



TRAFFIC ANALYSIS FOR 2120 HURONTARIO STREET

FINAL REPORT

MARCH 2012

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1. INTRODUCTION

1.1 Background

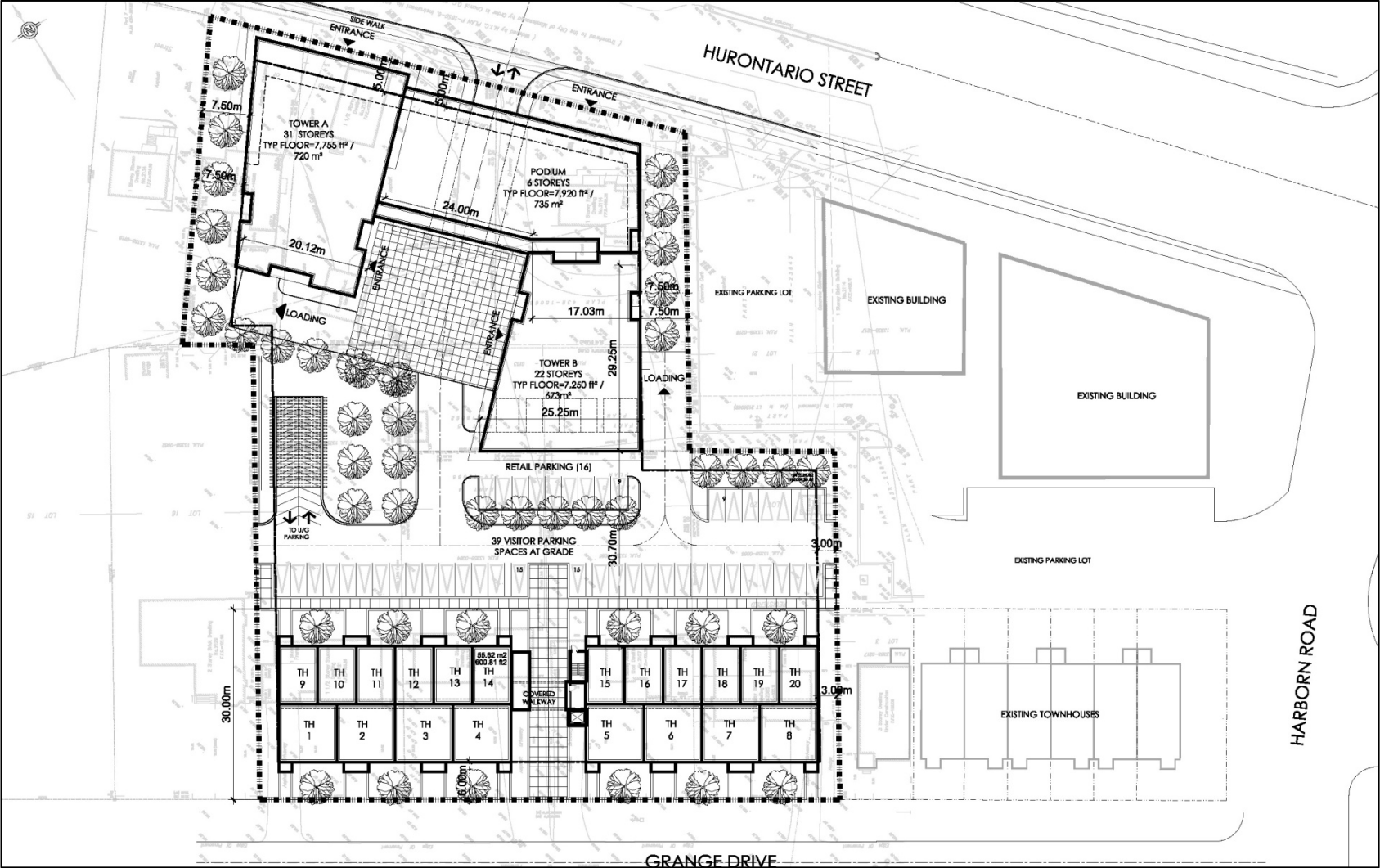
Located on Hurontario Street just north of the QEW, the subject site is surrounded by lands mainly comprised of detached single family housing along with some commercial/retail facilities, restaurants, and a college. Currently, the site is occupied by vacant residential buildings and a number of small businesses along Hurontario Street and Grange Drive. Immediately to the south of the site, there is a commercial plaza that houses several small businesses along with a coffee shop, grocery store, and a pharmacy. The site is adjacent to the proposed dedicated LRT line along Hurontario Street in the future which, along with the proposed development, is part of Mississauga's plan to intensify growth along the Hurontario-Main Street Corridor. Accordingly, the proposed site will contribute to furthering the goals of the corridor as a whole.

1.2 Proposed Development

The proposed development consists of two high-rise residential condominium towers, a 6-storey podium, a small number of town homes, and retail space located on the west side of Hurontario Street just north of Harbourn Road and North Service Road. Tower A and Tower B will consist of 36 and 22 storeys respectively. Also, there is a retail location on the base floor of each tower facing the street, with a combined floor area of 800 m². At the back of the property on Grange Dr, town homes are proposed. An underground parking garage will provide parking for the residents of the towers and town homes. The total number of residential units is 579 units, including condominium and town homes. Visitors to residents and the retail locations will be provided adequate at grade parking. A preliminary ground-level site plan is provided in Exhibit 1-1.

TRAFFIC ANALYSIS FOR 2120 HURONTARIO STREET

Exhibit 1-1: Preliminary Ground Level Site Plan



1.3 Purpose and Scope

This report presents the analysis of the potential effects of the proposed development on traffic in the surrounding area. The study looks 5 years ahead to the year 2016 and focuses on intersection operations with and without the proposed development in order to facilitate a clear idea of the effects of site traffic. Two main analyses were undertaken of future conditions:

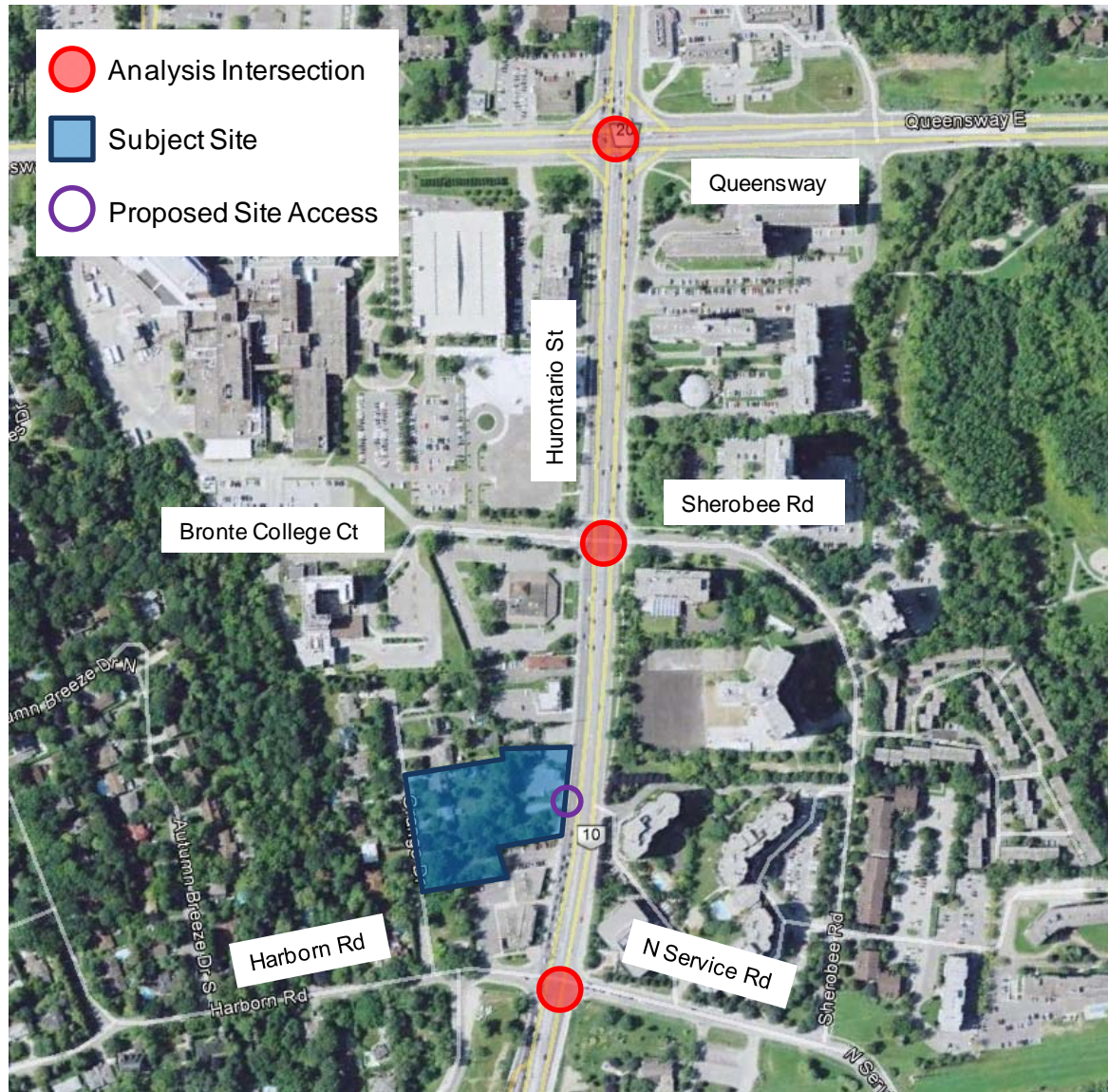
- A scenario without the planned Hurontario-Main LRT (termed 'Current Network' in this report). This scenario evaluates the effects of traffic and the requirements for site access with left turns provided to and from Hurontario.
- With LRT, to evaluate the traffic implications of the development with centreline LRT along Hurontario, prohibiting left turns to and from the primary site access.

Analysis was done for weekday AM and PM peak periods for all intersections. The five year future horizon and weekday peak hour time periods were discussed with and approved by City of Mississauga staff. In developing the future analysis, site-generated trips were forecasted and assigned to routes into and out of the site, with intersection operations then analyzed with the added traffic.

The intersections contained in the study area were determined through consultation with City Staff. The area includes three intersections along Hurontario Street: at Harborn Road/North Service Road, Bronte College Court/Sherobee Road and the Queensway.

In addition to the traffic analysis, this report documents an analysis of vehicular parking requirements and comparison with city by-law No. 0225-2007. Recommendations are also provided on bicycle parking.

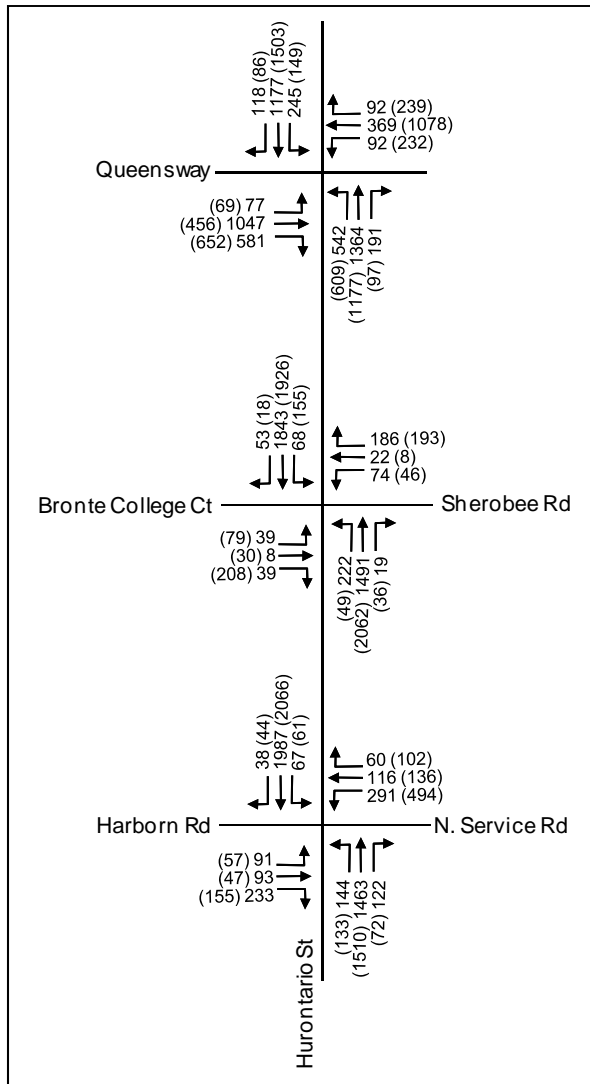
A visual representation of the study area is shown in Exhibit 1-2.

Exhibit 1-2: Study Area

2. EXISTING CONDITIONS

2.1 Traffic Operations

IBI Group obtained relevant data from the Region of Peel and the City of Mississauga in June 2011. This data included traffic count data from 2010 as well as current signal timings. Existing traffic volumes are shown in Exhibit 2-1. Traffic volumes were analyzed in Synchro 7 to report level of service as detailed below. In addition, a field review of site conditions was undertaken to observe queues and delays at intersections and for driveways accessing Hurontario.

Exhibit 2-1: Existing (2010) Traffic Volumes AM (PM)

A Synchro model of the current conditions was developed for the study area intersections. A summary of the Synchro analysis including delay and LOS indicators is shown in Exhibit 2-2 with detailed output provided in Appendix A. The following comments are based on the analysis:

- At Queensway and Hurontario Street, the intersection operates at LOS D and E in the AM and PM peak hours respectively. In the AM, both the NB and SB left turn movements are operating at LOS F as they are over capacity and see considerable delay. In the PM, the NB left is still problematic and the EB right and SB through movements are now operating at LOS E and F respectively.
- The Bronte College Court/Sherobee Road at Hurontario Street intersection operates well in both the AM and PM at LOS C. In the AM, the WB through movement operates at LOS E and in the PM all EB movements operate at LOS E as well.
- At the Harborn Road/N Service Rd and Hurontario Street intersection, the overall LOS is D in the AM and E in the PM. With the exception of EB left, all left turning movements in the AM operate at LOS E or F, with the WB left turn operating above capacity and with

considerable delay. In the PM, just the WB left turn is operating poorly, being above capacity and experiencing several minutes of delay on average.

- Queue length (both the 95th and 50th percentile) results indicate queues of up to 150m for the southbound through movement at Harbourn Road. Field observations indicate that long queues are caused by traffic occupying the right-most southbound lane for access to the QEW. The long queues tend to clear most cycles, but often reach the proposed access at 2120 Hurontario Street. As for NB queues at Sherobee Road, the 95th percentile queue in the PM for the NB through movement reaches beyond the access. Field observations indicate that upstream and downstream metering tend to limit queues to less than this length. Queue details for all movements can be found in Appendix A.

A number of driveways access Hurontario from the west side (same side as proposed development) between Harbourn Road and Sherobee Road. Users of the driveways have full access to Hurontario via the two-way left-turn lane. An approximate service level at these accesses was gained by estimating inbound and outbound volumes of 15vph for all movements in both peak hours. This flow estimate is based on an approximate parking lot size of 30 vehicles for one of the businesses on the west side. EB movements (vehicles leaving the site) are critical and Synchro analysis indicates that they operate at LOS C in the AM peak hour and LOS D in the PM peak hour.

Exhibit 2-2: Existing (2010) Intersection Operations

Intersection Reference:	Overall		Critical			
	Delay	LOS	Delay	LOS	V/C	Queue Length 95th (m)*
AM Peak Hour						
Queensway at Hurontario Street	54	D	NBL: 187 SBL: 161	F F	1.29 1.21	#127.5 #116.3
Bronte College Court/Sherobee Road at Hurontario Street	30	C	WBT: 58	E	0.76	67.7
Existing Driveway at Hurontario Street	0	N/A	-	-	-	-
Harbourn Road/N Service Rd at Hurontario Street	47	D	WBL: 170 NBL: 58 SBL: 69	F E E	1.22 0.80 0.70	#166.0 #59.9 #45.3
PM Peak Hour						
Queensway at Hurontario Street	63	E	EBR: 60 NBL: 169 SBT: 99	E F F	1.01 1.25 1.11	#187.9 #136.3 #190.2
Bronte College Court/Sherobee Road at Hurontario Street	21	C	EBL: 57 EBTR: 64 NBT: 17	E E B	0.53 0.78 0.78	34.1 84.4 #247.4
Existing Driveway at Hurontario Street	0	N/A	-	-	-	-
Harbourn Road/N Service Rd at Hurontario Street	61	E	WBL: 283 SBT: 51	F D	1.53 1.02	#259.7 #267.9
*Legend: ~ - volume exceeds capacity, queue is theoretically infinite. # - 95 th percentile volume exceeds capacity. m - upstream metering is in effect.						

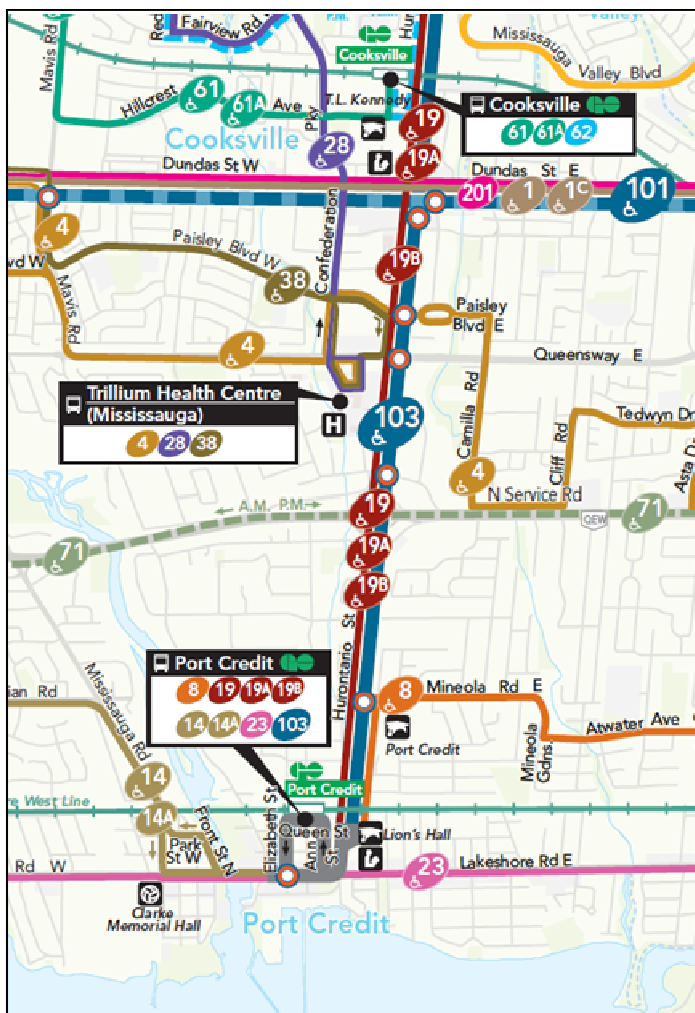
In general, the major intersections at Queensway and at Harbourn Road operate at LOS D or E overall, with critical movements operating above capacity with LOS F. Southbound queues at Hurontario and Harbourn are long due to traffic occupying the right-most lane for access to the QEW.

These results indicate that the Hurontario corridor is congested in both peak hours with particular problems in the PM peak hour. Helping to mitigate congestion somewhat is that downstream conditions on Queensway (east and west of Hurontario), though not analyzed in detail, are not severely congested.

2.2 Transit Access

There are several bus routes that run along Hurontario Street and in the vicinity of the development site. Routes 103, 19, 19A, and 19B run north-south on Hurontario. These lines are direct links between the Cooksville and Port Credit GO stations as well, providing excellent connectivity between areas not only in Mississauga but the GTA as well. These GO stations are easily accessible by bicycle as well, with both of them no more than 3 km away from the subject site. Another set of minor bus routes all run through the Trillium Health Centre at the Hurontario Street and Queensway intersection. They do not provide the same connectivity as the main lines on Hurontario Street but run to the north and east-west providing access to residential and commercial areas. A map depicting the bus routes in the vicinity of the site is provided in Exhibit 2-3.

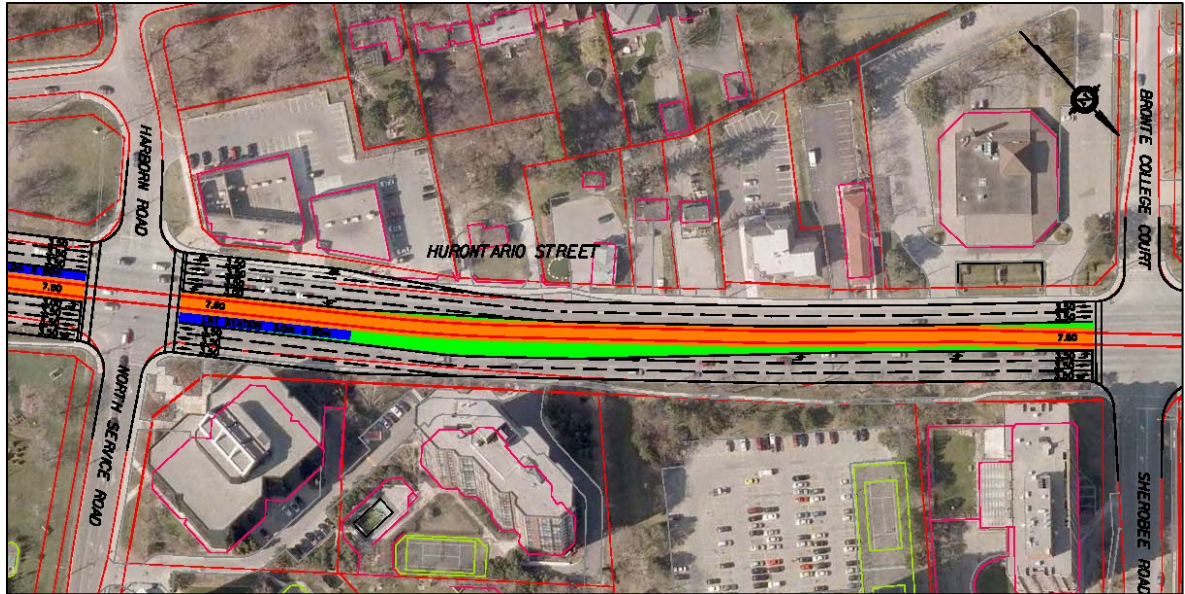
Exhibit 2-3: Site Vicinity - Bus Routes



In addition to the existing bus routes, the City of Mississauga is well advanced in its planning for a Light Rail facility on Hurontario Street. Based on current plans, this facility will operate as a median

LRT facility with fully exclusive running ways. Near the proposed development, stations will likely be located at the Queensway and North Service Road as per the *Hurontario/Main Street Corridor Master Plan*. A functional design plan for the LRT in the vicinity of the site is provided in Exhibit 2-4.

