0	0	66	67	39	0	3030	44	91	1843	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)				34.1	34.1	34.1		80.4	80.4	93.3	93.3	
Effective Green, g (s)				34.1	34.1	34.1		80.4	80.4	93.3	93.3	
Actuated g/C Ratio				0.24	0.24	0.24		0.57	0.57	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)				409	409	378		2542	884	165	2921	
v/s Ratio Prot								c0.68		0.03	c0.42	
v/s Ratio Perm				0.04	0.04	0.03			0.03	0.33		
v/c Ratio				0.16	0.16	0.10		1.19	0.05	0.55	0.63	
Uniform Delay, d1				41.7	41.7	41.1		29.8	13.1	33.4	13.4	
Progression Factor				1.00	1.00	1.00		0.63	0.57	1.04	0.89	
Incremental Delay, d2				0.4	0.4	0.3		86.8	0.0	3.4	0.9	
Delay (s)				42.1	42.1	41.3		105.5	7.4	38.0	12.9	
Level of Service				D	D	D		F	A	D	B	
Approach Delay (s)		0.0			41.7			103.1			14.1	
Approach LOS		A			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	67.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	232	620	2278	0	0	1164
Future Volume (vph)	232	620	2278	0	0	1164
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	*0.80	1.00	1.00	*0.80
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3433	1583	4427	0	0	4427
Flt Permitted	0.950					
Satd. Flow (perm)	3433	1583	4427	0	0	4427
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		1				
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	674	2476	0	0	1265
Shared Lane Traffic (%)						
Lane Group Flow (vph)	252	674	2476	0	0	1265
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)	61.0	61.0	79.0			79.0
Total Split (%)	43.6%	43.6%	56.4%			56.4%
Maximum Green (s)	54.3	54.3	72.5			72.5
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)	54.3	54.3	72.5			72.5
Actuated g/C Ratio	0.39	0.39	0.52			0.52
v/c Ratio	0.19	1.10	1.08			0.55
Control Delay	28.8	106.2	54.9			19.6
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	28.8	106.2	54.9			19.6
LOS	C	F	D			B
Approach Delay	85.1		54.9			19.6
Approach LOS	F		D			B
Queue Length 50th (m)	24.7	~222.1	~342.1			93.4
Queue Length 95th (m)	35.1	#300.6	m48.0			87.2
Internal Link Dist (m)	41.9		352.8			275.0
Turn Bay Length (m)		90.0				
Base Capacity (vph)	1331	614	2292			2292
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	0.19	1.10	1.08			0.55

Intersection Summary

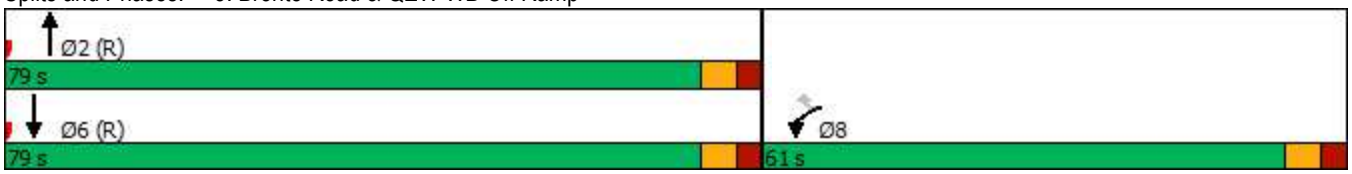
Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 67 (48%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 51.3 Intersection LOS: D
Intersection Capacity Utilization 93.4% ICU Level of Service F
Analysis Period (min) 15

* User Entered Value
~ 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	620	2278	0	0	1164
Future Volume (vph)	232	620	2278	0	0	1164
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	*0.80			*0.80
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	4427			4427
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	4427			4427
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	674	2476	0	0	1265
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	252	673	2476	0	0	1265
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)	54.3	54.3	72.5			72.5
Effective Green, g (s)	54.3	54.3	72.5			72.5
Actuated g/C Ratio	0.39	0.39	0.52			0.52
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)	1331	613	2292			2292
v/s Ratio Prot	0.07		c0.56			0.29
v/s Ratio Perm		c0.43				
v/c Ratio	0.19	1.10	1.08			0.55
Uniform Delay, d1	28.3	42.9	33.8			22.8
Progression Factor	1.00	1.00	0.46			0.82
Incremental Delay, d2	0.1	66.2	37.1			0.8
Delay (s)	28.4	109.1	52.7			19.5
Level of Service	C	F	D			B
Approach Delay (s)	87.1		52.7			19.5
Approach LOS	F		D			B

