

# MECP-MLITSD Science Facility Complex

## Transportation Impact Study



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April 29, 2026

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**Subject: MECP-MLITSD Science Facility Complex - Transportation Impact Study**

Aplin & Martin Consultants Ltd. Project Number 25-7027

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Dear Paul and Ayesha,

Aplin Martin has completed the Traffic Impact Study (TIS) for the proposed Science Facility Complex located within the Oakville Land Assembly (OLA) in the Town of Oakville, in support of Infrastructure Ontario's development application.

The Science Facility Complex will be situated on a 7.5-acre parcel within the OLA, a larger tract of provincially owned land north of Dundas Street and south of Highway 407. The site is immediately north of Oakville Trafalgar Memorial Hospital and adjacent to ErinOakKids.

The TIS provides an overview of existing multi-modal transportation options within the study area, forecasts future traffic conditions, presents transportation demand management opportunities, and recommends mitigation measures to ensure an adequate level of service for all road users.

The report was prepared in accordance with the approved Terms of Reference dated January 8, 2026, and follows all requirements set out in Halton Region's [Transportation Impact Study Guidelines \(January 2015\)](#). The workplan was developed in collaboration with the Town of Oakville and Halton Region.

We trust this report will support your teams in advancing the proposed development. Please don't hesitate to reach out with any questions.

Yours truly,

Aplin & Martin Consultants Ltd.



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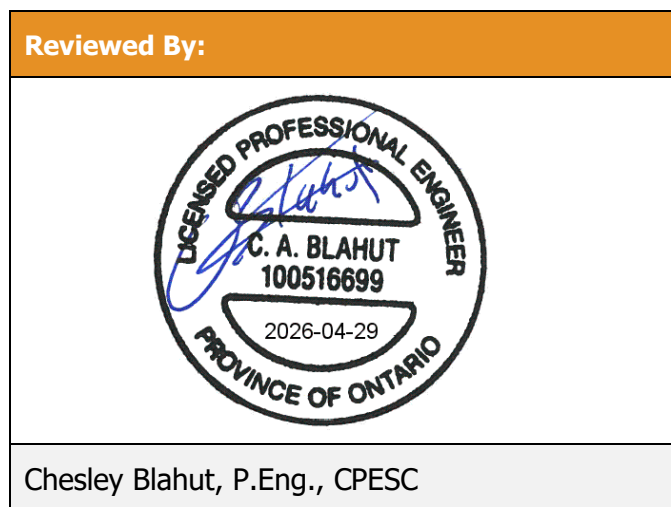
**MECP-MLITSD Science Facility Complex, Oakville Ontario**  
Transportation Impact Study

April 24, 2026

REVISION HISTORY

Revision	Date	Details	Prepared By:	Reviewed By:
1	April 29, 2026	Update to Parking Needs Assessment	Weston Vanderveen, EIT Saavin Khurana, P. Eng., PMP	Chesley Blahut, P. Eng., CPESC
0	March 9, 2026	Technical Report	Weston Vanderveen, EIT Saavin Khurana, P.Eng., PMP Steve Carney, P.Eng., PTOE Trevor Thirsk, EIT	Chesley Blahut, P.Eng., CPESC

PROFESSIONAL ENGINEERING SEAL



STATEMENT OF LIMITATIONS

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# 1 INTRODUCTION

Aplin & Martin Consultants Ltd. (Aplin Martin) has completed this Transportation Impact Study in support of Infrastructure Ontario's proposed Science Facility Complex located within the Oakville Land Assembly (OLA), situated east of Regional Road 25, north of Dundas Street, and south of Highway 407 in the Town of Oakville.

The proposed complex will be approximately 229,000 square feet and consist of laboratories, science workshops, and office components, to be constructed in a single phase with an anticipated full build-out date of 2030.

The scope of this study is to evaluate the potential impacts of site-generated traffic on the surrounding transportation network. This includes assessing the adequacy of the proposed parking supply and identifying necessary improvements based on existing traffic conditions, future traffic projections, and traffic generated by both background development and the proposed development.

## 1.1 Scope of Work

The report was prepared in accordance with the approved Terms of Reference dated January 8, 2026, and follows all requirements set out in Halton Region's [Transportation Impact Study Guidelines \(January 2015\)](#). The workplan was developed in collaboration with the Town of Oakville and Halton Region. The agreed-upon Terms of Reference are included as **Appendix 1**.