Exhibit 2-4: Hurontario LRT - Functional Design Plan in Vicinity of Site

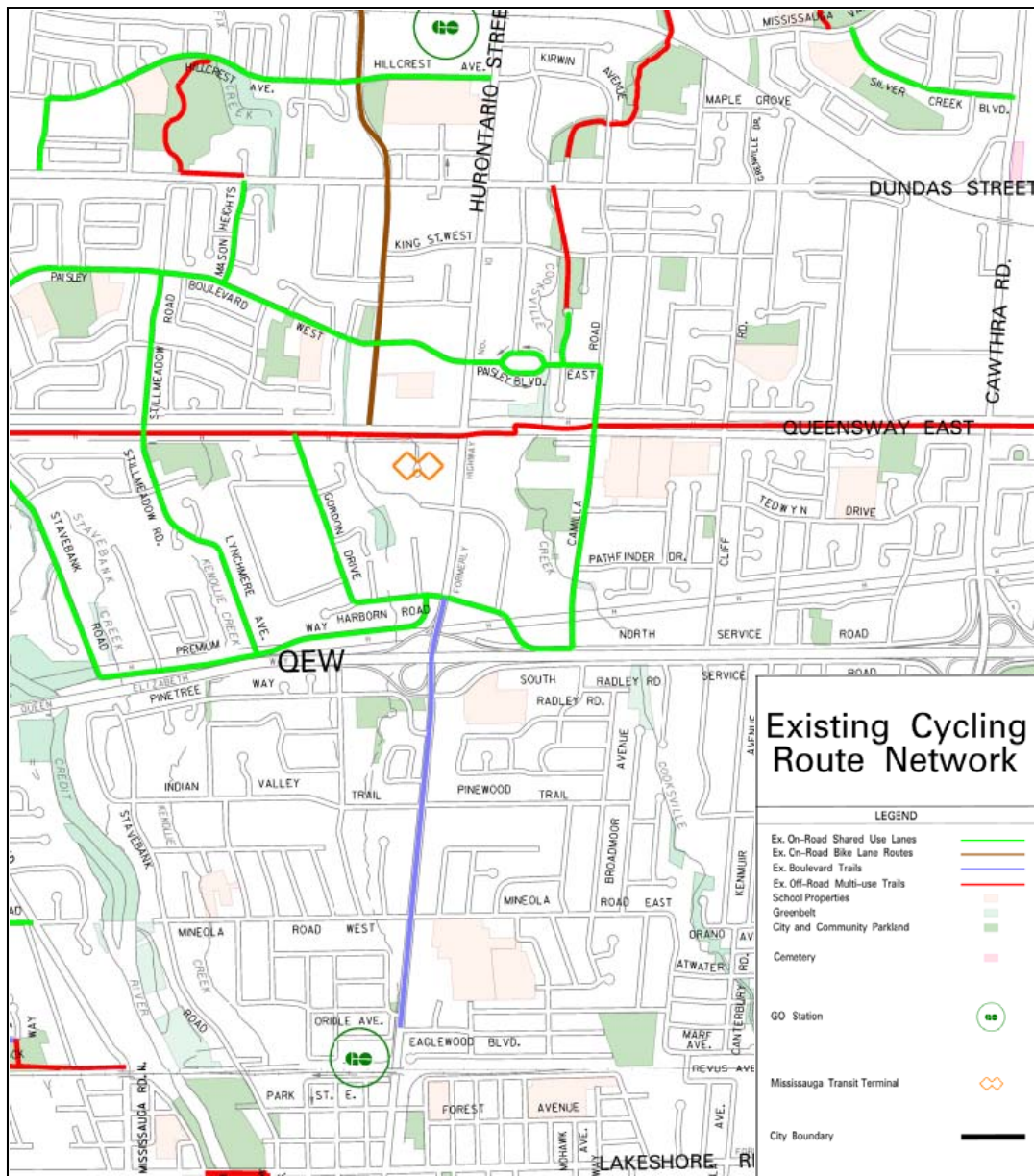


2.3 Active Transportation Facilities

In the vicinity of the site, there is infrastructure in place to promote pedestrian movements and cycling. The main arterials (i.e. Hurontario Street and the Queensway) and residential roads that support higher density (i.e. Sherobee Road) have sidewalks lining both sides of the road. All other smaller residential roads do not support pedestrian movements, but traffic is only local in these areas, allowing safe pedestrian movement along the side of the road.

The cycling network near the subject site is sparse, but this is similar to most of Mississauga. Currently, there is a boulevard pathway running along Hurontario Street from North Service Road to the Port Credit GO station. At North Service Road there are also some on-road shared use lanes that branch out away from Hurontario Street and make their way to a multi-use off-road trail that runs along the Queensway. There is currently no cycling route on Hurontario Street north of North Service Road. A map of the existing network is provided in Exhibit 2-5.

The City of Mississauga understands that their cycling network is sparse and far too reliant of multi-use off-road trails. Knowing this, a cycling master plan for the City was completed in 2010 and proposed adding over 900km of cycling routes in the next 20 years. The main proposed change in the vicinity of the site is the addition of primary on-road cycling routes on Hurontario Street north of North Service Road. This provides better access to the many routes that branch off Hurontario Street.

Exhibit 2-5: Existing Cycling Network

2.4 Travel Patterns

Existing travel patterns for the Hurontario corridor were extracted from Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive travel survey in the GTA undertaken in five year intervals. AM peak period trips from 2006 TTS zone 3652 were selected to represent the study area conditions, as the zone is located adjacent to the corridor north of the Queensway. The following travel characteristics were noted:

- Transit modal split of approximately 14% for trips within Mississauga and 12% for trips to Toronto.
- Walking accounts for approximately 19% of trips from the zone to other parts of Mississauga.

- There are more trips heading to Toronto than to other parts of Mississauga, with approximately 53% of trips heading to Toronto.

With the future LRT line along Hurontario Street and easy access to central Mississauga, Brampton, and downtown Toronto via GO, it is clear that the proposed development will help contribute to the goals of increasing sustainable mode shares in Mississauga.

3. EXISTING AND PROPOSED SITE ACCESS

Currently, there are a number of small private accesses to Hurontario Street for the businesses and residences on the site. These accesses are unsignalized and make use of the two-way left turn lane running along the centre of Hurontario Street.

Several options were considered when determining the location of the new access to the development. Providing an access onto Grange Drive was explored, but it was determined that such an access will be problematic given the residential nature of the street. The access could also not be located on Harbourn Road, as this would require traffic to cut through the retail development's parking lot to the south and also allow the opposite to happen with retail traffic on the site lot. There was also an option explored several years ago by the City that would see an internal roadway extend through the site and connect to the north. This option is not possible given land ownership in the area.

Given the above, it is proposed that the new access to the development be located along Hurontario Street, directly opposite from the access currently serving the residential development across the street. Accesses to loading and parking will be available from this connection to Hurontario Street as well. Due to the likely construction of the LRT line along Hurontario Street, a signal is not proposed at the access as it would conflict with operations. Furthermore, it is recognized that the access may be converted into a RIRO once the LRT line is complete. In the event that the access is a RIRO, u-turns will need to be provided where North Service Road/Harbourn Road and Bronte College Court/Sherobee Road intersect Hurontario Street. The feasibility of u-turns at these locations is discussed further in Section 4.

4. TRIP GENERATION

The approach to develop the traffic analysis is to forecast site-generated trips, assign the trips to routes into and out of the site, and analyze intersection operations with the added traffic. Trip generation was adjusted to account for transit share in the Hurontario corridor as the obtained rates did not take mode share into consideration. Details on the adjustments are provided later in this section.

The proposed development is a standalone building that is a mix of residential and retail land use. To determine the peak hour trips generated by such a development, standard trip rates from the ITE Trip Generation Manual, 7th Edition were used. The assumed land uses for the site are High-Rise Residential Condominium, Residential Townhouse, and Pharmacy/Drugstore. From discussions with the developer it is apparent that the retail space will be occupied by a business similar to a convenience store. The ITE Trip Generation Manual provides data for a "Convenience Market" but the data come from a small sample size and are for a standalone store. The Pharmacy/Drugstore use was selected instead as it more closely represents the type of traffic these retail spaces will be seeing. The rates are summarized in Exhibit 4-1.

There will be 579 units in the condominium and townhouses, and 8719 ft² of retail space. The trip generation calculations are based on previous statistics assuming 603 units in the condominium, 20

townhouses and 8,995 ft² of retail space, approximately 3-4% higher. Applying these numbers to the trip rates provides the actual trips generated, as shown in Exhibit 4-2.

Exhibit 4-1: ITE Trip Rate Data

Land Use	ITE Code	Peak Hour Trips/1000 ft ² or Dwelling Unit					
		AM Peak Hour			PM Peak Hour		
		Total	Inbound	Outbound	Total	Inbound	Outbound
High-Rise Residential Condominium	232	0.34	0.065	0.275	0.38	0.236	0.144
Pharmacy/Drugstore	880	3.20	1.89	1.31	8.42	4.21	4.21
Residential Townhouse	230	0.44	0.075	0.365	0.52	0.348	0.172

Exhibit 4-2: Peak Hour Generated Trips

Land Use	ITE Code	Peak Hour Trips Generated					
		AM Peak Hour			PM Peak Hour		
		Total	Inbound	Outbound	Total	Inbound	Outbound
High-Rise Residential Condominium	232	198	38	160	222	138	84
Pharmacy/Drugstore	880	29	17	12	76	38	38
Residential Townhouse	230	9	2	7	10	7	3
Total		236	57	179	308	183	125

At the access, it was determined that 40% of the traffic is going to/coming from the north with the other 60% to/from the south. This distribution accounts for current traffic distributions along with the fact that the Q.E.W. to the south is a large traffic attractor. These trips were assigned to the network differently for the With LRT and Current Network scenarios with the differences discussed below. The site generated traffic for the Current Network and With LRT scenarios are provided in Exhibit 4-4 and Exhibit 4-5.

Current Network

Assigning trips to the network for this case was straightforward. Trips coming to and from the development were assigned to movements at intersections based on the distribution of the existing counts. The site trips were also factored down to account for transit trips to and from the development. In this scenario, a 10% reduction in site traffic was used. The 10% figure is in line with the City's transit share of 8% and was increased to reflect that Hurontario Street is a very active corridor.

With LRT

In the With LRT scenario, due to the LRT line along the road, all left turns at the site access will be prohibited. As there are no alternative access to the site, all left turning traffic had to be reassigned to make right turns. The following changes were made to accommodate the restriction of left turns:

Outbound Trips

- All left turning vehicles now turn right.

- At the Hurontario Street and Harbourn Road/North Service Road intersection, half of these vehicles will perform a U-turn, while the other half will be assigned among the other movements according to the existing distribution.
- The u-turn vehicles will then be assigned at the Queensway and Hurontario Street intersection according to the existing distribution

Inbound Trips

- Half of the left turning vehicles will now come from the north and make a right turn into the site as drivers are expected to find alternative routes once the left turn becomes restricted. These trips will be distributed according to existing conditions.
- The other half of the vehicles will still come from the south, but will drive past the access and make a U-turn at the Hurontario Street and Bronte College Court/Sherobee Road. These vehicles will then make right turns into the site.

The ability to accommodate u-turns at the appropriate intersections has been assumed as information on potential geometry changes was unavailable. However, due to the volumes of the turning movements at these intersections, it is clear that they are not good candidates to be converted to right-in, right-out intersections. With the spacing provided by the dedicated LRT line and the need to keep left turns, u-turn movements will be reasonable to provide at these locations.

Site trips were also factored down to account for transit trips to and from the development. Using 2031 AM forecasts for auto volume and transit ridership from the *Hurontario/Main Street Corridor Master Plan*, it was determined that appropriate transit share for the With LRT scenario is 30%. The calculation figures are shown in Exhibit 4-3. The standard factor of 1.2 was used to determine the Auto Passengers from the Auto Volume.

Exhibit 4-3: Transit Share Calculation

Auto Volume	Auto Passengers	Transit Passengers	Transit Share
4180	5016	2180	30%

Exhibit 4-4: Site Generated Traffic AM (PM) - Current Network Scenario

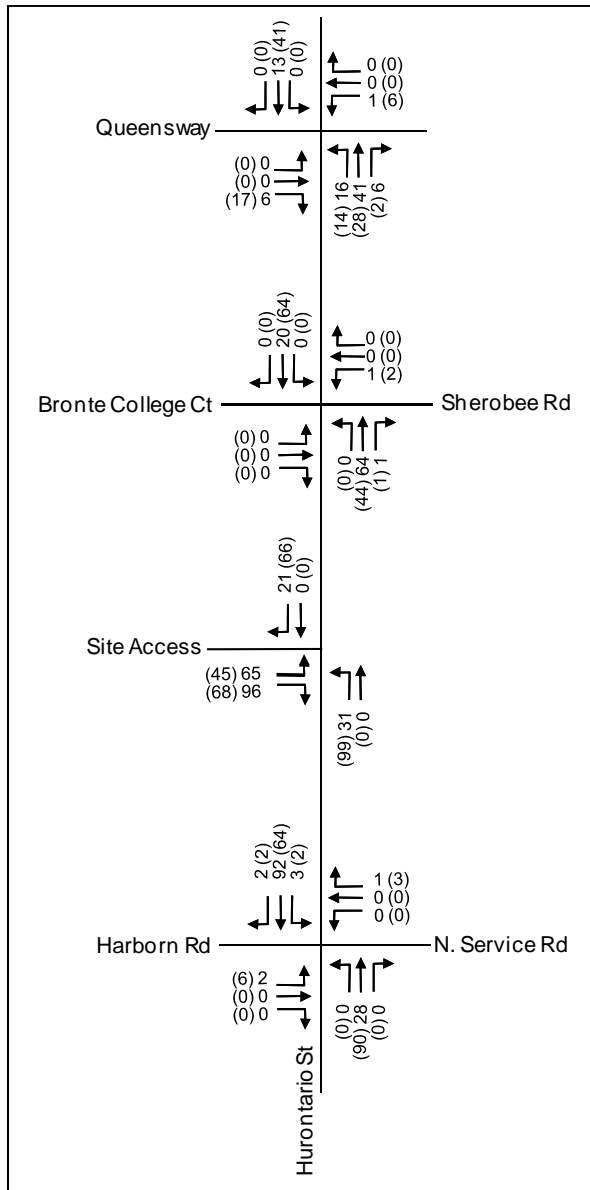
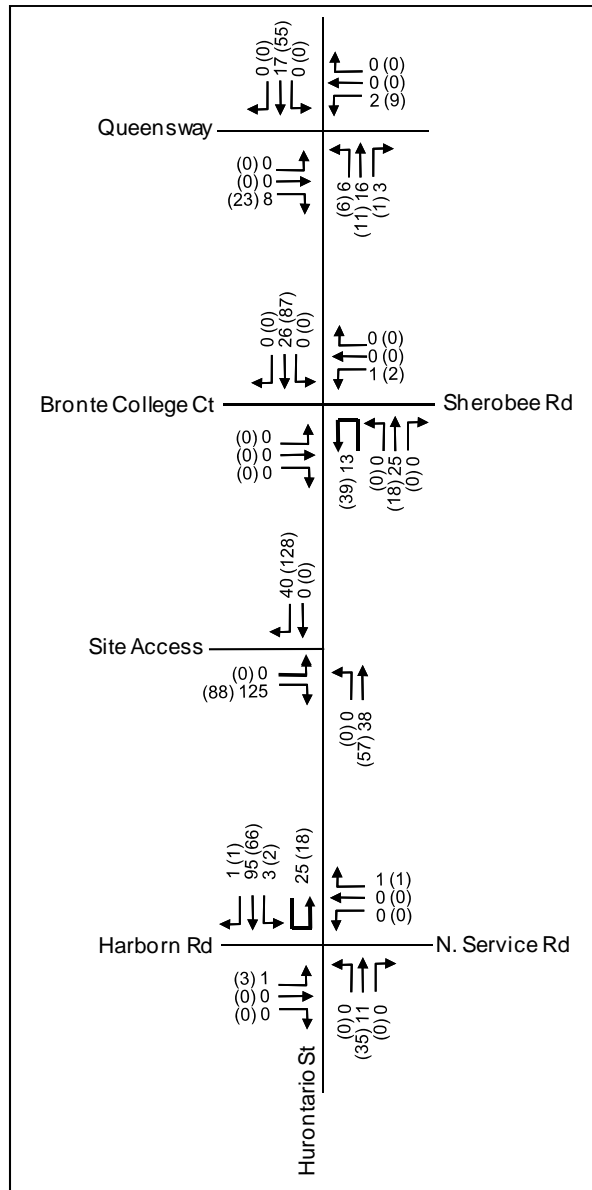


Exhibit 4-5: Site Generated Traffic AM (PM) - With LRT Scenario

5. FUTURE CONDITIONS – CURRENT NETWORK SCENARIO

Traffic analysis for the year 2016 is discussed herein for the case where the With LRT is not completed. Because the LRT will affect background volumes and site generated trips, separate analyses for future background conditions are presented herein as well as for the With LRT scenario. Synchro version 7 was used to complete the analyses.

5.1 Background Traffic Operations

IBI Group obtained a corridor growth rate using 2031 AM volume forecasts from the *Hurontario/Main Street Corridor Master Plan*. Growth is expected to be limited, with both calculated rates falling between 0 and 1 percent as seen in Exhibit 5-1. To be conservative, a compound

annual growth rate (CAGR) of 1% was chosen for the entire study area. This rate also coincides with the typical average growth rate provided by the Region of Peel in other studies. The growth rate was applied over 7 years since the existing counts are from early 2010.

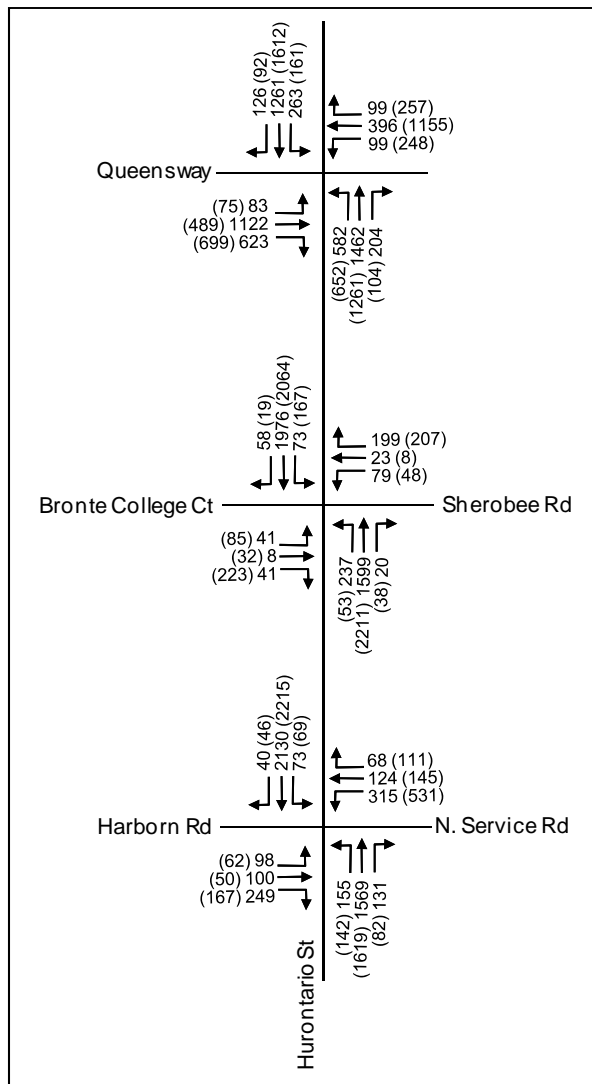
Exhibit 5-1: Growth Rate Calculation

Direction	2010 Volume	2031 Volume	CAGR
NB	1,951	2,370	0.93%
SB	1,738	1,810	0.19%

Additionally, nearby developments that are scheduled to be completed in the next 5 years were collected from the City and incorporated into the background volumes. Information on two developments was gathered. One is a nearby development which consists of a small number of town homes and will not be considered in the analysis.