Intersection Summary			
HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	93.4%	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)	6	0	4	214	1	855	1	1791	228	298	1091	3
Future Volume (vph)	6	0	4	214	1	855	1	1791	228	298	1091	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	*0.80	1.00	1.00	*0.80	0.91
Ped Bike Factor									0.97		1.00	
Frt		0.850			0.858	0.850			0.850			
Flt Protected	0.950			0.950	0.998		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1681	1425	1475	1770	4471	1583	1770	4470	0
Flt Permitted	0.950			0.950	0.998		0.190			0.085		
Satd. Flow (perm)	1770	1583	0	1681	1425	1475	354	4471	1540	158	4470	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)					455	474			135			
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	929	1	1947	248	324	1186	3
Shared Lane Traffic (%)				10%		49%						
Lane Group Flow (vph)	7	4	0	210	479	474	1	1947	248	324	1189	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	41.3	41.3	41.3	12.0	53.3	
Total Split (%)	26.2%	26.2%		35.7%	35.7%	35.7%	29.5%	29.5%	29.5%	8.6%	38.1%	
Maximum Green (s)	30.0	30.0		43.3	43.3	43.3	34.8	34.8	34.8	8.0	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		25.6	25.6	25.6	47.3	47.3	47.3	98.1	95.6	
Actuated g/C Ratio	0.05	0.05		0.18	0.18	0.18	0.34	0.34	0.34	0.70	0.68	
v/c Ratio	0.08	0.05		0.68	0.76	0.72	0.01	1.29	0.41	0.52	0.39	
Control Delay	65.3	64.8		63.8	13.7	10.6	34.0	172.6	17.8	37.6	22.9	
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		63.8	13.7	10.6	34.0	172.6	17.8	37.6	22.9	
LOS	E	E		E	B	B	C	F	B	D	C	
Approach Delay		65.1			21.5			155.0			26.1	
Approach LOS		E			C			F			C	
Queue Length 50th (m)	2.0	1.1		60.9	6.4	0.0	0.2	~239.1	20.0	65.4	71.3	
Queue Length 95th (m)	7.4	5.4		83.4	47.0	33.5	1.7	#363.7	52.9	122.7	131.4	
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		519	755	783	119	1511	610	620	3053	
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		0.40	0.63	0.61	0.01	1.29	0.41	0.52	0.39	

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: 1.29
Intersection Signal Delay: 83.1 Intersection LOS: F

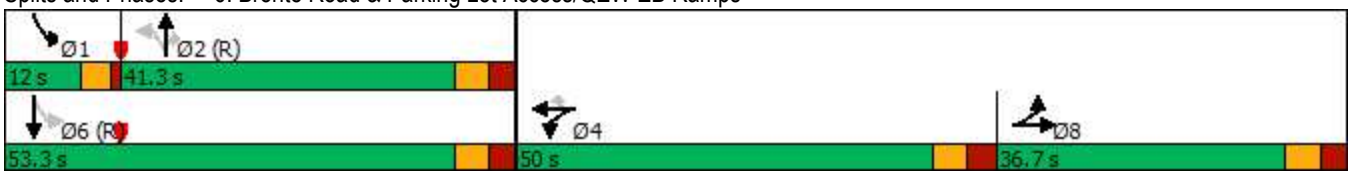
Intersection Capacity Utilization 92.3%	ICU Level of Service F
Analysis Period (min) 15	

* User Entered Value

~ 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	855	1	1791	228	298	1091	3
Future Volume (vph)	6	0	4	214	1	855	1	1791	228	298	1091	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	*0.80	1.00	1.00	*0.80	
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	1424	1475	1770	4471	1542	1770	4469	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.19	1.00	1.00	0.08	1.00	
Satd. Flow (perm)	1770	1583		1681	1424	1475	353	4471	1542	158	4469	
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	929	1	1947	248	324	1186	3
RTOR Reduction (vph)	0	0	0	0	372	387	0	0	93	0	0	0
Lane Group Flow (vph)	7	4	0	210	107	87	1	1947	155	324	1189	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	43.3	43.3	43.3	91.6	91.6	
Effective Green, g (s)	2.9	2.9		25.6	25.6	25.6	43.3	43.3	43.3	91.6	91.6	
Actuated g/C Ratio	0.02	0.02		0.18	0.18	0.18	0.31	0.31	0.31	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	109	1382	476	613	2924	
v/s Ratio Prot	c0.00	0.00		c0.12	0.08			c0.44		c0.17	0.27	
v/s Ratio Perm						0.06	0.00		0.10	0.18		
v/c Ratio	0.19	0.12		0.68	0.41	0.32	0.01	1.41	0.33	0.53	0.41	
Uniform Delay, d1	67.4	67.3		53.4	50.6	49.7	33.5	48.4	37.1	28.7	11.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.25	1.97	
Incremental Delay, d2	2.6	1.8		6.2	1.1	0.7	0.2	188.4	1.8	0.7	0.4	
Delay (s)	70.0	69.1		59.6	51.6	50.4	33.6	236.7	38.9	36.5	22.8	
Level of Service	E	E		E	D	D	C	F	D	D	C	
Approach Delay (s)		69.7			52.5			214.3			25.8	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	117.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.9
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