Traffic operations were analyzed at the following signalized intersections (numbered according to their traffic analysis node):

1. William Halton Parkway & Regional Road 25 (Bronte Road)
2. William Halton Parkway & Hospital Gate
3. William Halton Parkway & Third Line/ Glenorchy Road
4. Dundas Street West & Regional Road 25 (Bronte Road)
5. Dundas Street West & Hospital Gate
6. Dundas Street West & Third Line

The analysis was conducted for the following three horizon years:

- Existing Conditions (2025),
- Full Build-Out (2030), and
- Full Build-Out + 5 Years (2035).

All analyses were carried out for the weekday AM and PM peak hours within the following peak periods:

- Weekday AM Peak Hour (6:00am – 9:00am)
- Weekday PM Peak Hour (2:00pm – 6:00pm)

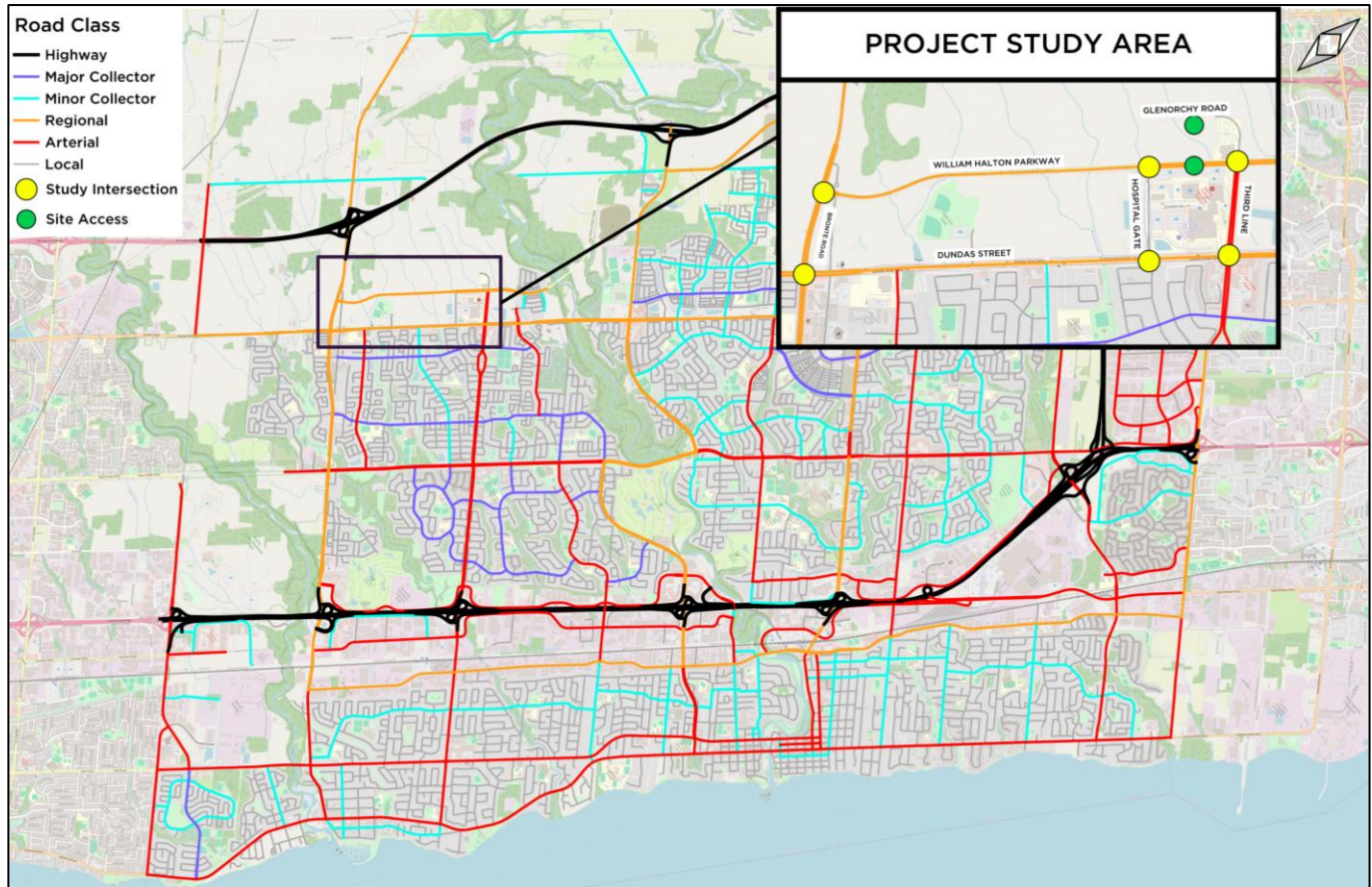


## 2 EXISTING CONDITIONS

### 2.1 Road Network

Existing conditions for the roads adjacent to the project site are described in this section. Road classifications are based on the Town of Oakville's Road Classification Map.

The existing road network is shown in **Figure 1**.



**Figure 1 Road Network within Study Area**

### 2.1.1 William Halton Roadway

William Halton Roadway is a regional road currently connecting Highway 25 and Burnhamthorpe Road with a posted speed limit of 60 km/h within the study area. William Halton Roadway is under the jurisdiction of the Town of Oakville.

### 2.1.2 Dundas Street West

Dundas Street West is a regional 6-lane roadway running northeast connecting several major municipalities with a posted speed limit of 70 km/h. The roadway segment within the study area is under the jurisdiction of the Regional Municipality of Halton. Dundas Street also accommodates transit service, with a stop at Oakville Hospital within the study area.

### 2.1.3 Bronte Road (Regional Road 25)

Bronte Road is an arterial roadway connecting the town's waterfront to Highway 407 with posted speed limit 70 km/h within the project study area and is also provincially designated as Highway 25. It is important to note that the northwest quadrant of Bronte Road and Dundas Street West is the future location of a major master plan community which has been included in the analysis as a background development.

### 2.1.4 Hospital Gate

Hospital Gate is a local roadway connecting William Halton Parkway W to Dundas St W, adjacent to Oakville Hospital, with a posted speed limit of 50 km/h. Hospital Gate is under the Regional Municipality of Halton. The roadway currently services two transit lines by Oakville Transit, with one stop for both routes at the Oakville Hospital.

It is important to note that with future development of Block 1 within the proposed draft plan of subdivision, Hospital Gate is expected extend north to connect with Glenorchy Road.

### 2.1.5 Third Line

Third line is an arterial 2-lane roadway running north-east with posted speed limits of 40 – 60 km/h within Oakville. Within the project study area, Third Line has a posted speed limit of 50 km/h. Third Line is under the jurisdiction of the Regional Municipality of Halton. Third Line is an important link that connects the town's waterfront to Oakville Hospital, with regular transit service that operates between Lakeshore and Oakville Hospital.