The other nearby development is a proposed retirement home at the northeast corner of North Service Road and Cliff St that will include 140 senior care units plus 52 town homes. Standard trip rates from the ITE Trip Generation Manual, 7th Edition were used and the land uses selected were Senior Adult Housing – Attached (ITE code 252) and Residential Con dominium/Townhouse (ITE code 230). It was assumed that 20% of the trips to and from the development be via North Service Road at Hurontario Street. The additional trips generated at North Service Road were minimal, with 2 (7) inbound trips and 6 (4) outbound trips generated in the AM (PM) peak hour.

Exhibit 5-2 shows the complete background traffic volumes with both the annual growth and background development traffic included.

Exhibit 5-2: 2016 Background Traffic Volumes – Current Network Scenario

The background traffic analysis does not include new trips to and from the subject development. It is also important to note that all signal timings were optimized using Synchro 7 to provide the best operations possible for the future network. Exhibit 5-3 summarizes the intersection operations for the network in the AM and PM peak hours. Detailed Synchro output can be found in Appendix A. The following comments are based on the analysis:

- At the Queensway and Hurontario Street intersection, operations are at LOS D in the AM and E in the PM. In the AM, the NB, SB, and WB left turn movements operate at LOS E but with moderate delay and under capacity. In the PM, the EB right, NB left, and SB through movements all operate at LOS F and over capacity. The WB left is still LOS E but is approaching capacity. Critical queue lengths are generally large in both peak hours with the EB right movement in the PM having a queue that easily exceeds its storage length. Overall operations have not deteriorated from existing analysis, partially due to the optimization of signals for future background volumes.
- The Bronte College Court/Sherobee Road at Hurontario Street intersection operates at overall LOS C in both the AM and PM. In the AM, the WB through and SB left movements operate at LOS E. In the PM, all EB movements operate at LOS E and the NB left

movement at LOS F. The NB left movement is nearing capacity and sees significant delay as well. Queue lengths at this intersection reach higher values for the through movements but are within the storage lengths for critical movements. Overall operations have not deteriorated from existing analysis, partially due to the optimization of signals for future background volumes.

- At the Harbourn Road/N Service Rd and Hurontario Street intersection, operations are at overall LOS E in both the AM and PM. In the AM and PM, the WB and SB left turn movements experience large delays and operate over or near capacity. Also, in the PM peak hour, the SB through-left movement operates at LOS E and over capacity. In both peak hours, the NB left movement operates at LOS E and is approaching capacity. Queue lengths here are an issue, with all critical turning movement queues exceeding their storage lengths. Overall operations in the AM have deteriorated to LOS E as a result of background growth.

Exhibit 5-3: 2016 Background Intersection Operations – Current Network Scenario

Intersection Reference:	Overall		Critical			
	Delay	LOS	Delay	LOS	V/C	Queue Length 95th (m)
AM Peak Hour						
Queensway at Hurontario Street	41	D	WBL: 68 NBL: 62 SBL: 72	E E E	0.79 0.92 0.94	#42.7 #104.1 #101.3
Bronte College Court/Sherobee Road at Hurontario Street	34	C	WBT: 58 SBL: 62	E E	0.77 0.70	72.4 m19.7
Site Access at Hurontario Street	N/A					
Harbourn Road/N Service Rd at Hurontario Street	57	E	WBL: 335 NBL: 101 SBL: 92	F F F	1.63 0.99 0.84	#195.9 #78.4 #52.2
PM Peak Hour						
Queensway at Hurontario Street	60	E	EBR: 107 WBL: 55 NBL: 134 SBT: 89	F E F F	1.15 0.84 1.16 1.09	#221.4 #86.6 #138.6 #199.0
Bronte College Court/Sherobee Road at Hurontario Street	26	C	EBL: 57 EBTR: 63 NBL: 117	E E F	0.55 0.79 0.94	36.3 89.6 m#36.8
Site Access at Hurontario Street	N/A					
Harbourn Road/N Service Rd at Hurontario Street	76	E	WBL: 299 NBL: 75 SBL: 127 SBTR: 74	F E F E	1.57 0.91 1.01 1.09	#278.4 #63.9 m#42.0 #281.6

5.2 Total Traffic Operations

Site traffic was added to the background traffic to facilitate the analysis of the future network with all future traffic included. Detailed Synchro output is provided in Appendix A. Exhibit 5-4 displays the total volumes for the year 2016.

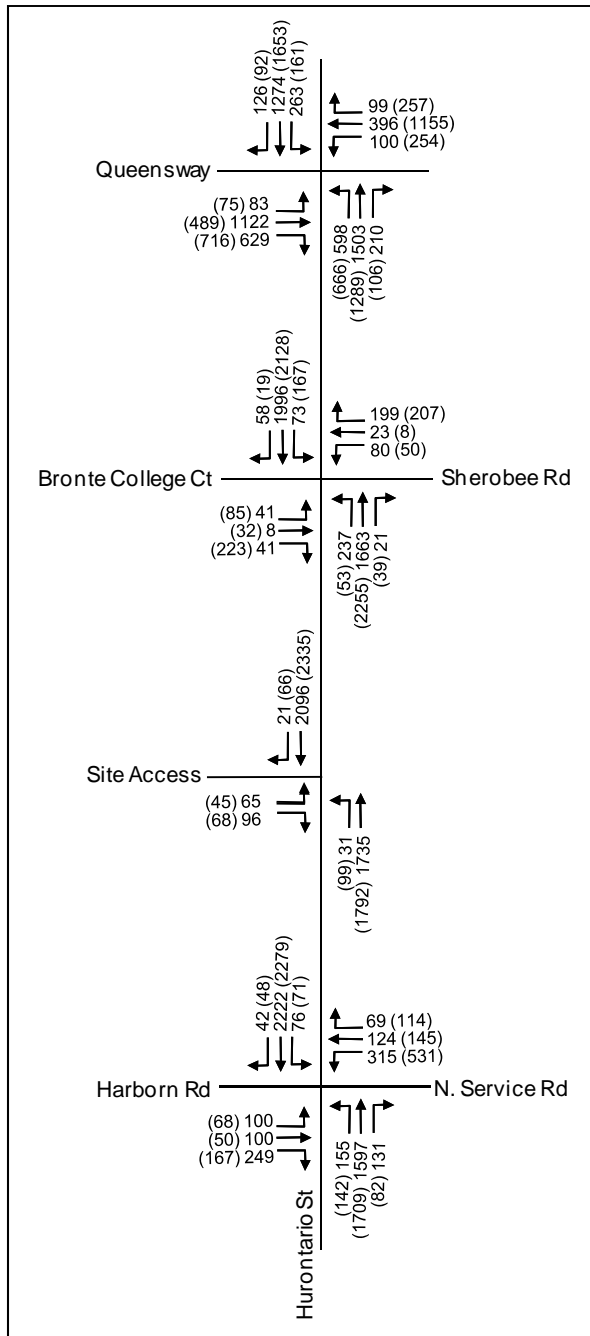
Exhibit 5-4: 2016 Total Traffic Volumes AM (PM) – Current Network Scenario

Exhibit 5-5 summarizes the intersection operations for the network in the AM and PM peak hours. Again, all signal timings were optimized using Synchro 7 to provide the best operations possible for the future network. Detailed analysis output is provided in Appendix A. The following discusses the impacts of site traffic on the network:

- At the Queensway and Hurontario Street intersection, site traffic had minimal effect on operations, with overall operations only deteriorating slightly from a delay standpoint. In the AM operations were similar but site traffic brought the SB left movement above the critical threshold, although it still operates under capacity and with minor delay. In the PM, site

traffic only brought about marginal increases in delay. There are still several movements operating a LOS F and over capacity. The same queuing issues are still apparent, with the newly critical SB left movement exceeding its storage length as well.

- Due to site traffic, the Bronte College Court/Sherobee Road at Hurontario Street intersection sees overall operations unchanged in the PM, but they deteriorate to LOS D in the AM. In the AM peak hour, site traffic only creates small increases in delay, operations are identical otherwise. As for the PM, the NB left, EB left, and EB through-right movements are still critical, however the WB left movement is as well, operating at LOS E but below capacity. As for queuing, lengths have increased slightly due to site traffic but are still within storage lengths.
- At the Harborn Road/North Service Road and Hurontario Street intersection, site traffic had little effect on the operations in the AM peak hour. In the PM, overall operations dropped to LOS F due to increased delay during the SB through-right movement, which also dropped to LOS F. Queue lengths are still an issue, as they have marginally increased in length with the addition of site traffic.
- Movements at the site access to Hurontario Street all operate well in the AM. However, in the PM, vehicles leaving the site are seeing movements operating at LOS E but under capacity. These operational deficiencies can be attributed to long SB queue lengths on Hurontario Street from vehicles pre-emptively lining up to access the QEW and long cycle lengths that create long periods without gaps in traffic to facilitate left turns. Due to these poor operations, queues can reach up to 6 cars at the site access.

Exhibit 5-5: 2016 Total Traffic Operations – Current Network Scenario

Intersection Reference:	Overall		Critical			
	Delay	LOS	Delay	LOS	V/C	Queue Length 95th (m)
AM Peak Hour						
Queensway at Hurontario Street	44	D	WBL: 69 NBL: 69 SBL: 60	E E E	0.80 0.94 0.89	#43.2 #109.6 #93.4
Bronte College Court/Sherobee Road at Hurontario Street	35	D	WBT: 59 SBL: 70	E E	0.77 0.79	73.0 m18.3
Site Access at Hurontario Street	1	N/A	-	-	-	
Harborn Road/N Service Rd at Hurontario Street	61	E	WBL: 367 NBL: 99 SBL: 106	F F F	1.70 0.99 0.90	#198.5 #77.9 #55.7
PM Peak Hour						
Queensway at Hurontario Street	69	E	EBR: 129 WBL: 62 NBL: 143 SBT: 88	F E F F	1.20 0.88 1.19 1.08	#235.6 #93.8 #142.4 #203.2
Bronte College Court/Sherobee Road at Hurontario Street	28	C	EBL: 66 EBTR: 69 WBL: 59 NBL: 121	E E E F	0.63 0.83 0.47 0.98	39.4 94.3 25.6 m#34.0
Site Access at Hurontario Street	2	N/A	EBL: 49 EBR: 49	E E	0.63 0.63	27.3 27.3
Harborn Road/N Service Rd at Hurontario Street	82	F	WBL: 299 NBL: 75 SBL: 200 SBTR: 87	F E F F	1.57 0.91 1.22 1.12	#278.4 #63.9 m#45.2 #295.8

5.3 Mitigation

From the analysis performed in Section 4.2, it is clear that site trips mainly cause a minor deterioration in left turn lanes, while background operations remain critical for many movements. In total, the site traffic will increase volumes on Hurontario Street by around 2.7%. Potential mitigating improvements are discussed below.

- Queensway and Hurontario Street – site traffic had little effect at this intersection but background traffic creates some congestion in the PM peak hour. However, this intersection is built to its limitations at the critical movements and an extended cycle length is not a feasible option as it is already 120 seconds. Thus no improvements were modelled for this intersection.
- Bronte College Court/Sherobee Road and Hurontario Street – although movements are critical at this intersection, there are no movements operating above capacity and thus the intersection is not a candidate for improvements.
- Harborn Road/North Service Road and Hurontario Street – There are several movements at this intersection that are operating above capacity in both peak hours, a majority of which are left turn movements. Currently, all left turn movements but the NB one are permissive phases, making the congested left turn movements candidates for protection to increase flow of traffic. The WB and SB left turn movements would benefit from an early protected

phase, but doing so would take time away from through movements. With such large through volumes, shorter through phases will create congestion and queuing. To improve one facet of the intersection, operations at another must be sacrificed.

To egress the site, a right turn lane was added with a 15m storage length along the site access. This change eliminates vehicles waiting to turn left from delaying right turning vehicles.

6. FUTURE CONDITIONS – WITH LRT SCENARIO

Traffic analysis for the year 2016 is discussed herein for the case where the With LRT is completed. Analyses were completed for background volumes as well as total volumes in order to facilitate a comparison between the two. Synchro version 7 was used to complete the analyses.

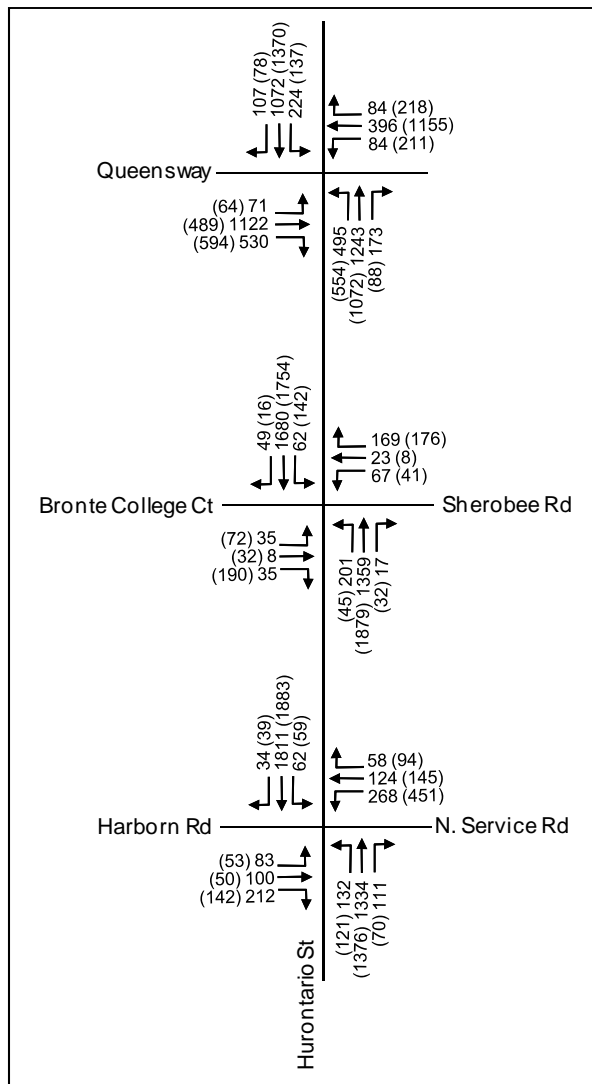
The Synchro models were modified to facilitate the analysis of the intersections with a dedicated LRT line running through them along Hurontario Street. In order to represent an LRT line that is not open to other vehicles, a lane in each direction was removed from the model along Hurontario Street. Also, all left turns at intersections were changed to be protected phases to accommodate the existence of the LRT. These model changes were extracted from the *Hurontario/Main Street Corridor Master Plan*.

6.1 Background Traffic Operations

To reflect the existence of a dedicated LRT line along Hurontario Street and the subsequent reduction in auto capacity, traffic volumes in the network were reduced by 15% for all movements except east-west through movements. The 15% reduction was determined through comparisons between traffic forecasts for the corridor with and without the LRT line. The traffic forecasts used were taken from the *Hurontario/Main Street Corridor Master Plan*. The forecasts were for AM traffic in 2031 along the Dundas to QEW section of the corridor and are shown in Exhibit 6-1. Background traffic volumes for this scenario are shown in Exhibit 6-2.

Exhibit 6-1: LRT Traffic Reduction Calculation

Direction	Current Network	With LRT	Reduction
NB	2,370	2,010	15%
SB	1,810	1,520	16%

Exhibit 6-2: 2016 Background Traffic Volumes – With LRT Scenario

The background traffic analysis does not include new trips to and from the subject development. Exhibit 5-3 summarizes the intersection operations for the network in the AM and PM peak hours. Detailed Synchro output can be found in Appendix A. The following comments are based on the analysis:

- At the intersection of the Queensway and Hurontario Street, operations are at LOS D in the AM and LOS E in the PM. The AM sees several movements critical and approaching capacity, with the SB left movement operating at LOS F and the EB through and NB left movements at LOS E. In the PM, there are several movements operating at LOS E and F. The most notable issues are at the EB right, NB left, and SB through movements which are all operating above capacity and operating at LOS F. In terms of queuing, the SB left movement in both the AM and PM peak hours sees extensive queues that exceed storage length.
- The Bronte College Court/Sherobee Road at Hurontario Street intersection operates at overall LOS C and D in the AM and PM respectively. In the AM, the EB, WB, and NB left movements all operate at LOS E or F but well below capacity. In the PM, all left turn movements operate at LOS E or F, but once again below capacity. Queuing issues are

limited here, with the NB and SB left queues exceeding storage length in the AM and PM respectively.

- At the Harbourn Road/N Service Rd and Hurontario Street intersection, operations are at overall LOS F in both the AM and PM. In the AM and PM, the WB left, NB left, and SB through/right movements all operate at LOS F and well over capacity. Also, the SB left movement operates at LOS F in the AM peak hour and E in the PM but below capacity in both cases. There are major queuing problems at this intersection as well, with all critical movements exceeding storage length with the exception of the SB left movement in both peak hours.

Exhibit 6-3: 2016 Background Intersection Operations – With LRT Scenario

Intersection Reference:	Overall		Critical			
	Delay	LOS	Delay	LOS	V/C	Queue Length 95th (m)
AM Peak Hour						
Queensway at Hurontario Street	52	D	EBT: 59 NBL: 79 SBL: 106	E E F	0.94 0.95 0.99	#131.5 #100.3 #108.8
Bronte College Court/Sherobee Road at Hurontario Street	28	C	EBL: 81 WBL: 58 NBL: 57	F E E	0.58 0.48 0.65	19.4 29.2 #102.0
Site Access at Hurontario Street	N/A					
Harbourn Road/N Service Rd at Hurontario Street	91	F	WBL: 200 NBL: 317 SBL: 97 SBTR: 118	F F F F	1.29 1.51 0.68 1.17	#159.5 #98.5 #41.0 #390.9
PM Peak Hour						
Queensway at Hurontario Street	73	E	EBR: 92 NBL: 157 SBL: 78 SBT: 109	F F E F	1.09 1.21 0.77 1.14	#195.1 #124.5 #64.2 #258.1
Bronte College Court/Sherobee Road at Hurontario Street	37	D	EBL: 87 WBL: 82 NBL: 65 SBL: 70	F F E E	0.73 0.61 0.43 0.67	19.4 11.0 m23.5 #97.3
Site Access at Hurontario Street	N/A					
Harbourn Road/N Service Rd at Hurontario Street	106	F	WBL: 265 NBL: 234 SBL: 77 SBTR: 142	F F E F	1.48 1.29 0.68 1.24	#238.7 #83.5 m21.5 #388.8

6.2 Total Traffic Operations

Site traffic was added to the background traffic to facilitate the analysis of the future network with all future traffic included. As described in the Trip Generation, development generated traffic is limited to right-in, right-out at the site access with u-turns at Harbourn Road and at Sherobee Road. Exhibit 6-4 displays the total volumes for the year 2016.

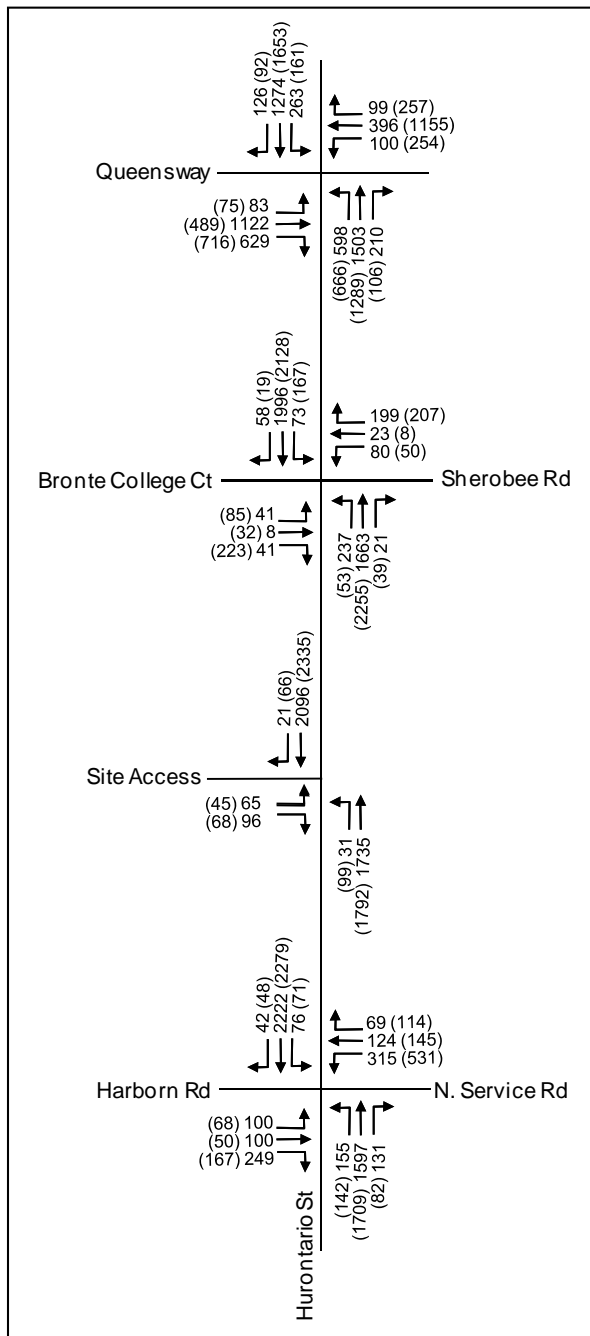
Exhibit 6-4: 2016 Total Traffic Volumes AM (PM) – With LRT Scenario

Exhibit 6-5 summarizes the intersection operations for the network in the AM and PM peak hours. Detailed analysis output is provided in Appendix A. The following discusses the impacts of site traffic on the network:

- At the Queensway and Hurontario Street intersection, site traffic had minimal effect on operations, with overall operations only experiencing minor increases in delay. In the AM operations were similar but site traffic made the NB through movement critical as it

approached capacity with a V/C ratio of 0.99. In the PM, site traffic only brought about marginal increases in delay and V/C ratio. There are still several movements operating a LOS F and over capacity. Queuing issues here haven't changed with the addition of site traffic, as site traffic only extended the queues slightly.