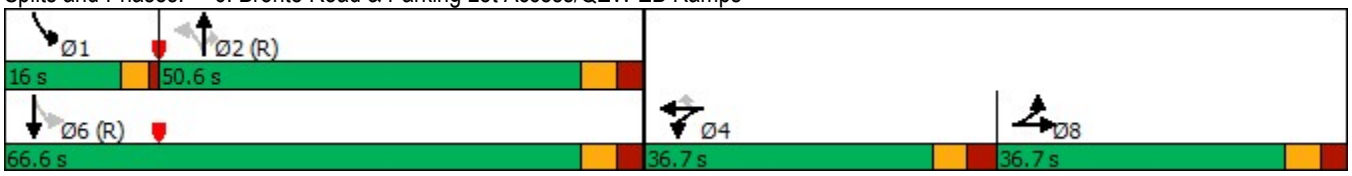
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	0	4	214	1	855	1	1791	228	298	1091	3
Future Volume (vph)	6	0	4	214	1	855	1	1791	228	298	1091	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (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	*0.80	1.00	1.00	*0.80	0.91
Ped Bike Factor									0.97		1.00	
Frt		0.850			0.858	0.850			0.850			
Flt Protected	0.950			0.950	0.998		0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1681	1425	1475	1770	4471	1583	1770	4470	0
Flt Permitted	0.950			0.950	0.998		0.190			0.078		
Satd. Flow (perm)	1770	1583	0	1681	1425	1475	354	4471	1542	145	4470	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)					455	474			148			
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	929	1	1947	248	324	1186	3
Shared Lane Traffic (%)				10%		49%						
Lane Group Flow (vph)	7	4	0	210	479	474	1	1947	248	324	1189	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		36.7	36.7	36.7	50.6	50.6	50.6	16.0	66.6	
Total Split (%)	26.2%	26.2%		26.2%	26.2%	26.2%	36.1%	36.1%	36.1%	11.4%	47.6%	
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	44.1	44.1	44.1	12.0	60.1	
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		24.3	24.3	24.3	51.6	51.6	51.6	99.4	96.9	
Actuated g/C Ratio	0.05	0.05		0.17	0.17	0.17	0.37	0.37	0.37	0.71	0.69	
v/c Ratio	0.08	0.05		0.72	0.77	0.73	0.01	1.18	0.37	0.56	0.38	
Control Delay	65.3	64.8		68.1	14.6	11.3	32.0	126.8	14.8	42.6	15.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	65.3	64.8		68.1	14.6	11.3	32.0	126.8	14.8	42.6	15.1	
LOS	E	E		E	B	B	C	F	B	D	B	
Approach Delay		65.1			22.9			114.1			21.0	
Approach LOS		E			C			F			C	
Queue Length 50th (m)	2.0	1.1		61.0	6.4	0.0	0.2	226.5	16.9	76.6	46.8	
Queue Length 95th (m)	7.4	5.4		88.1	50.3	36.0	1.7	#347.6	47.0	120.6	102.5	
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		360	662	688	130	1649	662	582	3094	
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		0.58	0.72	0.69	0.01	1.18	0.37	0.56	0.38	

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: 1.18	
Intersection Signal Delay: 63.4	Intersection LOS: E

Intersection Capacity Utilization 92.3%	ICU Level of Service F
Analysis Period (min) 15	
* User Entered Value	
# 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	855	1	1791	228	298	1091	3
Future Volume (vph)	6	0	4	214	1	855	1	1791	228	298	1091	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	*0.80	1.00	1.00	*0.80	
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	1424	1475	1770	4471	1543	1770	4469	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.19	1.00	1.00	0.08	1.00	
Satd. Flow (perm)	1770	1583		1681	1424	1475	353	4471	1543	144	4469	
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	929	1	1947	248	324	1186	3
RTOR Reduction (vph)	0	0	0	0	376	392	0	0	98	0	0	0
Lane Group Flow (vph)	7	4	0	210	103	82	1	1947	150	324	1189	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		24.3	24.3	24.3	47.6	47.6	47.6	92.9	92.9	
Effective Green, g (s)	2.9	2.9		24.3	24.3	24.3	47.6	47.6	47.6	92.9	92.9	
Actuated g/C Ratio	0.02	0.02		0.17	0.17	0.17	0.34	0.34	0.34	0.66	0.66	
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		291	247	256	120	1520	524	575	2965	
v/s Ratio Prot	c0.00	0.00		c0.12	0.07			c0.44		c0.17	0.27	
v/s Ratio Perm						0.06	0.00		0.10	0.21		
v/c Ratio	0.19	0.12		0.72	0.42	0.32	0.01	1.28	0.29	0.56	0.40	
Uniform Delay, d1	67.4	67.3		54.7	51.5	50.6	30.6	46.2	33.8	31.3	10.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.40	
Incremental Delay, d2	2.6	1.8		8.5	1.1	0.7	0.1	131.6	1.4	1.1	0.4	
Delay (s)	70.0	69.1		63.2	52.7	51.4	30.7	177.8	35.2	42.9	15.4	
Level of Service	E	E		E	D	D	C	F	D	D	B	
Approach Delay (s)		69.7			54.0			161.6			21.3	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	92.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.9
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group