- Due to site traffic, the Bronte College Court/Sherobee Road at Hurontario Street intersection sees overall operations unchanged in both peak hours. In the AM peak hour, site traffic only creates small increases in delay, resulting in the EB left movement deteriorating from LOS E to F. As for the PM, all of the left turn movements are still critical and operate at LOS e or F and below capacity. However, site traffic brought the EB through movement above the critical threshold as it operates at LOS E but below capacity. Site traffic had no effect on queuing, with the same movements exceeding their storage capacity.
- At the Harbourn Road/North Service Road and Hurontario Street intersection, site traffic had little effect on the operations in both peak hours. The AM only saw marginal increases in delay for its critical movements. The same is true for the PM peak hour, but the SB left movement deteriorated to LOS F as a result and is now approaching capacity. Site traffic didn't have a large effect on queues, with the same issues still apparent with the addition of site traffic.
- Movements at the site access to Hurontario Street all operate well with queues of around 1 or 2 vehicles.

Exhibit 6-5: 2016 Total Traffic Operations – With LRT Scenario

Intersection Reference:	Overall		Critical			
	Delay	LOS	Delay	LOS	V/C	Queue Length 95th (m)
AM Peak Hour						
Queensway at Hurontario Street	54	D	EBT: 59 NBL: 78 NBT: 55 SBL: 106	E E E F	0.94 0.95 0.99 0.99	#131.5 #101.0 #213.2 #108.8
Bronte College Court/Sherobee Road at Hurontario Street	28	C	EBL: 78 WBL: 58 NBL: 62	E E E	0.56 0.48 0.73	19.3 29.6 #114.2
Site Access at Hurontario Street	1	N/A	-	-	-	-
Harborn Road/N Service Rd at Hurontario Street	99	F	WBL: 200 NBL: 317 SBL: 102 SBTR: 144	F F F F	1.29 1.51 0.79 1.24	#159.5 #98.5 #57.2 #422.5
PM Peak Hour						
Queensway at Hurontario Street	80	E	EBR: 109 NBL: 163 SBL: 78 SBT: 128	F F E F	1.14 1.23 0.77 1.19	#208.8 #126.3 #64.2 #273.8
Bronte College Court/Sherobee Road at Hurontario Street	47	D	EBL: 62 EBT: 64 WBL: 59 NBL: 67 SBL: 93	E E E E F	0.55 0.79 0.43 0.54 0.85	33.2 78.1 22.2 m#61.3 #104.7
Site Access at Hurontario Street	0	N/A	-	-	-	-
Harborn Road/N Service Rd at Hurontario Street	119	F	WBL: 265 NBL: 234 SBL: 94 SBTR: 162	F F F F	1.48 1.29 0.90 1.29	#238.7 #83.5 m#26.5 m#380.5

6.3 Mitigation

The critical movements in this scenario are very similar to those from the Current Network scenario. The only difference is that the critical movements in this scenario generally have increased delay and V/C ratios due to the absence of a through lane in each direction to accommodate the LRT line. Thus, the same improvements would provide mitigation in this scenario, although the Harborn Road/North Service Road and Hurontario Street intersection already has a protected SB left phase in this scenario, so only the WB left movement will be a candidate for an early protected phase. Once again, the through movements will suffer operationally if early protected phases are added.

The modified site access mentioned in section 4.3 is not needed under this scenario, as there is only one outbound movement at the access due to the existence of the centreline LRT. The phasing of the development could be staged such that this extra space could be used for loading/receiving purposes at the front of the property.

7. PARKING

7.1 Zoning By-Law

The City of Mississauga Zoning By-law No. 0225-2007 contains the on-site parking requirements for all residential and non-residential developments within the city. Exhibit 7-1 and Exhibit 7-2 illustrate the parking requirements under the by-law. A minimum of 965 parking spaces would be required, 796 for residents, 123 for visitors and 46 for retail customers. This results in an average of 1.32 spaces per unit for residents plus 0.2 spaces per unit for visitors.

Exhibit 7-1: Residential Parking Requirements

Residential Unit Breakdown	# Units	Minimum Rate		Parking Spaces	
		Resident	Visitor	Resident	Visitor
Bachelor	75	1.00	0.2	75	15
1 Bedroom	322	1.25	0.2	403	65
2 Bedroom	138	1.40	0.2	194	28
3 Bedroom	48	1.75	0.2	84	10
Town House	20	2.0	0.25	40	5
Total	603	-	-	796	123

Exhibit 7-2: Non-Residential Parking Requirements

Non-Residential Use	GFA (m ²)	Minimum Rate per 100m ²	Parking Spaces
Retail	415	5.4	23
	420	5.4	23
Total	835	-	46

7.2 Proposed Auto Parking Supply

7.2.1 RESIDENTIAL

IBI Group has conducted parking demand surveys at various residential locations throughout the GTA for other parking and transportation studies. Recently, IBI completed a traffic and parking study for the redevelopment of a multi-unit residential location in the City of Brampton. This location offers a good comparison with the Subject Site as it is located in an urban growth centre – Downtown Brampton/Bramalea City Centre and located at approximately the same distance from the Bramalea GO Train Station at the subject site is from the Port Credit and Cooksville GO Stations. Parking demand and supply rates for the two residential towers at this location are summarized in Exhibit 7-3.

Exhibit 7-3: Tenant Parking Demand and Supply Rates At Comparable GTA Residential Locations

City / Municipality	Type	Address	Parking Demand Rate	Parking Supply Rate	Units
Brampton	Condominium Apartment	190 Clark Boulevard	0.72	1.51	191
Brampton	Condominium Apartment	2 Lisa Street	0.88	1.51	191
AVERAGE			0.80	1.51	191

Source: IBI Group (2009) - Parking demand and supply rate per unit.

Overall, the average residential parking demand and supply rates for these two locations is 0.80 and 1.51 spaces per unit, respectively.

Taking the above data into account, it is clear that a parking rate lower than that required per the by-law is feasible. Also, the proposed development will have good transit connectivity in the area to allow some residents and visitors to accommodate their travels through modes besides the automobile. Once the Hurontario-Main LRT is complete, there will be a major transit line running right outside the development which will service a plethora of residents within the development, reducing the need for parking.

However, since the site is located along a main regional road and is in close proximity to the QEW, there will be a higher propensity for residents to use automobiles than in the above cases, increasing demand slightly. As such, a parking rate of 1.0 spaces per unit for residents is recommended, requiring a total of 603 residential parking spaces.

Visitor parking spaces can be scaled down in the same way. A residential parking rate of 1.0 spaces per unit is approximately 75% of the required rate. Applying that same 75% factor to the required visitor rate of 0.2, we get a recommended visitor parking rate of 0.15 spaces per unit, totalling 91 visitor parking spaces.

The current site plan has provision for 796 resident spaces and 39 at-grade visitor spaces. The 796 resident spaces match what is required per the by-law, but far exceed anticipated demand parking. A reduction in the available spaces is not anticipated to affect residents adversely. The 39 visitor spaces in the site plan do not meet the required or recommended parking supply for visitors to the site. To combat this problem, building management can allocate un-purchased residential parking spaces to visitors if needed. Another option would be to charge for the at-grade visitor parking which will keep vehicles using the adjacent site out and ensure that residents do not use visitor parking in lieu of purchasing a space in the garage. Increasing the number of spaces to the recommended number of 91 would obviously be a solution as well.

7.2.2 NON-RESIDENTIAL

In 2007, IBI Group and City of Toronto staff conducted a parking standards review for the City of Toronto titled *Review of the City of Toronto Zoning By-law Parking Standards for Office, Retail and Restaurant Uses (March 2007)*. For the report, parking surveys were conducted at nearly 500 retail and 300 office locations across the City of Toronto, including the former Municipality of Scarborough. The suburban nature of parts of Scarborough outside of the town centre is comparable to that of the lands surrounding the subject site.

As part of the study, IBI Group surveyed parking at 31 general retail and 15 personal services locations across Scarborough. After applying time of day and other adjustment factors, an average parking demand and supply was calculated and is shown in Exhibit 7-4.

Exhibit 7-4: Average Parking Demand and Supply Rates At Comparable GTA Municipality

Location	General Retail (31 Sources)		Personal Services (15 Sources)	
	Average Demand ⁽¹⁾	Average Supply ⁽¹⁾	Average Demand ⁽¹⁾	Average Supply ⁽¹⁾
Scarborough	1.70	4.60	1.75	6.20

Source: IBI Group (2007)

1. Parking demand and supply rate per 100 m² of gross floor area.

For general retail, the average demand and supply rate is 1.70 and 4.60 parking spaces per 100 square metres, respectively. For personal services, the average demand and supply is 1.75 and 6.20 parking spaces per 100m², respectively. This indicated a significant parking over-supply for both types of commercial uses in the Scarborough area.

The retail establishments that will be located within the proposed development fall under the categorization of General Retail in the table above. As such, it is recommended that a parking rate of 1.7 spaces per 100m² be adopted, requiring a total of 15 retail parking spaces. Further justifying this lower rate is that the retail establishments generally are not anticipated to be serving customers who arrive by auto, likely serving building tenants and nearby residents.

The current site plan has provision for 16 retail parking spaces, exceeding the recommended number of spaces but falling below the number of spaces required per City by-law.

7.3 Bicycle Parking

The *Mississauga Cycling Master Plan* provides relevant information of bicycle parking needs at various land uses across the city. For a residential development such as this 0.75 bicycle spaces per unit are required. For the retail, 0.335 spaces per 100 m² of gross floor area are required. For 603 units (including town homes) and 835 m² of floor space, a total of 453 resident spaces are need and 3 retail spaces. The current plan for provision of bicycle parking is unknown at this time.

If ample bicycle parking is provided, residents relying on automobiles will be fewer in number, further justifying the potential for shared parking to accommodate spill over of visitor and retail parking.

8. CONCLUSIONS

Existing Conditions

Due to high turning volumes at the intersections, there are several left turn movements that are operating with significant delay and above capacity. These movements consist of the NB and SB left turns at the Queensway and Hurontario Street intersection and the WB left turn off of North Service Road. Overall intersection level of service is E or better indicating that, though busy, congestion is being managed in the corridor.

Future 'Current Network' Scenario

Under the Current Network scenario, the geometry of the network stays as it is today. Background growth further contributes to an increase in congestion, compounding problems already seen at many left turn movements and pushing other movements towards capacity. When traffic generated from the development was added, it had a limited effect on left turn movements at the Queensway/Hurontario and Harbourn/North Service/Hurontario intersections, however overall intersection operations remained basically the same. The proposed access on Hurontario Street, with two egress lanes, also proved to be capable of handling all of the generated trips, but with an average of almost one minute of delay and queues of approximately 6 vehicles.

Due to the high levels of congestion and geometric constraints, not many improvements can be made to the network to mitigate the operational problems created by the background traffic. Our only recommendation is the additional of potential protected phases for the WB and SB left turns at Harbourn Road/North Service Road meets Hurontario Street.

Future With LRT Scenario

Under this scenario, there is a dedicated LRT line that runs along Hurontario Street. Since it is a dedicated line, a through lane in each direction on Hurontario Street will need to be removed to accommodate it. Also, all NB and SB left turns will need to have protected phases only as per the *Hurontario/Main Street Corridor Master Plan*. To account for travel behaviour changes and increased ridership, Hurontario Street traffic was reduced by 15%, a number which was determined with volume forecasts from the aforementioned master plan.

Since the LRT line runs through the middle of Hurontario Street and the access is not signalized, left turns to and from the development will be prohibited. As a result, left turning vehicles were redistributed to u-turn phases NB at Bronte College Court/Sherobee Road and SB at Harbourn Road/North Service Road.

As in the Current Network scenario, in this scenario site traffic had a limited effect of operations within the network, with a primary result of moderate increase in delay to left turn movements. Long queues in the corridor will remain a problem, with many of the critical left turn movements having queues exceeding their storage length.

The congestion in the network was, overall, somewhat worse than in the Current Network scenario due to the high traffic volumes and reduction in roadway capacity with along Hurontario. Due to right-of-way restrictions, widening along Hurontario was not evaluated in detail.

Parking

The city of Mississauga By-law No. 0225-2007 was consulted to determine the parking requirements for the development. For this development, 796 resident spaces, 123 visitor spaces, and 46 retail spaces are needed to adhere to the by-law. From the city's Cycling Master Plan, the provision of provision of 453 bicycle parking spaces has been identified and incorporated into the site plan.

Based on previous parking surveys conducted by IBI Group, and using the unique network characteristics of the area, it has been determined that 603 resident spaces, 91 visitor spaces, and 15 retail spaces will be needed. The current site plan exceeds the recommended spaces for both the resident and retail spaces. However, the site plan does not have provision of enough visitor spaces. This could be solved by charging for visitor parking, providing visitors the opportunity to use un-purchased resident spaces, or increasing the number of spaces provided.


































Appendix A

Synchro Outputs

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	  			  	
Volume (vph)	77	1047	581	92	369	92	542	1364	191	245	1177	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Satd. Flow (prot)	1825	5193	1617	1690	5142	1498	3437	5092	1585	1789	5092	1601
Flt Permitted	0.507			0.115			0.950			0.110		
Satd. Flow (perm)	974	5193	1617	205	5142	1498	3437	5092	1585	207	5092	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			274			100			146			113
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	1%	8%	2%	9%	3%	3%	3%	2%	3%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	1138	632	100	401	100	589	1483	208	266	1279	128
Turn Type	Perm		Perm	pm+pt		Perm	Prot		Perm	pm+pt		Perm
Protected Phases		8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6	2		2
Detector Phase	8	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	8.0	33.7	33.7
Total Split (s)	45.6	45.6	45.6	9.6	55.2	55.2	21.6	52.8	52.8	12.0	43.2	43.2
Total Split (%)	38.0%	38.0%	38.0%	8.0%	46.0%	46.0%	18.0%	44.0%	44.0%	10.0%	36.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	0.0	2.7	2.7
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)	6.5	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	3.0	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	38.1	38.1	38.1	51.2	47.7	47.7	15.9	46.1	46.1	50.2	36.5	36.5
Actuated g/C Ratio	0.32	0.32	0.32	0.43	0.40	0.40	0.13	0.38	0.38	0.42	0.30	0.30
v/c Ratio	0.27	0.69	0.90	0.59	0.20	0.15	1.29	0.76	0.30	1.21	0.83	0.23
Control Delay	33.0	38.2	39.3	35.6	23.7	4.9	186.5	31.8	6.1	160.5	44.3	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	38.2	39.3	35.6	23.7	4.9	186.5	31.8	6.1	160.5	44.3	8.4
LOS	C	D	D	D	C	A	F	C	A	F	D	A
Approach Delay		38.3			22.6			69.4			60.0	
Approach LOS		D			C			E			E	
Queue Length 50th (m)	14.5	84.4	87.4	13.9	21.9	0.0	~95.7	113.5	12.6	~63.4	102.4	2.5
Queue Length 95th (m)	28.1	100.2	#158.1	#24.9	29.3	10.3	#127.5	131.4	15.8	#116.3	120.4	16.4
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	317	1692	712	169	2087	667	455	1956	699	219	1549	566
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.26	0.67	0.89	0.59	0.19	0.15	1.29	0.76	0.30	1.21	0.83	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.29

Intersection Signal Delay: 53.6

Intersection LOS: D

Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

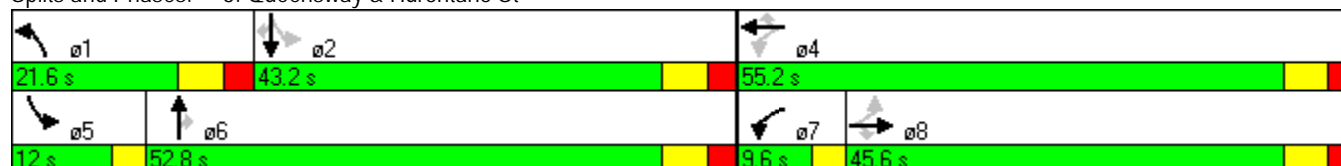
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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























Queue shown is maximum after two cycles.

Splits and Phases: 3: Queensway & Hurontario St



Lanes, Volumes, Timings
6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	8	39	74	22	186	222	1491	19	68	1843	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Satd. Flow (prot)	1738	1659	0	1738	1554	0	1772	4983	0	1807	4979	0
Flt Permitted	0.416			0.724			0.062			0.139		
Satd. Flow (perm)	761	1659	0	1325	1554	0	116	4983	0	264	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			19			2			4	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			186.8			309.2	
Travel Time (s)		7.8			4.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	51	0	80	226	0	241	1642	0	74	2061	0
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0		4.0	4.0	
Minimum Split (s)	48.0	48.0		48.0	48.0		8.0	72.0		58.0	58.0	
Total Split (s)	48.0	48.0	0.0	48.0	48.0	0.0	14.0	72.0	0.0	58.0	58.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	11.7%	60.0%	0.0%	48.3%	48.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effect Green (s)	21.8	21.8		21.8	21.8		88.2	85.2		61.9	61.9	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.74	0.71		0.52	0.52	
v/c Ratio	0.30	0.15		0.33	0.76		0.66	0.46		0.54	0.80	
Control Delay	45.7	14.8		44.4	57.9		36.2	8.7		49.6	42.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.7	14.8		44.4	57.9		36.2	8.7		49.6	42.8	
LOS	D	B		D	E		D	A		D	D	
Approach Delay		28.8			54.4			12.2			43.0	
Approach LOS		C			D			B			D	
Queue Length 50th (m)	8.7	1.8		16.6	46.9		36.0	54.3		14.6	158.8	
Queue Length 95th (m)	17.9	11.3		28.6	67.7		65.8	82.6		m20.2	#185.5	
Internal Link Dist (m)		80.2			37.1			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		
Base Capacity (vph)	260	594		453	543		365	3537		136	2569	

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.09		0.18	0.42		0.66	0.46		0.54	0.80	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 98 (82%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 30.4

Intersection LOS: C

Intersection Capacity Utilization 107.3%

ICU Level of Service G

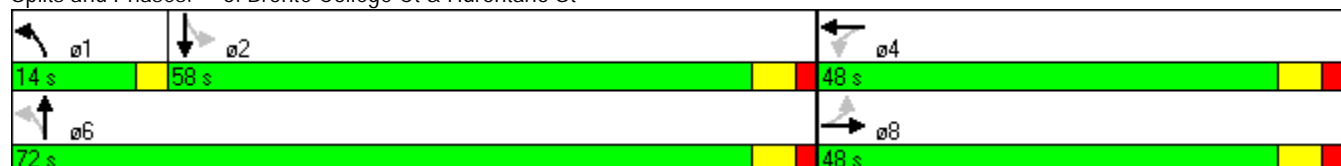
Analysis Period (min) 15

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 College Ct & Hurontario St



Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	93	233	291	116	60	144	1463	122	67	1987	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	0.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Satd. Flow (prot)	1789	1649	0	1789	1691	0	1772	4995	1585	1772	4974	0
Flt Permitted	0.590			0.384			0.061			0.124		
Satd. Flow (perm)	1111	1649	0	723	1691	0	114	4995	1540	231	4974	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100			20				99		2	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		73.3			140.3			122.8			166.4	
Travel Time (s)		5.5			10.5			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	354	0	316	191	0	157	1590	133	73	2201	0
Turn Type	Perm			Perm			pm+pt		Perm	Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		1	6	6	2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		9.0	68.0	68.0	68.0	68.0	
Total Split (s)	57.0	57.0	0.0	57.0	57.0	0.0	15.0	83.0	83.0	68.0	68.0	0.0
Total Split (%)	40.7%	40.7%	0.0%	40.7%	40.7%	0.0%	10.7%	59.3%	59.3%	48.6%	48.6%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	
Act Effect Green (s)	50.0	50.0		50.0	50.0		80.0	77.0	77.0	62.9	62.9	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.57	0.55	0.55	0.45	0.45	
v/c Ratio	0.25	0.54		1.22	0.31		0.80	0.58	0.15	0.70	0.98	
Control Delay	33.9	28.7		169.5	30.6		57.8	21.9	5.1	69.3	53.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	33.9	28.7		169.5	30.6		57.8	21.9	5.1	69.3	53.9	
LOS	C	C		F	C		E	C	A	E	D	
Approach Delay		29.8			117.2			23.7			54.4	
Approach LOS		C			F			C			D	
Queue Length 50th (m)	19.3	55.8		~107.4	33.9		26.4	102.8	4.2	16.2	219.7	
Queue Length 95th (m)	34.1	86.8		#166.0	53.7		#59.9	116.8	13.9	#45.3	#259.3	
Internal Link Dist (m)		49.3			116.3			98.8			142.4	
Turn Bay Length (m)	20.0			70.0					50.0	45.0		
Base Capacity (vph)	397	653		258	617		207	2747	892	104	2235	

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.25	0.54		1.22	0.31		0.76	0.58	0.15	0.70	0.98	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 53 (38%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.22

Intersection Signal Delay: 47.1

Intersection LOS: D

Intersection Capacity Utilization 119.1%

ICU Level of Service H

Analysis Period (min) 15






~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Harborn Rd & Hurontario St

 ø1	 ø2	 ø4
15 s	68 s	57 s
 ø6	 ø8	
83 s	57 s	

Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	15	15	15	1673	2024	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	25.0	25.0	25.0			25.0
Satd. Flow (prot)	1713	0	1789	5142	5137	0
Flt Permitted	0.976		0.950			
Satd. Flow (perm)	1713	0	1789	5142	5137	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	16	1818	2216	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized


































Intersection Capacity Utilization 49.4% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	  			  	
Volume (vph)	69	456	652	232	1078	239	609	1177	97	149	1503	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	0%	1%	0%	0%	3%	2%	1%	0%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	496	709	252	1172	260	662	1279	105	162	1634	93
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	8.0	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	8.0	33.7	33.7
Total Split (s)	9.6	40.8	40.8	13.2	44.4	44.4	25.2	54.0	54.0	12.0	40.8	40.8
Total Split (%)	8.0%	34.0%	34.0%	11.0%	37.0%	37.0%	21.0%	45.0%	45.0%	10.0%	34.0%	34.0%
Maximum Green (s)	6.6	34.3	34.3	10.2	37.9	37.9	18.5	47.3	47.3	9.0	34.1	34.1
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	0.0	2.7	2.7
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)	3.0	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	3.0	6.7	6.7
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)		12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	44.3	34.3	34.3	51.0	39.8	39.8	18.5	47.5	47.5	46.6	34.1	34.1
Actuated g/C Ratio	0.37	0.29	0.29	0.42	0.33	0.33	0.15	0.40	0.40	0.39	0.28	0.28
v/c Ratio	0.41	0.33	1.01	0.62	0.67	0.37	1.25	0.63	0.15	0.68	1.11	0.19
Control Delay	28.0	34.6	59.9	31.4	37.3	7.1	169.2	30.9	4.9	33.6	98.9	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	34.6	59.9	31.4	37.3	7.1	169.2	30.9	4.9	33.6	98.9	14.2
LOS	C	C	E	C	D	A	F	C	A	C	F	B
Approach Delay		48.2			31.8			74.3			89.1	
Approach LOS		D			C			E			F	
Queue Length 50th (m)	10.4	33.8	~108.3	39.0	88.8	4.4	~100.3	87.8	0.0	19.1	~160.8	5.3
Queue Length 95th (m)	19.9	43.9	#187.9	59.0	105.1	23.5	#136.3	103.3	10.6	#37.0	#190.2	18.0
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	184	1484	702	404	1741	697	530	2036	704	240	1476	499

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.41	0.33	1.01	0.62	0.67	0.37	1.25	0.63	0.15	0.68	1.11	0.19

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46.8 (39%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 63.1

Intersection LOS: E

Intersection Capacity Utilization 96.6%

ICU Level of Service F

Analysis Period (min) 15






~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























Splits and Phases: 3: Queensway & Hurontario St

														
ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8	ø9	ø10	ø11	ø12	ø13	ø14	ø15
25.2 s	40.8 s	9.6 s	44.4 s	12 s	54 s	13.2 s	40.8 s							

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	30	208	46	8	193	49	2062	36	155	1926	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			186.8			309.2	
Travel Time (s)		7.8			4.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	259	0	50	219	0	53	2280	0	168	2113	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		5.0	4.0	
Minimum Split (s)	54.0	54.0		54.0	54.0		59.0	59.0		9.0	76.0	
Total Split (s)	54.0	54.0	0.0	54.0	54.0	0.0	59.0	59.0	0.0	17.0	76.0	0.0
Total Split (%)	41.5%	41.5%	0.0%	41.5%	41.5%	0.0%	45.4%	45.4%	0.0%	13.1%	58.5%	0.0%
Maximum Green (s)	47.0	47.0		47.0	47.0		53.0	53.0		14.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0		39.0	39.0			56.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	26.0	26.0		26.0	26.0		76.5	76.5		94.0	91.0	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.59	0.59		0.72	0.70	
v/c Ratio	0.53	0.78		0.38	0.46		0.65	0.78		0.76	0.60	
Control Delay	56.9	63.6		51.3	9.2		53.8	17.2		50.5	11.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	56.9	63.6		51.3	9.2		53.8	17.2		50.5	11.9	
LOS	E	E		D	A		D	B		D	B	
Approach Delay		61.9			17.0			18.0			14.7	
Approach LOS		E			B			B			B	
Queue Length 50th (m)	19.9	62.4		11.2	1.9		4.8	78.1		25.8	93.1	
Queue Length 95th (m)	34.1	84.4		22.1	20.7		m#33.8	#247.7		49.9	135.4	
Internal Link Dist (m)		80.2			37.1			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	294	598		237	685		81	2928		264	3494	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.29	0.43		0.21	0.32		0.65	0.78		0.64	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 6 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 19.4

Intersection LOS: B

Intersection Capacity Utilization 118.5%

ICU Level of Service H

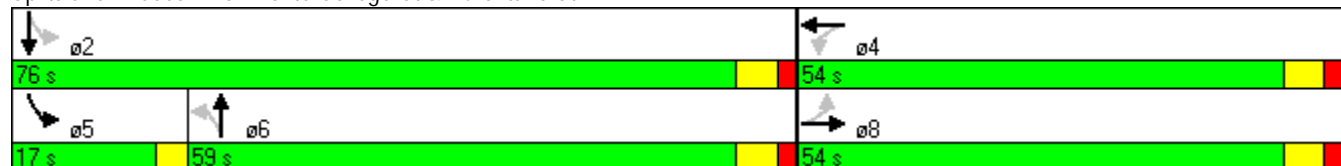
Analysis Period (min) 15

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 College Ct & Hurontario St



Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	47	155	494	136	102	133	1510	72	61	2066	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	0.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		148.3			174.4			122.8			166.4	
Travel Time (s)		11.1			13.1			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	219	0	537	259	0	145	1641	78	66	2294	0
Turn Type	Perm			Perm			pm+pt		Perm	Perm		
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6		6	2		
Detector Phase	8	8		4	4		1	6	6	2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		9.0	62.0	62.0	62.0	62.0	
Total Split (s)	51.0	51.0	0.0	51.0	51.0	0.0	17.0	79.0	79.0	62.0	62.0	0.0
Total Split (%)	39.2%	39.2%	0.0%	39.2%	39.2%	0.0%	13.1%	60.8%	60.8%	47.7%	47.7%	0.0%
Maximum Green (s)	44.0	44.0		44.0	44.0		14.0	73.0	73.0	56.0	56.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			41.0	41.0	41.0	41.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	
Act Effct Green (s)	44.0	44.0		44.0	44.0		76.0	73.0	73.0	59.0	59.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.58	0.56	0.56	0.45	0.45	
v/c Ratio	0.20	0.34		1.53	0.45		0.69	0.59	0.09	0.65	1.02	
Control Delay	32.6	13.5		282.5	33.9		40.8	19.7	4.6	50.0	50.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	32.6	13.5		282.5	33.9		40.8	19.7	4.6	50.0	50.7	
LOS	C	B		F	C		D	B	A	D	D	
Approach Delay		17.7			201.6			20.7			50.7	
Approach LOS		B			F			C			D	
Queue Length 50th (m)	11.2	14.4		~192.1	47.6		19.6	96.3	1.7	13.7	~227.8	
Queue Length 95th (m)	22.6	34.2		#259.7	72.6		41.4	110.4	8.7	m#33.7	#268.2	
Internal Link Dist (m)		124.3			150.4			98.8			142.4	
Turn Bay Length (m)	20.0			70.0					50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	317	644		352	572		249	2805	891	101	2258	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.20	0.34		1.53	0.45		0.58	0.59	0.09	0.65	1.02	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 6 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.53

Intersection Signal Delay: 61.1

Intersection LOS: E

Intersection Capacity Utilization 119.5%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Harborn Rd & Hurontario St



Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	15	15	15	1908	2176	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	16	2074	2381	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized




































Intersection Capacity Utilization 52.4% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	  		  	  	
Volume (vph)	83	1122	623	99	396	99	582	1462	204	263	1261	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	1%	8%	2%	9%	3%	3%	3%	2%	3%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	1220	677	108	430	108	633	1589	222	286	1371	136
Turn Type	Perm		Perm	pm+pt		Perm	Prot		Perm	pm+pt		Perm
Protected Phases		8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6	2		2
Detector Phase	8	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	8.0	33.7	33.7
Total Split (s)	38.0	38.0	38.0	8.0	46.0	46.0	31.0	55.0	55.0	19.0	43.0	43.0
Total Split (%)	31.7%	31.7%	31.7%	6.7%	38.3%	38.3%	25.8%	45.8%	45.8%	15.8%	35.8%	35.8%
Maximum Green (s)	31.5	31.5	31.5	5.0	39.5	39.5	24.3	48.3	48.3	16.0	36.3	36.3
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	0.0	2.7	2.7
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)	6.5	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	3.0	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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)	12.0	12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)	18.0	18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	0
Act Effect Green (s)	31.5	31.5	31.5	43.0	39.5	39.5	23.9	48.5	48.5	56.1	36.7	36.7
Actuated g/C Ratio	0.26	0.26	0.26	0.36	0.33	0.33	0.20	0.40	0.40	0.47	0.31	0.31
v/c Ratio	0.36	0.90	0.95	0.79	0.25	0.19	0.92	0.77	0.31	0.94	0.88	0.24
Control Delay	41.2	52.3	43.3	67.6	30.0	6.1	63.3	30.0	5.8	71.8	47.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	52.3	43.3	67.6	30.0	6.1	63.3	30.0	5.8	71.8	47.5	9.7
LOS	D	D	D	E	C	A	E	C	A	E	D	A
Approach Delay		48.7			32.3			36.4			48.5	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	17.4	101.7	78.6	17.3	27.0	0.0	67.7	121.6	11.8	49.9	112.7	4.2
Queue Length 95th (m)	33.1	#122.4	#156.5	#42.7	35.8	12.3	#104.7	139.8	10.1	#101.3	132.0	18.6
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	248	1363	710	136	1693	566	696	2059	726	308	1555	566

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.36	0.90	0.95	0.79	0.25	0.19	0.91	0.77	0.31	0.93	0.88	0.24

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 42.7

Intersection LOS: D

Intersection Capacity Utilization 88.0%

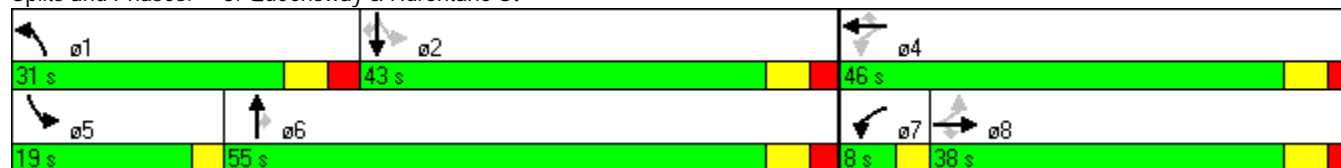
ICU Level of Service E

Analysis Period (min) 15

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






















Queue shown is maximum after two cycles.

Splits and Phases: 3: Queensway & Hurontario St



Lanes, Volumes, Timings
6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	8	41	79	23	199	237	1599	20	73	1976	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			186.8			309.2	
Travel Time (s)		7.8			4.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	54	0	86	241	0	258	1760	0	79	2211	0
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0		4.0	4.0	
Minimum Split (s)	48.0	48.0		48.0	48.0		8.0	72.0		58.0	58.0	
Total Split (s)	48.0	48.0	0.0	48.0	48.0	0.0	14.0	72.0	0.0	58.0	58.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	11.7%	60.0%	0.0%	48.3%	48.3%	0.0%
Maximum Green (s)	41.0	41.0		41.0	41.0		11.0	66.0		52.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0			52.0		38.0	38.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	23.4	23.4		23.4	23.4		86.6	83.6		58.1	58.1	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.72	0.70		0.48	0.48	
v/c Ratio	0.31	0.15		0.33	0.77		0.65	0.51		0.70	0.92	
Control Delay	44.7	13.8		43.2	58.3		35.9	9.9		62.0	49.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	44.7	13.8		43.2	58.3		35.9	9.9		62.0	49.5	
LOS	D	B		D	E		D	A		E	D	
Approach Delay		27.8			54.4			13.2			50.0	
Approach LOS		C			D			B			D	
Queue Length 50th (m)	9.2	1.7		17.6	51.3		39.3	63.6		16.4	173.8	
Queue Length 95th (m)	18.8	11.3		29.8	72.4		#78.3	95.6		m19.7 m#221.0		
Internal Link Dist (m)		80.2			37.1			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	252	596		451	540		397	3473		113	2414	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.09		0.19	0.45		0.65	0.51		0.70	0.92	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 98 (82%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 34.1

Intersection LOS: C

Intersection Capacity Utilization 109.0%

ICU Level of Service G






Analysis Period (min) 15

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 College Ct & Hurontario St

		
ø1	ø2	ø4
14 s	58 s	48 s
		
ø6		ø8
72 s		48 s

Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	100	249	315	124	68	155	1569	131	73	2130	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	55.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		199.0			185.0			122.8			166.4	
Travel Time (s)		14.9			13.9			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	380	0	342	209	0	168	1705	142	79	2358	0
Turn Type	Perm			Perm			pm+pt		Perm	Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		1	6	6	2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		9.0	68.0	68.0	68.0	68.0	
Total Split (s)	54.0	54.0	0.0	54.0	54.0	0.0	12.0	86.0	86.0	74.0	74.0	0.0
Total Split (%)	38.6%	38.6%	0.0%	38.6%	38.6%	0.0%	8.6%	61.4%	61.4%	52.9%	52.9%	0.0%
Maximum Green (s)	47.0	47.0		47.0	47.0		9.0	80.0	80.0	68.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			47.0	47.0	47.0	47.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	
Act Effct Green (s)	47.0	47.0		47.0	47.0		83.0	80.0	80.0	68.0	68.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.59	0.57	0.57	0.49	0.49	
v/c Ratio	0.30	0.61		1.63	0.36		0.99	0.60	0.15	0.84	0.98	
Control Delay	37.4	33.5		335.3	34.2		101.2	20.6	4.8	92.4	48.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	37.4	33.5		335.3	34.2		101.2	20.6	4.8	92.4	48.6	
LOS	D	C		F	C		F	C	A	F	D	
Approach Delay		34.4			221.1			26.2			50.0	
Approach LOS		C			F			C			D	
Queue Length 50th (m)	21.9	66.2		~136.2	39.8		31.0	108.0	4.6	18.6	228.7	
Queue Length 95th (m)	38.3	100.9		#195.9	62.0		#78.4	122.1	14.1	#52.2	#269.0	
Internal Link Dist (m)		175.0			161.0			98.8			142.4	
Turn Bay Length (m)	20.0			70.0			55.0		50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	352	618		210	577		169	2854	924	94	2417	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.30	0.61		1.63	0.36		0.99	0.60	0.15	0.84	0.98	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 53 (38%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.63

Intersection Signal Delay: 57.1

Intersection LOS: E

Intersection Capacity Utilization 122.1%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Harborn Rd & Hurontario St

 ø1	 ø2	 ø4
12 s	74 s	54 s
 ø6		 ø8
86 s		54 s

Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1735	2096	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	15.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1886	2278	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized


































Intersection Capacity Utilization 43.8% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St






2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	  			  	
Volume (vph)	75	489	699	248	1155	248	652	1261	104	161	1612	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	0%	1%	0%	0%	3%	2%	1%	0%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	532	760	270	1255	270	709	1371	113	175	1752	100
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	8.0	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	8.0	33.7	33.7
Total Split (s)	11.0	37.0	37.0	11.0	37.0	37.0	28.0	55.0	55.0	17.0	44.0	44.0
Total Split (%)	9.2%	30.8%	30.8%	9.2%	30.8%	30.8%	23.3%	45.8%	45.8%	14.2%	36.7%	36.7%
Maximum Green (s)	8.0	30.5	30.5	8.0	30.5	30.5	21.3	48.3	48.3	14.0	37.3	37.3
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	0.0	2.7	2.7
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)	3.0	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	3.0	6.7	6.7
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)		12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	41.6	30.5	30.5	42.6	32.7	32.7	21.3	51.2	51.2	52.1	37.3	37.3
Actuated g/C Ratio	0.35	0.25	0.25	0.36	0.27	0.27	0.18	0.43	0.43	0.43	0.31	0.31
v/c Ratio	0.44	0.40	1.15	0.84	0.88	0.42	1.16	0.63	0.15	0.65	1.09	0.18
Control Delay	32.4	38.3	106.6	55.3	50.4	6.3	133.9	28.8	4.6	28.6	88.9	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	38.3	106.6	55.3	50.4	6.3	133.9	28.8	4.6	28.6	88.9	13.4
LOS	C	D	F	E	D	A	F	C	A	C	F	B
Approach Delay		75.7			44.5			61.5			80.0	
Approach LOS		E			D			E			F	
Queue Length 50th (m)	12.5	38.2	~148.1	46.3	106.5	0.0	~102.0	90.5	0.0	18.4	~169.5	5.8
Queue Length 95th (m)	23.5	49.3	#221.4	#86.6	#134.6	20.0	#138.6	111.2	10.9	34.8	#199.0	18.4
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	192	1320	663	321	1431	642	610	2193	754	314	1614	542

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.43	0.40	1.15	0.84	0.88	0.42	1.16	0.63	0.15	0.56	1.09	0.18

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46.8 (39%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 65.1

Intersection LOS: E

Intersection Capacity Utilization 102.5%

ICU Level of Service G

Analysis Period (min) 15









~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























Splits and Phases: 3: Queensway & Hurontario St

			
ø1	ø2	ø3	ø4
28 s	44 s	11 s	37 s
			
ø5	ø6	ø7	ø8
17 s	55 s	11 s	37 s

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	32	223	48	8	207	53	2211	38	167	2064	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			186.8			309.2	
Travel Time (s)		7.8			4.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	277	0	52	234	0	58	2444	0	182	2264	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		5.0	4.0	
Minimum Split (s)	54.0	54.0		54.0	54.0		59.0	59.0		9.0	76.0	
Total Split (s)	54.0	54.0	0.0	54.0	54.0	0.0	65.0	65.0	0.0	11.0	76.0	0.0
Total Split (%)	41.5%	41.5%	0.0%	41.5%	41.5%	0.0%	50.0%	50.0%	0.0%	8.5%	58.5%	0.0%
Maximum Green (s)	47.0	47.0		47.0	47.0		59.0	59.0		8.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0		39.0	39.0			56.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	27.6	27.6		27.6	27.6		69.7	69.7		92.4	89.4	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.54	0.54		0.71	0.69	
v/c Ratio	0.55	0.79		0.39	0.55		0.94	0.92		0.62	0.66	
Control Delay	57.0	63.4		50.7	23.3		117.3	23.4		37.0	13.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	57.0	63.4		50.7	23.3		117.3	23.4		37.0	13.7	
LOS	E	E		D	C		F	C		D	B	
Approach Delay		61.8			28.3			25.6			15.4	
Approach LOS		E			C			C			B	
Queue Length 50th (m)	21.2	67.1		11.6	22.8		5.3	79.4		27.2	110.5	
Queue Length 95th (m)	36.3	89.6		22.6	44.3		m#36.8	#280.6		53.9	158.6	
Internal Link Dist (m)		80.2			37.1			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	284	596		226	634		62	2669		294	3435	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.46		0.23	0.37		0.94	0.92		0.62	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 6 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 119.0%

ICU Level of Service H

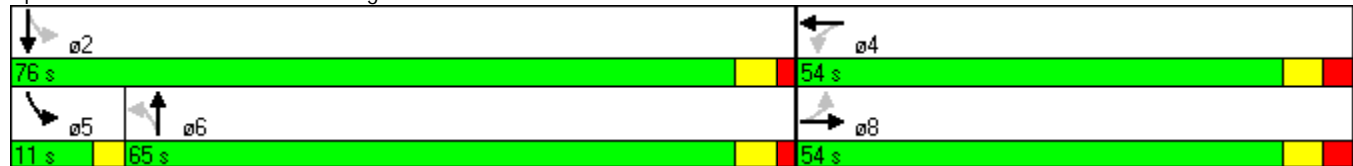
Analysis Period (min) 15

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 College Ct & Hurontario St



Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	50	167	531	145	11	142	1619	82	69	2215	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	55.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		148.3			174.4			122.8			166.4	
Travel Time (s)		11.1			13.1			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	236	0	577	170	0	154	1760	89	75	2458	0
Turn Type	Perm			Perm			pm+pt		Perm	Perm		
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6		6	2		
Detector Phase	8	8		4	4		1	6	6	2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		9.0	62.0	62.0	62.0	62.0	
Total Split (s)	54.0	54.0	0.0	54.0	54.0	0.0	11.0	76.0	76.0	65.0	65.0	0.0
Total Split (%)	41.5%	41.5%	0.0%	41.5%	41.5%	0.0%	8.5%	58.5%	58.5%	50.0%	50.0%	0.0%
Maximum Green (s)	47.0	47.0		47.0	47.0		8.0	70.0	70.0	59.0	59.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			41.0	41.0	41.0	41.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	
Act Effct Green (s)	47.0	47.0		47.0	47.0		73.0	70.0	70.0	59.0	59.0	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.56	0.54	0.54	0.45	0.45	
v/c Ratio	0.16	0.35		1.57	0.26		0.91	0.65	0.10	1.01	1.09	
Control Delay	29.4	14.6		299.2	30.0		74.9	22.8	5.7	127.0	73.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	29.4	14.6		299.2	30.0		74.9	22.8	5.7	127.0	73.6	
LOS	C	B		F	C		E	C	A	F	E	
Approach Delay		17.9			237.9			26.1			75.2	
Approach LOS		B			F			C			E	
Queue Length 50th (m)	11.6	18.3		~209.3	29.9		23.1	113.5	3.0	~19.2	~260.2	
Queue Length 95th (m)	22.5	39.0		#278.4	47.5		#63.9	129.2	11.0	m#42.0	#281.6	
Internal Link Dist (m)		124.3			150.4			98.8			142.4	
Turn Bay Length (m)	20.0			70.0			55.0		50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	427	673		368	663		170	2690	858	74	2259	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.35		1.57	0.26		0.91	0.65	0.10	1.01	1.09	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 6 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.57

Intersection Signal Delay: 76.2

Intersection LOS: E

Intersection Capacity Utilization 122.7%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

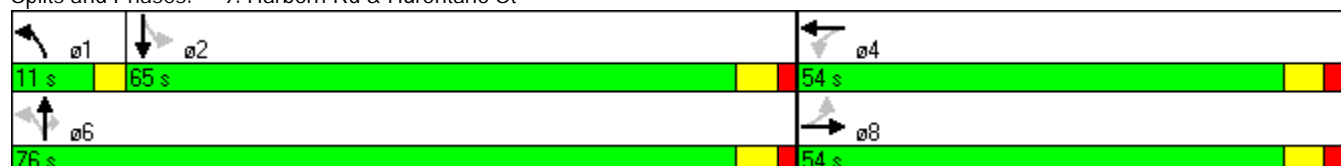
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Harborn Rd & Hurontario St



Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1692	2335	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	15.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1839	2538	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized


































Intersection Capacity Utilization 48.4% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	  			  	
Volume (vph)	83	1122	629	100	396	99	598	1503	210	263	1274	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48				48
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	1%	8%	2%	9%	3%	3%	3%	2%	3%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	1220	684	109	430	108	650	1634	228	286	1385	137
Turn Type	Perm		Perm	pm+pt		Perm	Prot		Perm	pm+pt		Perm
Protected Phases		8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6	2		2
Detector Phase	8	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	8.0	33.7	33.7
Total Split (s)	38.0	38.0	38.0	8.0	46.0	46.0	31.0	53.0	53.0	21.0	43.0	43.0
Total Split (%)	31.7%	31.7%	31.7%	6.7%	38.3%	38.3%	25.8%	44.2%	44.2%	17.5%	35.8%	35.8%
Maximum Green (s)	31.5	31.5	31.5	5.0	39.5	39.5	24.3	46.3	46.3	18.0	36.3	36.3
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	0.0	2.7	2.7
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)	6.5	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	3.0	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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)	12.0	12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)	18.0	18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	0
Act Effect Green (s)	31.5	31.5	31.5	43.0	39.5	39.5	24.1	47.3	47.3	57.2	36.5	36.5
Actuated g/C Ratio	0.26	0.26	0.26	0.36	0.33	0.33	0.20	0.39	0.39	0.48	0.30	0.30
v/c Ratio	0.36	0.90	0.96	0.80	0.25	0.19	0.94	0.81	0.32	0.89	0.90	0.24
Control Delay	41.2	52.3	45.4	68.7	30.0	6.1	67.2	31.8	5.6	60.3	48.7	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	52.3	45.4	68.7	30.0	6.1	67.2	31.8	5.6	60.3	48.7	9.8
LOS	D	D	D	E	C	A	E	C	A	E	D	A
Approach Delay		49.5			32.5			38.6			47.6	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	17.4	101.7	81.1	17.5	27.0	0.0	65.8	129.5	10.3	48.3	114.3	4.3
Queue Length 95th (m)	33.1	#122.4	#160.5	#43.2	35.8	12.3	#109.6	148.7	7.8	#93.4	#134.6	18.8
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	248	1363	710	136	1693	566	696	2007	716	337	1547	564

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.36	0.90	0.96	0.80	0.25	0.19	0.93	0.81	0.32	0.85	0.90	0.24

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 43.5

Intersection LOS: D

Intersection Capacity Utilization 88.8%

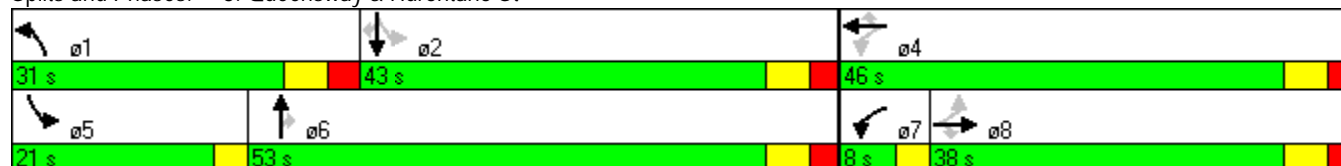
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.























Splits and Phases: 3: Queensway & Hurontario St



Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	8	41	80	23	199	237	1663	21	73	1996	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			87.5			186.8			309.2	
Travel Time (s)		7.8			6.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	54	0	87	241	0	258	1831	0	79	2233	0
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0		4.0	4.0	
Minimum Split (s)	48.0	48.0		48.0	48.0		8.0	72.0		58.0	58.0	
Total Split (s)	48.0	48.0	0.0	48.0	48.0	0.0	11.0	72.0	0.0	61.0	61.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	9.2%	60.0%	0.0%	50.8%	50.8%	0.0%
Maximum Green (s)	41.0	41.0		41.0	41.0		8.0	66.0		55.0	55.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0			52.0		38.0	38.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	23.6	23.6		23.6	23.6		86.4	83.4		55.5	55.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.72	0.70		0.46	0.46	
v/c Ratio	0.31	0.15		0.33	0.77		0.60	0.53		0.79	0.97	
Control Delay	44.4	13.7		43.0	58.8		33.0	10.3		69.6	52.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	44.4	13.7		43.0	58.8		33.0	10.3		69.6	52.2	
LOS	D	B		D	E		C	B		E	D	
Approach Delay		27.6			54.6			13.1			52.8	
Approach LOS		C			D			B			D	
Queue Length 50th (m)	9.2	1.7		17.8	51.9		37.6	68.2		15.4	165.7	
Queue Length 95th (m)	18.7	11.2		29.9	73.0		#87.2	101.9		m18.3m#187.1		
Internal Link Dist (m)		80.2			63.5			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	253	596		451	538		433	3465		100	2306	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.09		0.19	0.45		0.60	0.53		0.79	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 98 (82%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 35.2

Intersection LOS: D

Intersection Capacity Utilization 109.0%

ICU Level of Service G






Analysis Period (min) 15

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 College Ct & Hurontario St

 ø1	 ø2	 ø4
11 s	61 s	48 s
 ø6		 ø8
72 s		48 s

Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	100	249	315	124	69	155	1597	131	76	2222	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	55.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		144.0			158.4			122.8			166.4	
Travel Time (s)		10.8			11.9			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	380	0	342	210	0	168	1736	142	83	2461	0
Turn Type	Perm			Perm			pm+pt		Perm	Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		1	6	6	2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		9.0	68.0	68.0	68.0	68.0	
Total Split (s)	53.0	53.0	0.0	53.0	53.0	0.0	12.0	87.0	87.0	75.0	75.0	0.0
Total Split (%)	37.9%	37.9%	0.0%	37.9%	37.9%	0.0%	8.6%	62.1%	62.1%	53.6%	53.6%	0.0%
Maximum Green (s)	46.0	46.0		46.0	46.0		9.0	81.0	81.0	69.0	69.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			47.0	47.0	47.0	47.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	
Act Effct Green (s)	46.0	46.0		46.0	46.0		84.0	81.0	81.0	69.0	69.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.60	0.58	0.58	0.49	0.49	
v/c Ratio	0.32	0.63		1.70	0.37		0.99	0.60	0.15	0.90	1.00	
Control Delay	38.5	34.6		366.8	35.0		99.3	20.2	4.7	106.3	54.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	38.5	34.6		366.8	35.0		99.3	20.2	4.7	106.3	54.2	
LOS	D	C		F	D		F	C	A	F	D	
Approach Delay		35.4			240.6			25.6			55.9	
Approach LOS		D			F			C			E	
Queue Length 50th (m)	22.6	67.2		~138.7	40.5		30.8	109.0	4.5	20.5	~246.4	
Queue Length 95th (m)	39.4	102.4		#198.5	63.0		#77.9	123.1	13.8	#55.7	#286.7	
Internal Link Dist (m)		120.0			134.4			98.8			142.4	
Turn Bay Length (m)	20.0			70.0			55.0		50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	342	606		201	565		170	2890	934	92	2453	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.32	0.63		1.70	0.37		0.99	0.60	0.15	0.90	1.00	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 53 (38%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.70

Intersection Signal Delay: 61.2

Intersection LOS: E

Intersection Capacity Utilization 122.1%

ICU Level of Service H

Analysis Period (min) 15






~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Harborn Rd & Hurontario St

 ø1	 ø2	 ø4
12 s	75 s	53 s
 ø6		 ø8
87 s		53 s

Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	65	96	31	1735	2096	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	15.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	104	34	1886	2301	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized


































Intersection Capacity Utilization 53.6% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	  			  	
Volume (vph)	75	489	716	254	1155	257	666	1289	106	161	1653	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48				48
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	0%	1%	0%	0%	3%	2%	1%	0%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	532	778	276	1255	279	724	1401	115	175	1797	100
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	pm+pt		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6	2		2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	8.0	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	8.0	33.7	33.7
Total Split (s)	11.0	36.0	36.0	11.0	36.0	36.0	28.0	56.0	56.0	17.0	45.0	45.0
Total Split (%)	9.2%	30.0%	30.0%	9.2%	30.0%	30.0%	23.3%	46.7%	46.7%	14.2%	37.5%	37.5%
Maximum Green (s)	8.0	29.5	29.5	8.0	29.5	29.5	21.3	49.3	49.3	14.0	38.3	38.3
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	0.0	2.7	2.7
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)	3.0	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	3.0	6.7	6.7
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)		12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	40.6	29.5	29.5	41.6	31.7	31.7	21.3	52.2	52.2	53.1	38.3	38.3
Actuated g/C Ratio	0.34	0.25	0.25	0.35	0.26	0.26	0.18	0.44	0.44	0.44	0.32	0.32
v/c Ratio	0.44	0.42	1.20	0.88	0.91	0.44	1.19	0.63	0.15	0.65	1.08	0.18
Control Delay	33.0	39.2	129.4	62.2	53.5	6.6	142.9	28.2	4.4	29.0	87.9	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	39.2	129.4	62.2	53.5	6.6	142.9	28.2	4.4	29.0	87.9	13.2
LOS	C	D	F	E	D	A	F	C	A	C	F	B
Approach Delay		89.3			47.6			64.1			79.3	
Approach LOS		F			D			E			E	
Queue Length 50th (m)	12.7	38.7	~161.8	48.2	107.7	0.2	~105.8	91.8	0.0	18.0	~173.8	5.9
Queue Length 95th (m)	23.8	49.9	#235.6	#93.8	#138.6	20.7	#142.4	112.5	10.9	35.2	#203.2	18.3
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	192	1277	647	312	1386	636	610	2237	768	312	1657	555

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.43	0.42	1.20	0.88	0.91	0.44	1.19	0.63	0.15	0.56	1.08	0.18

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46.8 (39%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 69.0

Intersection LOS: E

Intersection Capacity Utilization 104.7%

ICU Level of Service G

Analysis Period (min) 15


~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























Splits and Phases: 3: Queensway & Hurontario St

 ø1	 ø2	 ø3	 ø4
28 s	45 s	11 s	36 s
 ø5	 ø6	 ø7	 ø8
17 s	56 s	11 s	36 s

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	32	223	50	8	207	53	2255	39	167	2128	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			98.1			309.2	
Travel Time (s)		7.8			4.6			7.4			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	277	0	54	234	0	58	2493	0	182	2334	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		5.0	4.0	
Minimum Split (s)	54.0	54.0		54.0	54.0		59.0	59.0		9.0	76.0	
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	81.0	81.0	0.0	11.0	92.0	0.0
Total Split (%)	29.2%	29.2%	0.0%	29.2%	29.2%	0.0%	62.3%	62.3%	0.0%	8.5%	70.8%	0.0%
Maximum Green (s)	31.0	31.0		31.0	31.0		75.0	75.0		8.0	86.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0		39.0	39.0			56.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	25.6	25.6		25.6	25.6		75.9	75.9		94.4	91.4	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.58	0.58		0.73	0.70	
v/c Ratio	0.63	0.84		0.48	0.61		0.98	0.86		0.77	0.66	
Control Delay	66.0	69.6		59.3	31.2		130.8	13.8		52.7	12.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	66.0	69.6		59.3	31.2		130.8	13.8		52.7	12.5	
LOS	E	E		E	C		F	B		D	B	
Approach Delay		68.7			36.4			16.4			15.5	
Approach LOS		E			D			B			B	
Queue Length 50th (m)	21.6	66.2		12.3	29.1		~14.9	61.8		29.2	113.5	
Queue Length 95th (m)	39.4	94.3		25.6	53.7		m#34.0	65.8		#81.7	144.6	
Internal Link Dist (m)		80.2			37.1			74.1			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	178	399		137	445		59	2907		235	3510	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.52	0.69		0.39	0.53		0.98	0.86		0.77	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 6 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 20.4

Intersection LOS: C

Intersection Capacity Utilization 119.0%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























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

Splits and Phases: 6: Bronte College Ct & Hurontario St



Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	50	167	531	145	114	142	1709	82	71	2279	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	55.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48				48
Link Distance (m)		148.3			174.4			266.4				166.4
Travel Time (s)		11.1			13.1			20.0				12.5
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	236	0	577	282	0	154	1858	89	77	2529	0
Turn Type	Perm			Perm			pm+pt		Perm	Perm		
Protected Phases		8			4		1	6				2
Permitted Phases	8			4			6		6	2		
Detector Phase	8	8		4	4		1	6	6	2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		9.0	62.0	62.0	62.0	62.0	
Total Split (s)	54.0	54.0	0.0	54.0	54.0	0.0	11.0	76.0	76.0	65.0	65.0	0.0
Total Split (%)	41.5%	41.5%	0.0%	41.5%	41.5%	0.0%	8.5%	58.5%	58.5%	50.0%	50.0%	0.0%
Maximum Green (s)	47.0	47.0		47.0	47.0		8.0	70.0	70.0	59.0	59.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			41.0	41.0	41.0	41.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	
Act Effct Green (s)	47.0	47.0		47.0	47.0		73.0	70.0	70.0	59.0	59.0	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.56	0.54	0.54	0.45	0.45	
v/c Ratio	0.23	0.35		1.57	0.47		0.91	0.69	0.10	1.22	1.12	
Control Delay	31.2	14.6		299.2	34.0		74.9	23.8	6.2	200.1	86.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	31.2	14.6		299.2	34.0		74.9	23.8	6.2	200.1	86.6	
LOS	C	B		F	C		E	C	A	F	F	
Approach Delay		18.6			212.1			26.8			90.0	
Approach LOS		B			F			C			F	
Queue Length 50th (m)	13.1	18.3		~209.3	53.5		23.1	123.6	3.5	~24.2	~274.2	
Queue Length 95th (m)	25.3	39.0		#278.4	79.4		#63.9	140.2	11.5	m#45.2	#295.8	
Internal Link Dist (m)		124.3			150.4			242.4			142.4	
Turn Bay Length (m)	20.0			70.0			55.0		50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	328	673		368	600		170	2690	856	63	2259	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.23	0.35		1.57	0.47		0.91	0.69	0.10	1.22	1.12	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 6 (5%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.57

Intersection Signal Delay: 81.5

Intersection LOS: F

Intersection Capacity Utilization 122.7%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

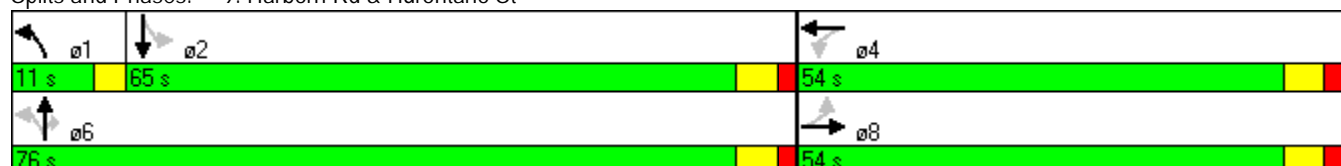
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Harborn Rd & Hurontario St



Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	45	68	99	1792	2335	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	15.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	88.7	
Travel Time (s)	5.6			12.5	6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	74	108	1948	2610	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

































Intersection Capacity Utilization 65.4% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Volume (vph)	77	1047	581	92	369	92	542	1364	191	245	1177	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	1%	8%	2%	9%	3%	3%	3%	2%	3%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	1138	632	100	401	100	589	1483	208	266	1279	128
Turn Type	Perm		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases		8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	8	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	8.0	33.7	33.7
Total Split (s)	36.5	36.5	36.5	8.0	44.5	44.5	27.0	55.5	55.5	20.0	48.5	48.5
Total Split (%)	30.4%	30.4%	30.4%	6.7%	37.1%	37.1%	22.5%	46.3%	46.3%	16.7%	40.4%	40.4%
Maximum Green (s)	30.0	30.0	30.0	5.0	38.0	38.0	20.3	48.8	48.8	17.0	41.8	41.8
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	0.0	2.7	2.7
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)	6.5	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	3.0	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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)	12.0	12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)	18.0	18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	0
Act Effect Green (s)	30.0	30.0	30.0	41.5	38.0	38.0	20.3	48.8	48.8	17.0	41.8	41.8
Actuated g/C Ratio	0.25	0.25	0.25	0.35	0.32	0.32	0.17	0.41	0.41	0.14	0.35	0.35
v/c Ratio	0.34	0.88	0.99	0.74	0.25	0.18	1.01	1.03	0.29	1.05	1.04	0.21
Control Delay	41.8	52.0	55.2	60.5	30.9	6.5	88.3	64.1	14.1	120.4	74.1	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	52.0	55.2	60.5	30.9	6.5	88.3	64.1	14.1	120.4	74.1	11.6
LOS	D	D	E	E	C	A	F	E	B	F	E	B
Approach Delay		52.7			31.8			65.8			76.7	
Approach LOS		D			C			E			E	
Queue Length 50th (m)	16.3	94.6	85.5	16.3	25.5	0.0	~77.4	~172.8	10.9	~68.2	~170.6	6.9
Queue Length 95th (m)	31.4	112.3	#162.7	#38.3	34.2	12.0	m#105.0	#235.9	m22.2	#120.2	#212.4	20.3
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	244	1298	641	136	1628	543	581	1441	725	253	1234	612

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.34	0.88	0.99	0.74	0.25	0.18	1.01	1.03	0.29	1.05	1.04	0.21

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 61.6

Intersection LOS: E

Intersection Capacity Utilization 94.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.





















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

Splits and Phases: 3: Queensway & Hurontario St



Lanes, Volumes, Timings
6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	8	39	74	22	186	222	1491	19	68	1843	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			186.8			309.2	
Travel Time (s)		7.8			4.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	51	0	80	226	0	241	1642	0	74	2061	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0		4.0	4.0	
Minimum Split (s)	48.0	48.0		48.0	48.0		8.0	72.0		8.0	58.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	12.0	70.0	0.0	5.0	63.0	0.0
Total Split (%)	37.5%	37.5%	0.0%	37.5%	37.5%	0.0%	10.0%	58.3%	0.0%	4.2%	52.5%	0.0%
Maximum Green (s)	38.0	38.0		38.0	38.0		9.0	64.0		1.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.5	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0		0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lead	Lag		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	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0			52.0			38.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	20.7	20.7		20.7	20.7		26.3	66.0		16.2	57.0	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.22	0.55		0.14	0.48	
v/c Ratio	0.33	0.16		0.35	0.76		0.62	0.86		0.30	1.25	
Control Delay	48.1	15.3		45.9	55.7		52.2	29.0		46.2	137.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.1	15.3		45.9	55.7		52.2	29.0		46.2	137.9	
LOS	D	B		D	E		D	C		D	F	
Approach Delay		30.1			53.1			32.0			134.7	
Approach LOS		C			D			C			F	
Queue Length 50th (m)	8.8	1.8		16.8	43.8		51.6	160.1		16.4	~312.2	
Queue Length 95th (m)	18.3	11.5		29.0	64.9		#105.5	209.0		m18.3m	#307.3	
Internal Link Dist (m)		80.2			37.1			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	232	554		420	515		388	1910		244	1647	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.09		0.19	0.44		0.62	0.86		0.30	1.25	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 83.1

Intersection LOS: F

Intersection Capacity Utilization 111.8%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























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

Splits and Phases: 6: Bronte College Ct & Hurontario St



Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	93	233	291	116	60	144	1463	122	67	1987	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	75.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		73.3			65.1			122.8			166.4	
Travel Time (s)		5.5			4.9			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	354	0	316	191	0	157	1590	133	73	2201	0
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8					6			
Detector Phase	4	4		8	8		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		9.0	68.0	68.0	8.0	68.0	
Total Split (s)	52.0	52.0	0.0	52.0	52.0	0.0	12.0	76.0	76.0	12.0	76.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	8.6%	54.3%	54.3%	8.6%	54.3%	0.0%
Maximum Green (s)	45.0	45.0		45.0	45.0		9.0	70.0	70.0	8.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.5	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0	2.0	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							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	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			47.0	47.0		47.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)	45.0	45.0		45.0	45.0		9.0	70.1	70.1	7.9	70.0	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.06	0.50	0.50	0.06	0.50	
v/c Ratio	0.28	0.59		1.49	0.34		1.38	0.91	0.17	0.73	1.27	
Control Delay	38.3	33.3		278.6	34.3		261.4	41.5	10.6	102.6	158.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	38.3	33.3		278.6	34.3		261.4	41.5	10.6	102.6	158.3	
LOS	D	C		F	C		F	D	B	F	F	
Approach Delay		34.4			186.6			57.6			156.5	
Approach LOS		C			F			E			F	
Queue Length 50th (m)	20.5	60.5		~120.5	36.0		~57.5	208.5	10.1	20.3	~405.5	
Queue Length 95th (m)	36.3	93.5		#179.1	56.9		#102.9	245.3	21.6	#45.6	#446.0	
Internal Link Dist (m)		49.3			41.1			98.8			142.4	
Turn Bay Length (m)							75.0		50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	349	595		212	557		114	1741	802	101	1732	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.28	0.59		1.49	0.34		1.38	0.91	0.17	0.72	1.27	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.49

Intersection Signal Delay: 112.3

Intersection LOS: F

Intersection Capacity Utilization 123.6%

ICU Level of Service H

Analysis Period (min) 15







~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Harborn Rd & Hurontario St

 ø1	 ø2	 ø4
12 s	76 s	52 s
 ø5	 ø6	 ø8
12 s	76 s	52 s

Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1673	2024	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	0	1	0			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1818	2200	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

































Intersection Capacity Utilization 59.3% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Volume (vph)	69	456	652	232	1078	239	609	1177	97	149	1503	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	0%	1%	0%	0%	3%	2%	1%	0%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	496	709	252	1172	260	662	1279	105	162	1634	93
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	8.0	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	8.0	33.7	33.7
Total Split (s)	8.0	36.5	36.5	8.0	36.5	36.5	24.0	59.5	59.5	16.0	51.5	51.5
Total Split (%)	6.7%	30.4%	30.4%	6.7%	30.4%	30.4%	20.0%	49.6%	49.6%	13.3%	42.9%	42.9%
Maximum Green (s)	5.0	30.0	30.0	5.0	30.0	30.0	17.3	52.8	52.8	13.0	44.8	44.8
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	0.0	2.7	2.7
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)	3.0	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	3.0	6.7	6.7
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)		12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	38.5	30.0	30.0	39.1	31.6	31.6	17.3	53.1	53.1	12.7	44.8	44.8
Actuated g/C Ratio	0.32	0.25	0.25	0.33	0.26	0.26	0.14	0.44	0.44	0.11	0.37	0.37
v/c Ratio	0.51	0.38	1.18	0.88	0.85	0.42	1.33	0.81	0.14	0.84	1.21	0.15
Control Delay	40.3	38.4	124.4	65.6	49.3	6.5	204.0	34.0	5.7	86.6	136.4	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	38.4	124.4	65.6	49.3	6.5	204.0	34.0	5.7	86.6	136.4	13.5
LOS	D	D	F	E	D	A	F	C	A	F	F	B
Approach Delay		86.2			45.1			87.6			126.1	
Approach LOS		F			D			F			F	
Queue Length 50th (m)	12.0	35.6	~153.0	44.8	98.0	0.0	~104.6	135.3	1.8	37.9	~247.4	6.6
Queue Length 95th (m)	22.9	46.3	#225.3	#88.7	#118.4	19.9	#140.7	164.0	11.8	#73.6	#289.7	17.8
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	146	1298	600	288	1381	621	496	1585	766	198	1349	628

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.51	0.38	1.18	0.88	0.85	0.42	1.33	0.81	0.14	0.82	1.21	0.15

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46.8 (39%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 87.5

Intersection LOS: F

Intersection Capacity Utilization 109.1%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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





















Queue shown is maximum after two cycles.

Splits and Phases: 3: Queensway & Hurontario St

 ø1	 ø2	 ø3	 ø4
24 s	51.5 s	8 s	36.5 s
 ø5	 ø6	 ø7	 ø8
16 s	59.5 s	8 s	36.5 s

Lanes, Volumes, Timings
6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	30	208	46	8	193	49	2062	36	155	1926	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			186.8			309.2	
Travel Time (s)		7.8			4.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	259	0	50	219	0	53	2280	0	168	2113	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		5.0	4.0	
Minimum Split (s)	54.0	54.0		54.0	54.0		8.0	59.0		9.0	76.0	
Total Split (s)	51.0	51.0	0.0	51.0	51.0	0.0	5.0	72.0	0.0	7.0	74.0	0.0
Total Split (%)	39.2%	39.2%	0.0%	39.2%	39.2%	0.0%	3.8%	55.4%	0.0%	5.4%	56.9%	0.0%
Maximum Green (s)	44.0	44.0		44.0	44.0		1.0	66.0		4.0	68.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.5	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	4.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag							Lead	Lag		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	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0			39.0			56.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.8	24.8		24.8	24.8		14.3	66.0		23.2	73.9	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.11	0.51		0.18	0.57	
v/c Ratio	0.57	0.78		0.42	0.72		0.27	1.30		0.52	1.07	
Control Delay	61.1	62.0		54.8	57.5		54.0	161.5		56.8	69.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	61.1	62.0		54.8	57.5		54.0	161.5		56.8	69.9	
LOS	E	E		D	E		D	F		E	E	
Approach Delay		61.8			57.0			159.1			68.9	
Approach LOS		E			E			F			E	
Queue Length 50th (m)	20.2	59.2		11.4	49.0		13.8	~387.2		39.4	~309.5	
Queue Length 95th (m)	34.8	81.6		22.6	69.8		m18.1 m#411.2			#83.1	#380.3	
Internal Link Dist (m)		80.2			37.1			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	267	570		211	527		194	1760		322	1976	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.45		0.24	0.42		0.27	1.30		0.52	1.07	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.30

Intersection Signal Delay: 108.1

Intersection LOS: F

Intersection Capacity Utilization 121.9%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























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

Splits and Phases: 6: Bronte College Ct & Hurontario St



Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	47	155	494	136	102	133	1510	72	61	2066	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	75.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		148.3			174.4			122.8			166.4	
Travel Time (s)		11.1			13.1			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	219	0	537	259	0	145	1641	78	66	2294	0
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4					6			
Detector Phase	8	8		4	4		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		9.0	62.0	62.0	8.0	62.0	
Total Split (s)	51.0	51.0	0.0	51.0	51.0	0.0	10.0	69.0	69.0	10.0	69.0	0.0
Total Split (%)	39.2%	39.2%	0.0%	39.2%	39.2%	0.0%	7.7%	53.1%	53.1%	7.7%	53.1%	0.0%
Maximum Green (s)	44.0	44.0		44.0	44.0		7.0	63.0	63.0	6.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.5	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0	2.0	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							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	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			41.0	41.0		41.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)	44.0	44.0		44.0	44.0		7.0	63.0	63.0	6.0	63.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.05	0.48	0.48	0.05	0.48	
v/c Ratio	0.20	0.36		1.53	0.45		1.53	0.97	0.10	0.80	1.37	
Control Delay	32.6	19.5		282.5	32.2		322.7	49.5	10.7	78.9	193.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	32.6	19.5		282.5	32.2		322.7	49.5	10.7	78.9	193.5	
LOS	C	B		F	C		F	D	B	E	F	
Approach Delay		22.4			201.1			69.1			190.3	
Approach LOS		C			F			E			F	
Queue Length 50th (m)	11.2	22.6		~192.1	45.2		~51.8	210.6	5.4	17.8	~404.7	
Queue Length 95th (m)	22.6	43.6		#259.7	70.1		#93.8	#266.3	14.1	m18.7m	#370.5	
Internal Link Dist (m)		124.3			150.4			98.8			142.4	
Turn Bay Length (m)	35.0			100.0			75.0		50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	317	616		352	579		95	1685	765	82	1678	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.20	0.36		1.53	0.45		1.53	0.97	0.10	0.80	1.37	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.53

Intersection Signal Delay: 140.4

Intersection LOS: F

Intersection Capacity Utilization 131.3%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Harborn Rd & Hurontario St



Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1908	2176	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	0	1	0			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2074	2365	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

































Intersection Capacity Utilization 63.5% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St






2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Volume (vph)	71	1122	530	84	396	84	495	1243	173	224	1072	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	1%	8%	2%	9%	3%	3%	3%	2%	3%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	1220	576	91	430	91	538	1351	188	243	1165	116
Turn Type	Perm		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases		8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	8	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	10.5	33.7	33.7
Total Split (s)	36.5	36.5	36.5	8.0	44.5	44.5	26.5	53.5	53.5	22.0	49.0	49.0
Total Split (%)	30.4%	30.4%	30.4%	6.7%	37.1%	37.1%	22.1%	44.6%	44.6%	18.3%	40.8%	40.8%
Maximum Green (s)	30.0	30.0	30.0	5.0	38.0	38.0	19.8	46.8	46.8	16.5	42.3	42.3
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	2.5	2.7	2.7
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)	6.5	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	5.5	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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)	12.0	12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)	18.0	18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	0
Act Effect Green (s)	30.0	30.0	30.0	41.5	38.0	38.0	19.8	46.8	46.8	16.5	42.3	42.3
Actuated g/C Ratio	0.25	0.25	0.25	0.35	0.32	0.32	0.16	0.39	0.39	0.14	0.35	0.35
v/c Ratio	0.33	0.94	0.91	0.67	0.26	0.17	0.95	0.98	0.27	0.99	0.93	0.19
Control Delay	41.5	58.6	39.4	53.2	31.1	6.7	78.7	51.9	11.1	106.4	51.6	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	58.6	39.4	53.2	31.1	6.7	78.7	51.9	11.1	106.4	51.6	10.0
LOS	D	E	D	D	C	A	E	D	B	F	D	B
Approach Delay		52.0			30.8			55.1			57.2	
Approach LOS		D			C			E			E	
Queue Length 50th (m)	14.9	103.6	67.5	14.7	27.5	0.0	69.2	110.2	3.7	57.9	138.3	4.9
Queue Length 95th (m)	29.2	#131.5	#135.5	#32.9	36.5	11.4	#100.3	#209.1	m27.7	#108.8	#180.8	17.5
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	236	1298	636	136	1628	537	567	1382	704	246	1249	619

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.33	0.94	0.91	0.67	0.26	0.17	0.95	0.98	0.27	0.99	0.93	0.19

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 52.2

Intersection LOS: D

Intersection Capacity Utilization 92.0%

ICU Level of Service F

Analysis Period (min) 15

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: Queensway & Hurontario St



Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	8	35	67	23	169	201	1359	17	62	1680	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			186.8			309.2	
Travel Time (s)		7.8			4.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	47	0	73	209	0	218	1495	0	67	1879	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	48.0	48.0		48.0	48.0		10.5	72.0		10.5	58.0	
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	12.0	72.0	0.0	11.0	71.0	0.0
Total Split (%)	30.8%	30.8%	0.0%	30.8%	30.8%	0.0%	10.0%	60.0%	0.0%	9.2%	59.2%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0		6.5	66.0		5.5	65.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.5	2.0		2.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	5.5	6.0	4.0	5.5	6.0	4.0
Lead/Lag							Lead	Lag		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	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0			52.0			38.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	13.8	13.8		13.8	13.8		22.7	77.1		10.6	65.0	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.19	0.64		0.09	0.54	
v/c Ratio	0.58	0.21		0.48	0.75		0.65	0.67		0.42	1.00	
Control Delay	81.0	19.5		58.2	40.5		56.7	16.8		50.2	29.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.0	19.5		58.2	40.5		56.7	16.8		50.2	29.9	
LOS	F	B		E	D		E	B		D	C	
Approach Delay		47.0			45.1			21.9			30.6	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	8.6	1.9		16.4	22.7		47.8	107.6		15.3	~86.5	
Queue Length 95th (m)	19.4	12.1		29.2	45.4		#102.0	168.8		m17.8m#273.1		
Internal Link Dist (m)		80.2			37.1			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	142	445		332	472		335	2229		159	1879	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.27	0.11		0.22	0.44		0.65	0.67		0.42	1.00	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 28.2

Intersection LOS: C

Intersection Capacity Utilization 105.2%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























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

Splits and Phases: 6: Bronte College Ct & Hurontario St

	ø1		ø2		ø4
12 s		71 s		37 s	
	ø5		ø6		ø8
11 s		72 s		37 s	

Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	100	212	268	124	58	132	1334	111	62	1811	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	55.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		126.6			132.6			122.8			166.4	
Travel Time (s)		9.5			9.9			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	339	0	291	198	0	143	1450	121	67	2005	0
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8					6			
Detector Phase	4	4		8	8		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		10.5	68.0	68.0	10.0	68.0	
Total Split (s)	52.0	52.0	0.0	52.0	52.0	0.0	13.0	74.0	74.0	14.0	75.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	9.3%	52.9%	52.9%	10.0%	53.6%	0.0%
Maximum Green (s)	45.0	45.0		45.0	45.0		7.5	68.0	68.0	8.0	69.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.5	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.5	2.0	2.0	2.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	5.5	6.0	6.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							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	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			47.0	47.0		47.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)	45.0	45.0		45.0	45.0		7.5	68.2	68.2	7.8	69.0	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.05	0.49	0.49	0.06	0.49	
v/c Ratio	0.26	0.58		1.29	0.35		1.51	0.60	0.15	0.68	1.17	
Control Delay	37.8	34.2		199.8	35.1		316.6	27.2	7.3	97.0	118.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	37.8	34.2		199.8	35.1		316.6	27.2	7.3	97.0	118.4	
LOS	D	C		F	D		F	C	A	F	F	
Approach Delay		35.0			133.1			50.0			117.7	
Approach LOS		C			F			D			F	
Queue Length 50th (m)	18.5	59.9		~102.6	38.0		~54.9	104.3	5.0	18.5	~349.2	
Queue Length 95th (m)	33.3	92.0		#159.5	59.7		#98.5	119.1	15.9	#41.0	#390.9	
Internal Link Dist (m)		102.6			108.6			98.8			142.4	
Turn Bay Length (m)	20.0			70.0			55.0		50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	343	588		225	559		95	2434	794	101	1707	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.26	0.58		1.29	0.35		1.51	0.60	0.15	0.66	1.17	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.51

Intersection Signal Delay: 87.1

Intersection LOS: F

Intersection Capacity Utilization 117.7%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Harborn Rd & Hurontario St

 ø1	 ø2	 ø4
13 s	75 s	52 s
 ø5	 ø6	 ø8
14 s	74 s	52 s

Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1475	1782	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	0	1	0			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1603	1937	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized
































Intersection Capacity Utilization 52.6% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Volume (vph)	64	489	594	211	1155	218	554	1072	88	137	1370	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	0%	1%	0%	0%	3%	2%	1%	0%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	532	646	229	1255	237	602	1165	96	149	1489	85
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	8.0	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	10.5	33.7	33.7
Total Split (s)	10.0	36.0	36.0	10.0	36.0	36.0	24.0	55.1	55.1	18.9	50.0	50.0
Total Split (%)	8.3%	30.0%	30.0%	8.3%	30.0%	30.0%	20.0%	45.9%	45.9%	15.8%	41.7%	41.7%
Maximum Green (s)	7.0	29.5	29.5	7.0	29.5	29.5	17.3	48.4	48.4	13.4	43.3	43.3
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	2.5	2.7	2.7
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)	3.0	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	5.5	6.7	6.7
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)		12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	39.8	29.5	29.5	40.6	31.5	31.5	17.3	49.1	49.1	12.7	43.3	43.3
Actuated g/C Ratio	0.33	0.25	0.25	0.34	0.26	0.26	0.14	0.41	0.41	0.11	0.36	0.36
v/c Ratio	0.40	0.42	1.09	0.77	0.91	0.39	1.21	0.80	0.13	0.77	1.14	0.14
Control Delay	32.9	39.2	91.6	49.8	54.3	6.7	157.2	36.2	6.3	77.8	109.4	13.1
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	32.9	39.2	91.6	49.8	54.3	6.7	157.2	36.2	6.3	77.8	109.4	13.1
LOS	C	D	F	D	D	A	F	D	A	E	F	B
Approach Delay		66.0			47.2			73.8			101.9	
Approach LOS		E			D			E			F	
Queue Length 50th (m)	10.9	38.7	~124.3	39.3	107.7	0.2	~89.4	126.0	1.4	34.5	~215.8	5.5
Queue Length 95th (m)	21.2	49.9	#195.1	#70.1	#138.6	19.4	#124.5	153.5	11.7	#64.2	#258.1	16.3
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	177	1277	591	298	1376	602	496	1465	713	204	1304	609

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.40	0.42	1.09	0.77	0.91	0.39	1.21	0.80	0.13	0.73	1.14	0.14

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46.8 (39%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 72.7

Intersection LOS: E

Intersection Capacity Utilization 100.7%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.





















Splits and Phases: 3: Queensway & Hurontario St

 ø1	 ø2	 ø3	 ø4
24 s	50 s	10 s	36 s
 ø5	 ø6	 ø7	 ø8
18.9 s	55.1 s	10 s	36 s

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	32	190	41	8	176	45	1879	32	142	1754	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0	65.0		0.0	56.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		104.2			61.1			186.8			309.2	
Travel Time (s)		7.8			4.6			14.0			23.2	
Confl. Peds. (#/hr)			6			50			10			1
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 (%)	5%	0%	0%	5%	0%	2%	3%	5%	5%	1%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	242	0	45	200	0	49	2077	0	154	1924	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		5.0	4.0	
Minimum Split (s)	54.0	54.0		54.0	54.0		10.0	59.0		10.5	76.0	
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	11.0	82.0	0.0	11.0	82.0	0.0
Total Split (%)	28.5%	28.5%	0.0%	28.5%	28.5%	0.0%	8.5%	63.1%	0.0%	8.5%	63.1%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0		5.0	76.0		5.5	76.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.5	2.0		2.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	4.0	5.5	6.0	4.0
Lead/Lag							Lead	Lag		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	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	17.0	17.0		17.0	17.0			39.0			56.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			14.0			14.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	18.9	18.9		18.9	18.9		8.4	76.0		16.6	86.1	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.06	0.58		0.13	0.66	
v/c Ratio	0.73	0.79		0.61	0.70		0.43	1.03		0.67	0.84	
Control Delay	86.7	52.9		82.2	44.7		70.5	46.3		69.8	23.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.2	
Total Delay	86.7	52.9		82.2	44.7		70.5	46.3		69.8	23.5	
LOS	F	D		F	D		E	D		E	C	
Approach Delay		61.2			51.6			46.9			26.9	
Approach LOS		E			D			D			C	
Queue Length 50th (m)	19.4	41.3		11.0	30.8		12.9	~123.5		38.1	198.4	
Queue Length 95th (m)	34.7	65.1		23.1	52.6		m23.5	#341.2		#97.3	#296.5	
Internal Link Dist (m)		80.2			37.1			162.8			285.2	
Turn Bay Length (m)				20.0			65.0			56.0		

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	170	442		117	410		114	2026		230	2302	
Starvation Cap Reductn	0	0		0	0		0	0		0	46	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.46	0.55		0.38	0.49		0.43	1.03		0.67	0.85	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 39.4

Intersection LOS: D

Intersection Capacity Utilization 117.9%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























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

Splits and Phases: 6: Bronte College Ct & Hurontario St

	ø1		ø2		ø4
11 s		82 s		37 s	
	ø5		ø6		ø8
11 s		82 s		37 s	

Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	50	142	451	145	94	121	1376	70	59	1883	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	55.0		50.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		148.3			174.4			122.8			166.4	
Travel Time (s)		11.1			13.1			9.2			12.5	
Confl. Peds. (#/hr)			9			53			8			11
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%	1%	3%	2%	3%	10%	3%	5%	3%	3%	5%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	208	0	490	260	0	132	1496	76	64	2089	0
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4					6			
Detector Phase	8	8		4	4		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0		47.0	47.0		10.5	62.0	62.0	10.0	62.0	
Total Split (s)	48.0	48.0	0.0	48.0	48.0	0.0	13.0	69.0	69.0	13.0	69.0	0.0
Total Split (%)	36.9%	36.9%	0.0%	36.9%	36.9%	0.0%	10.0%	53.1%	53.1%	10.0%	53.1%	0.0%
Maximum Green (s)	41.0	41.0		41.0	41.0		7.5	63.0	63.0	7.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.5	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.5	2.0	2.0	2.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	5.5	6.0	6.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							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	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	16.0	16.0		16.0	16.0			41.0	41.0		41.0	
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)	41.0	41.0		41.0	41.0		7.5	65.6	65.6	6.9	63.0	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.06	0.50	0.50	0.05	0.48	
v/c Ratio	0.20	0.35		1.48	0.48		1.29	0.59	0.09	0.68	1.24	
Control Delay	35.0	17.2		265.3	35.6		234.1	24.6	7.0	77.2	141.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	35.0	17.2		265.3	35.6		234.1	24.6	7.0	77.2	141.9	
LOS	C	B		F	D		F	C	A	E	F	
Approach Delay		21.0			185.6			40.0			139.9	
Approach LOS		C			F			D			F	
Queue Length 50th (m)	10.9	17.9		~172.8	48.2		~43.1	100.8	2.6	16.9	~346.0	
Queue Length 95th (m)	22.4	38.6		#238.7	74.3		#83.5	116.0	10.9	m21.5	#388.8	
Internal Link Dist (m)		124.3			150.4			98.8			142.4	
Turn Bay Length (m)	20.0			70.0			55.0		50.0	45.0		

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	286	594		331	544		102	2521	805	95	1679	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.20	0.35		1.48	0.48		1.29	0.59	0.09	0.67	1.24	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.48

Intersection Signal Delay: 105.5

Intersection LOS: F

Intersection Capacity Utilization 123.8%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.




Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Harborn Rd & Hurontario St

 ø1	 ø2	 ø4
13 s	69 s	48 s
 ø5	 ø6	 ø8
13 s	69 s	48 s

Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	1523	1985	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	0	1	0			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1655	2158	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

































Intersection Capacity Utilization 58.2% ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Volume (vph)	71	1122	538	86	396	84	501	1259	176	224	1089	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	1%	8%	2%	9%	3%	3%	3%	2%	3%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	1220	585	93	430	91	545	1368	191	243	1184	116
Turn Type	Perm		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases		8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	8	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	10.5	33.7	33.7
Total Split (s)	36.5	36.5	36.5	8.0	44.5	44.5	26.7	53.5	53.5	22.0	48.8	48.8
Total Split (%)	30.4%	30.4%	30.4%	6.7%	37.1%	37.1%	22.3%	44.6%	44.6%	18.3%	40.7%	40.7%
Maximum Green (s)	30.0	30.0	30.0	5.0	38.0	38.0	20.0	46.8	46.8	16.5	42.1	42.1
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	2.5	2.7	2.7
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)	6.5	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	5.5	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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)	12.0	12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)	18.0	18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	0
Act Effect Green (s)	30.0	30.0	30.0	41.5	38.0	38.0	20.0	46.8	46.8	16.5	42.1	42.1
Actuated g/C Ratio	0.25	0.25	0.25	0.35	0.32	0.32	0.17	0.39	0.39	0.14	0.35	0.35
v/c Ratio	0.33	0.94	0.92	0.68	0.26	0.17	0.95	0.99	0.27	0.99	0.95	0.19
Control Delay	41.5	58.6	41.7	54.7	31.1	6.7	77.8	55.3	12.1	106.4	54.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	58.6	41.7	54.7	31.1	6.7	77.8	55.3	12.1	106.4	54.8	10.4
LOS	D	E	D	D	C	A	E	E	B	F	D	B
Approach Delay		52.6			31.1			57.2			59.6	
Approach LOS		D			C			E			E	
Queue Length 50th (m)	14.9	103.6	70.6	15.1	27.5	0.0	70.1	118.5	5.1	57.9	142.0	5.3
Queue Length 95th (m)	29.2	#131.5	#140.5	#34.2	36.5	11.4	#101.0	#213.2	m29.0	#108.8	#186.5	17.9
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	236	1298	636	136	1628	537	573	1382	704	246	1243	615

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.33	0.94	0.92	0.68	0.26	0.17	0.95	0.99	0.27	0.99	0.95	0.19

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 53.8

Intersection LOS: D

Intersection Capacity Utilization 92.6%

ICU Level of Service F

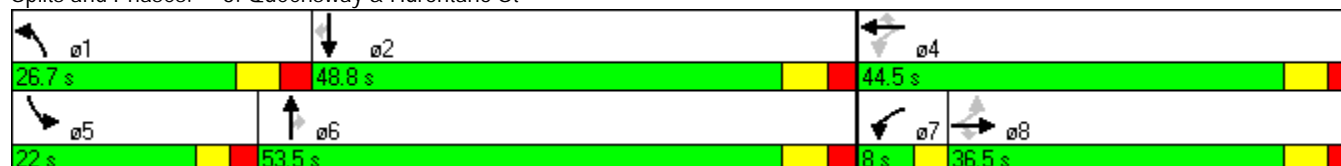
Analysis Period (min) 15

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: Queensway & Hurontario St



Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	35	8	35	68	23	169	13	201	1384	17	62	1706
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0		65.0		0.0	56.0	
Storage Lanes	1		0	1		0		1		0	1	
Taper Length (m)	25.0		25.0	25.0		25.0		25.0		25.0	25.0	
Right Turn on Red			Yes			Yes				Yes		
Link Speed (k/h)		48			48				48			48
Link Distance (m)		104.2			61.1				186.8			309.2
Travel Time (s)		7.8			4.6				14.0			23.2
Confl. Peds. (#/hr)			6			50				10		
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 (%)	5%	0%	0%	5%	0%	2%	2%	3%	5%	5%	1%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	47	0	74	209	0	0	232	1522	0	67	1907
Turn Type	Perm			Perm			Prot	Prot			Prot	
Protected Phases		8			4		1	1	6		5	2
Permitted Phases	8			4								
Detector Phase	8	8		4	4		1	1	6		5	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	5.0	4.0		5.0	4.0
Minimum Split (s)	48.0	48.0		48.0	48.0		10.5	10.5	72.0		10.5	58.0
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	11.0	11.0	72.0	0.0	11.0	72.0
Total Split (%)	30.8%	30.8%	0.0%	30.8%	30.8%	0.0%	9.2%	9.2%	60.0%	0.0%	9.2%	60.0%
Maximum Green (s)	30.0	30.0		30.0	30.0		5.5	5.5	66.0		5.5	66.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0		3.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0		2.5	2.5	2.0		2.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	5.5	5.5	6.0	4.0	5.5	6.0
Lead/Lag							Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?							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
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Walk Time (s)	17.0	17.0		17.0	17.0				52.0			38.0
Flash Dont Walk (s)	24.0	24.0		24.0	24.0				14.0			14.0
Pedestrian Calls (#/hr)	0	0		0	0				0			0
Act Effct Green (s)	14.0	14.0		14.0	14.0			21.5	76.9		10.6	66.0
Actuated g/C Ratio	0.12	0.12		0.12	0.12			0.18	0.64		0.09	0.55
v/c Ratio	0.56	0.21		0.48	0.75			0.73	0.68		0.42	1.00
Control Delay	77.8	19.3		57.8	41.1			62.4	17.3		50.5	29.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	77.8	19.3		57.8	41.1			62.4	17.3		50.5	29.1
LOS	E	B		E	D			E	B		D	C
Approach Delay		45.5			45.5				23.2			29.8
Approach LOS		D			D				C			C
Queue Length 50th (m)	8.6	1.9		16.6	23.4			52.0	111.9		15.4	~86.3
Queue Length 95th (m)	19.3	12.1		29.6	46.1			#114.2	175.0		m17.5m	#272.3
Internal Link Dist (m)		80.2			37.1				162.8			285.2
Turn Bay Length (m)				20.0				65.0			56.0	

Lanes, Volumes, Timings













6: Bronte College Ct & Hurontario St

2/23/2012

Lane Group	SBR
Lane Configurations	
Volume (vph)	49
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	25.0
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	

Lanes, Volumes, Timings 6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Base Capacity (vph)	145	445		332	470			317	2224		159	1908
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.26	0.11		0.22	0.44			0.73	0.68		0.42	1.00

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 28.4

Intersection LOS: C

Intersection Capacity Utilization 106.6%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: Bronte College Ct & Hurontario St






















	ø1		ø2		ø4
11 s		72 s		37 s	
	ø5		ø6		ø8
11 s		72 s		37 s	



Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	84	100	212	268	124	59	132	1345	111	25	65	1906
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	55.0		50.0		45.0	
Storage Lanes	1		0	1		0	1		1		1	
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0		25.0	
Right Turn on Red			Yes			Yes			Yes			
Link Speed (k/h)		48			48			48				48
Link Distance (m)		118.1			136.1			122.8				166.4
Travel Time (s)		8.9			10.2			9.2				12.5
Confl. Peds. (#/hr)			9			53			8			
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%	1%	3%	2%	3%	10%	3%	5%	3%	2%	3%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	339	0	291	199	0	143	1462	121	0	98	2110
Turn Type	Perm			Perm			Prot		Perm	Prot	Prot	
Protected Phases		4			8		1	6		5	5	2
Permitted Phases	4			8					6			
Detector Phase	4	4		8	8		1	6	6	5	5	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	47.0	47.0		47.0	47.0		10.5	68.0	68.0	10.0	10.0	68.0
Total Split (s)	52.0	52.0	0.0	52.0	52.0	0.0	13.0	72.0	72.0	16.0	16.0	75.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	9.3%	51.4%	51.4%	11.4%	11.4%	53.6%
Maximum Green (s)	45.0	45.0		45.0	45.0		7.5	66.0	66.0	10.0	10.0	69.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.5	3.5	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0		2.5	2.0	2.0	2.5	2.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	5.5	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	C-Max
Walk Time (s)	16.0	16.0		16.0	16.0			47.0	47.0			47.0
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0			15.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0			0
Act Effct Green (s)	45.0	45.0		45.0	45.0		7.5	66.2	66.2		9.8	69.0
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.05	0.47	0.47		0.07	0.49
v/c Ratio	0.27	0.58		1.29	0.36		1.51	0.62	0.16		0.79	1.24
Control Delay	37.9	34.2		199.8	35.2		316.6	29.0	8.1		102.4	144.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	37.9	34.2		199.8	35.2		316.6	29.0	8.1		102.4	144.0
LOS	D	C		F	D		F	C	A		F	F
Approach Delay		35.0			132.9			51.3				142.1
Approach LOS		C			F			D				F
Queue Length 50th (m)	18.7	59.9		~102.6	38.3		~54.9	108.7	5.6		27.2	~381.4
Queue Length 95th (m)	33.8	92.0		#159.5	60.0		#98.5	124.1	16.8		#57.2	#422.5
Internal Link Dist (m)		94.1			112.1			98.8				142.4
Turn Bay Length (m)	20.0			70.0			55.0		50.0		45.0	

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St













2/23/2012

Lane Group	SBR
Lane Configurations	
Volume (vph)	35
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	25.0
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	11
Peak Hour Factor	0.92
Heavy Vehicles (%)	8%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Base Capacity (vph)	342	588		225	559		95	2363	772		127	1707
Starvation Cap Reductn	0	0		0	0		0	0	0		0	0
Spillback Cap Reductn	0	0		0	0		0	0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0	0		0	0
Reduced v/c Ratio	0.27	0.58		1.29	0.36		1.51	0.62	0.16		0.77	1.24

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.51

Intersection Signal Delay: 99.4

Intersection LOS: F

Intersection Capacity Utilization 119.9%

ICU Level of Service H

Analysis Period (min) 15







~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Harborn Rd & Hurontario St

	ø1		ø2		ø4
13 s		75 s		52 s	
	ø5		ø6		ø8
16 s		72 s		52 s	



Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings

12: Hurontario Access & Hurontario St

2/23/2012



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	125	0	1513	1782	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	0	1	0			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	136	0	1645	1980	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

































Intersection Capacity Utilization 64.9% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings

3: Queensway & Hurontario St













2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Volume (vph)	64	489	617	220	1155	218	560	1083	89	137	1425	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0	25.0		25.0
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		142.4			159.7			309.2			115.4	
Travel Time (s)		10.7			12.0			23.2			8.7	
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 (%)	0%	1%	0%	1%	0%	0%	3%	2%	1%	0%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	532	671	239	1255	237	609	1177	97	149	1549	85
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4			6			2
Detector Phase	3	8	8	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	8.0	36.5	36.5	8.0	36.5	36.5	14.7	33.7	33.7	10.5	33.7	33.7
Total Split (s)	10.0	36.0	36.0	10.0	36.0	36.0	24.0	55.1	55.1	18.9	50.0	50.0
Total Split (%)	8.3%	30.0%	30.0%	8.3%	30.0%	30.0%	20.0%	45.9%	45.9%	15.8%	41.7%	41.7%
Maximum Green (s)	7.0	29.5	29.5	7.0	29.5	29.5	17.3	48.4	48.4	13.4	43.3	43.3
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	2.5	2.5	0.0	2.5	2.5	2.7	2.7	2.7	2.5	2.7	2.7
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)	3.0	6.5	6.5	3.0	6.5	6.5	6.7	6.7	6.7	5.5	6.7	6.7
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)		12.0	12.0		12.0	12.0		10.0	10.0		10.0	10.0
Flash Dont Walk (s)		18.0	18.0		18.0	18.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	39.8	29.5	29.5	40.6	31.5	31.5	17.3	49.1	49.1	12.7	43.3	43.3
Actuated g/C Ratio	0.33	0.25	0.25	0.34	0.26	0.26	0.14	0.41	0.41	0.11	0.36	0.36
v/c Ratio	0.40	0.42	1.14	0.80	0.91	0.39	1.23	0.80	0.14	0.77	1.19	0.14
Control Delay	32.9	39.2	108.5	53.2	54.3	6.7	162.5	36.6	6.4	77.8	127.7	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	39.2	108.5	53.2	54.3	6.7	162.5	36.6	6.4	77.8	127.7	13.6
LOS	C	D	F	D	D	A	F	D	A	E	F	B
Approach Delay		75.4			47.6			75.7			118.1	
Approach LOS		E			D			E			F	
Queue Length 50th (m)	10.9	38.7	~137.5	41.3	107.7	0.2	~91.2	127.8	1.6	34.5	~231.3	5.8
Queue Length 95th (m)	21.2	49.9	#208.8	#75.8	#138.6	19.4	#126.3	155.6	11.8	#64.2	#273.8	16.6
Internal Link Dist (m)		118.4			135.7			285.2			91.4	
Turn Bay Length (m)	65.0		80.0	105.0		80.0	145.0		75.0	50.0		65.0
Base Capacity (vph)	177	1277	589	298	1376	602	496	1465	713	204	1304	608

Lanes, Volumes, Timings

3: Queensway & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.40	0.42	1.14	0.80	0.91	0.39	1.23	0.80	0.14	0.73	1.19	0.14

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46.8 (39%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 79.7

Intersection LOS: E

Intersection Capacity Utilization 104.1%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.





















Splits and Phases: 3: Queensway & Hurontario St

 ø1	 ø2	 ø3	 ø4
24 s	50 s	10 s	36 s
 ø5	 ø6	 ø7	 ø8
18.9 s	55.1 s	10 s	36 s

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	72	32	190	43	8	176	39	45	1897	32	142	1841
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	20.0		0.0		65.0		0.0	56.0	
Storage Lanes	1		0	1		0		1		0	1	
Taper Length (m)	25.0		25.0	25.0		25.0		25.0		25.0	25.0	
Right Turn on Red			Yes			Yes				Yes		
Link Speed (k/h)		48			48				48			48
Link Distance (m)		104.2			61.1				186.8			309.2
Travel Time (s)		7.8			4.6				14.0			23.2
Confl. Peds. (#/hr)			6			50				10		
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 (%)	5%	0%	0%	5%	0%	2%	2%	3%	5%	5%	1%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	242	0	47	200	0	0	91	2097	0	154	2018
Turn Type	Perm			Perm			Prot	Prot			Prot	
Protected Phases		8			4		1	1	6		5	2
Permitted Phases	8			4								
Detector Phase	8	8		4	4		1	1	6		5	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		5.0	4.0
Minimum Split (s)	54.0	54.0		54.0	54.0		10.0	10.0	59.0		10.5	76.0
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	11.0	11.0	82.0	0.0	11.0	82.0
Total Split (%)	28.5%	28.5%	0.0%	28.5%	28.5%	0.0%	8.5%	8.5%	63.1%	0.0%	8.5%	63.1%
Maximum Green (s)	30.0	30.0		30.0	30.0		5.0	5.0	76.0		5.5	76.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	4.0		3.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0		2.5	2.5	2.0		2.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	4.0	5.5	6.0
Lead/Lag							Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?							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
Recall Mode	None	None		None	None		None	None	C-Max		None	C-Max
Walk Time (s)	17.0	17.0		17.0	17.0				39.0			56.0
Flash Dont Walk (s)	24.0	24.0		24.0	24.0				14.0			14.0
Pedestrian Calls (#/hr)	0	0		0	0				0			0
Act Effct Green (s)	22.4	22.4		22.4	22.4			12.2	76.0		13.1	76.4
Actuated g/C Ratio	0.17	0.17		0.17	0.17			0.09	0.58		0.10	0.59
v/c Ratio	0.55	0.79		0.43	0.62			0.54	1.04		0.85	0.99
Control Delay	62.4	64.1		58.6	38.1			71.8	49.0		93.4	44.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	62.4	64.1		58.6	38.1			71.8	49.0		93.4	44.1
LOS	E	E		E	D			E	D		F	D
Approach Delay		63.7			42.0				50.0			47.6
Approach LOS		E			D				D			D
Queue Length 50th (m)	18.5	54.1		10.9	29.7			24.1	~130.3		39.5	257.0
Queue Length 95th (m)	33.2	78.1		22.2	51.5			m#61.3	#346.3		#104.7	#322.7
Internal Link Dist (m)		80.2			37.1				162.8			285.2
Turn Bay Length (m)				20.0				65.0			56.0	

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St













2/23/2012

Lane Group	SBR
Lane Configurations	
Volume (vph)	16
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	25.0
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	

Lanes, Volumes, Timings

6: Bronte College Ct & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Base Capacity (vph)	190	400		146	410			167	2026		182	2041
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.41	0.60		0.32	0.49			0.54	1.04		0.85	0.99

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 49.4

Intersection LOS: D

Intersection Capacity Utilization 119.2%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: Bronte College Ct & Hurontario St






















 ø1	 ø2	 ø4
11 s	82 s	37 s
 ø5	 ø6	 ø8
11 s	82 s	37 s



Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	56	50	142	451	145	95	121	1411	70	18	61	1949
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	70.0		0.0	55.0		50.0		45.0	
Storage Lanes	1		0	1		0	1		1		1	
Taper Length (m)	25.0		25.0	25.0		25.0	25.0		25.0		25.0	
Right Turn on Red			Yes			Yes			Yes			
Link Speed (k/h)		48			48			48				48
Link Distance (m)		148.3			174.4			122.8				166.4
Travel Time (s)		11.1			13.1			9.2				12.5
Confl. Peds. (#/hr)			9			53			8			
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%	1%	3%	2%	3%	10%	3%	5%	3%	2%	3%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	208	0	490	261	0	132	1534	76	0	86	2161
Turn Type	Perm			Perm			Prot		Perm	Prot	Prot	
Protected Phases		8			4		1	6		5	5	2
Permitted Phases	8			4					6			
Detector Phase	8	8		4	4		1	6	6	5	5	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	47.0	47.0		47.0	47.0		10.5	62.0	62.0	10.0	10.0	62.0
Total Split (s)	48.0	48.0	0.0	48.0	48.0	0.0	13.0	69.0	69.0	13.0	13.0	69.0
Total Split (%)	36.9%	36.9%	0.0%	36.9%	36.9%	0.0%	10.0%	53.1%	53.1%	10.0%	10.0%	53.1%
Maximum Green (s)	41.0	41.0		41.0	41.0		7.5	63.0	63.0	7.0	7.0	63.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.5	3.5	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0		2.5	2.0	2.0	2.5	2.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	5.5	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	C-Max
Walk Time (s)	16.0	16.0		16.0	16.0			41.0	41.0			41.0
Flash Dont Walk (s)	24.0	24.0		24.0	24.0			15.0	15.0			15.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0			0
Act Effct Green (s)	41.0	41.0		41.0	41.0		7.5	63.0	63.0		7.0	63.0
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.06	0.48	0.48		0.05	0.48
v/c Ratio	0.21	0.35		1.48	0.48		1.29	0.63	0.10		0.90	1.29
Control Delay	35.3	17.3		265.3	35.6		234.1	26.4	7.2		93.7	161.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	35.3	17.3		265.3	35.6		234.1	26.4	7.2		93.7	161.7
LOS	D	B		F	D		F	C	A		F	F
Approach Delay		21.4			185.5			41.3				159.1
Approach LOS		C			F			D				F
Queue Length 50th (m)	11.5	18.1		~172.8	48.4		~43.1	104.4	2.8		22.8	~367.5
Queue Length 95th (m)	23.3	38.8		#238.7	74.6		#83.5	120.1	11.0		m#26.5 m#380.5	
Internal Link Dist (m)		124.3			150.4			98.8				142.4
Turn Bay Length (m)	20.0			70.0			55.0		50.0		45.0	

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012















Lane Group	SBR
Lane Configurations	
Volume (vph)	40
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	25.0
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	11
Peak Hour Factor	0.92
Heavy Vehicles (%)	8%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	0.0
Total Lost Time (s)	4.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	

Lanes, Volumes, Timings

9: Harborn Rd & Hurontario St

2/23/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Base Capacity (vph)	285	594		331	544		102	2421	774		96	1679
Starvation Cap Reductn	0	0		0	0		0	0	0		0	0
Spillback Cap Reductn	0	0		0	0		0	0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0	0		0	0
Reduced v/c Ratio	0.21	0.35		1.48	0.48		1.29	0.63	0.10		0.90	1.29

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.48

Intersection Signal Delay: 114.7

Intersection LOS: F

Intersection Capacity Utilization 125.7%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 9: Harborn Rd & Hurontario St












	ø1		ø2		ø4
13 s		69 s		48 s	
	ø5		ø6		ø8
13 s		69 s		48 s	



Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
12: Hurontario Access & Hurontario St

2/23/2012

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Volume (vph)	0	88	0	1580	1985	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	0	1	0			0
Taper Length (m)	25.0	25.0	25.0			25.0
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.3			166.4	186.8	
Travel Time (s)	5.6			12.5	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	96	0	1717	2297	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	71.1%			ICU Level of Service C		
Analysis Period (min)	15					