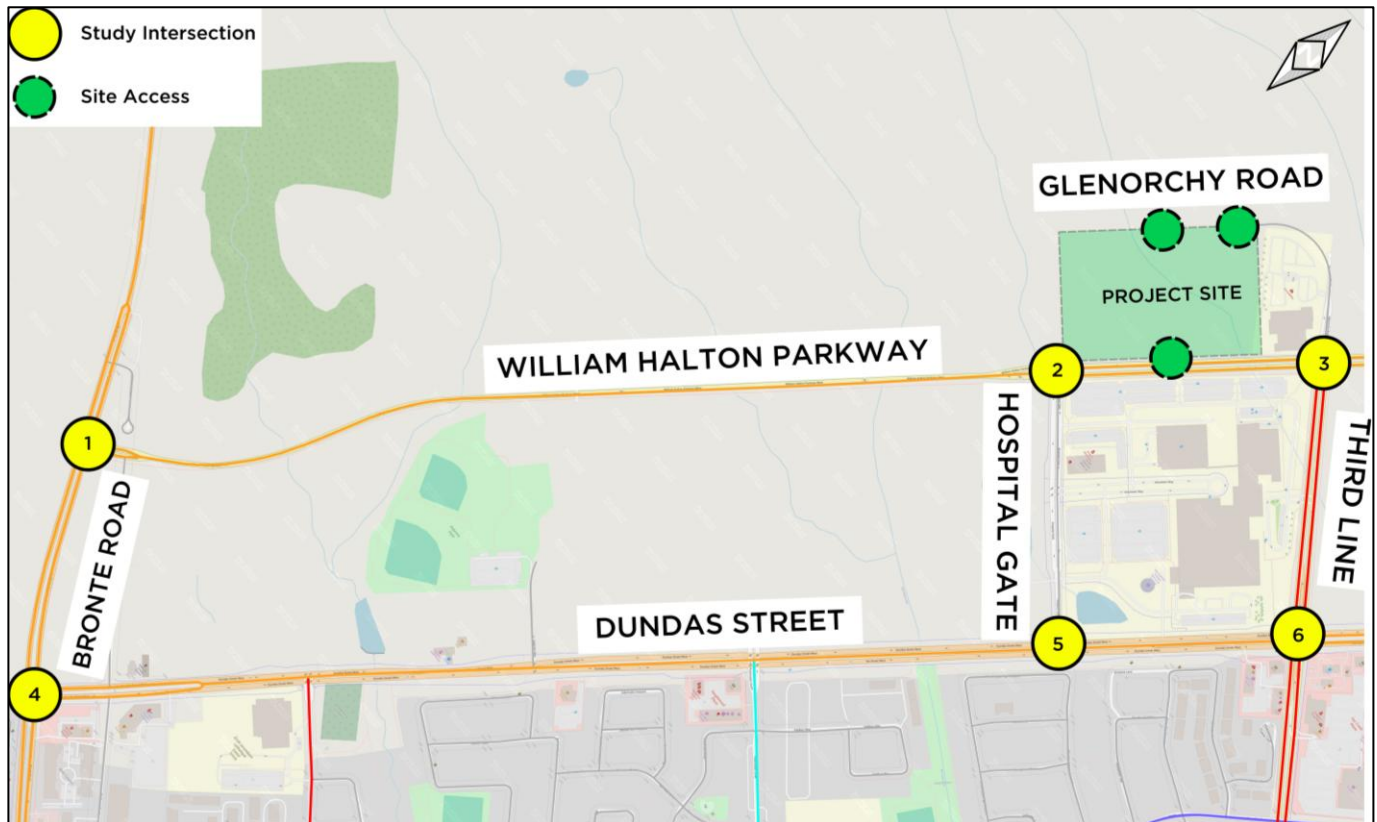
### 2.1.6 Glenorchy Road

Glenorchy Road is a local roadway running north-east, with a posted speed-limit of 50 km/h. Glenorchy Road is under the jurisdiction of the Town of Oakville. The road is proposed to be continued south-east, along to the end of the Science Facility Complex's footprint. Glenorchy road will also continue west of the development in the future and will connect to William Halton Parkway via an extension of Hospital Gate.



## 2.2 Study Intersections

To support the traffic study, **Figure 2** below shows the locations of the six study intersections and proposed site access points.



**Figure 2 Study Intersections**

## 2.3 Existing Traffic Volumes

**Table 1** summarizes the traffic counts conducted on the following weekdays at the study intersections.

Intersection		Data Collection Date
1	William Halton Parkway & Bronte Road	April 17, 2024
2	William Halton Parkway & Hospital Gate	February 26, 2026
3	William Halton Parkway & Third Line/ Glenorchy Road	February 26, 2026
4	Dundas Street West & Bronte Road	April 17, 2024
5	Dundas Street West & Hospital Gate	October 1, 2025
6	Dundas Street West & Third Line	October 1, 2025

**Table 1 Traffic Data Collection at Study Intersections**

Traffic counts were carried out from 6:30 AM to 9:30 AM and from 2:30 PM to 5:30 PM. Traffic counts included classification by passenger vehicles, heavy trucks, bicycles, and pedestrians.

**Figure 3** presents the traffic count data used for the weekday morning and afternoon peak hours of the operational analysis of existing vehicle traffic conditions through the study area. The raw turning-movement counts are included in **Appendix 2**.

The existing turning-movement counts were reviewed to confirm consistency in traffic volumes between intersections. Minor adjustments were applied where needed to balance flows and establish a reliable base dataset for the analysis.

The signal timing plans received from the Town of Oakville are attached within **Appendix 3**.

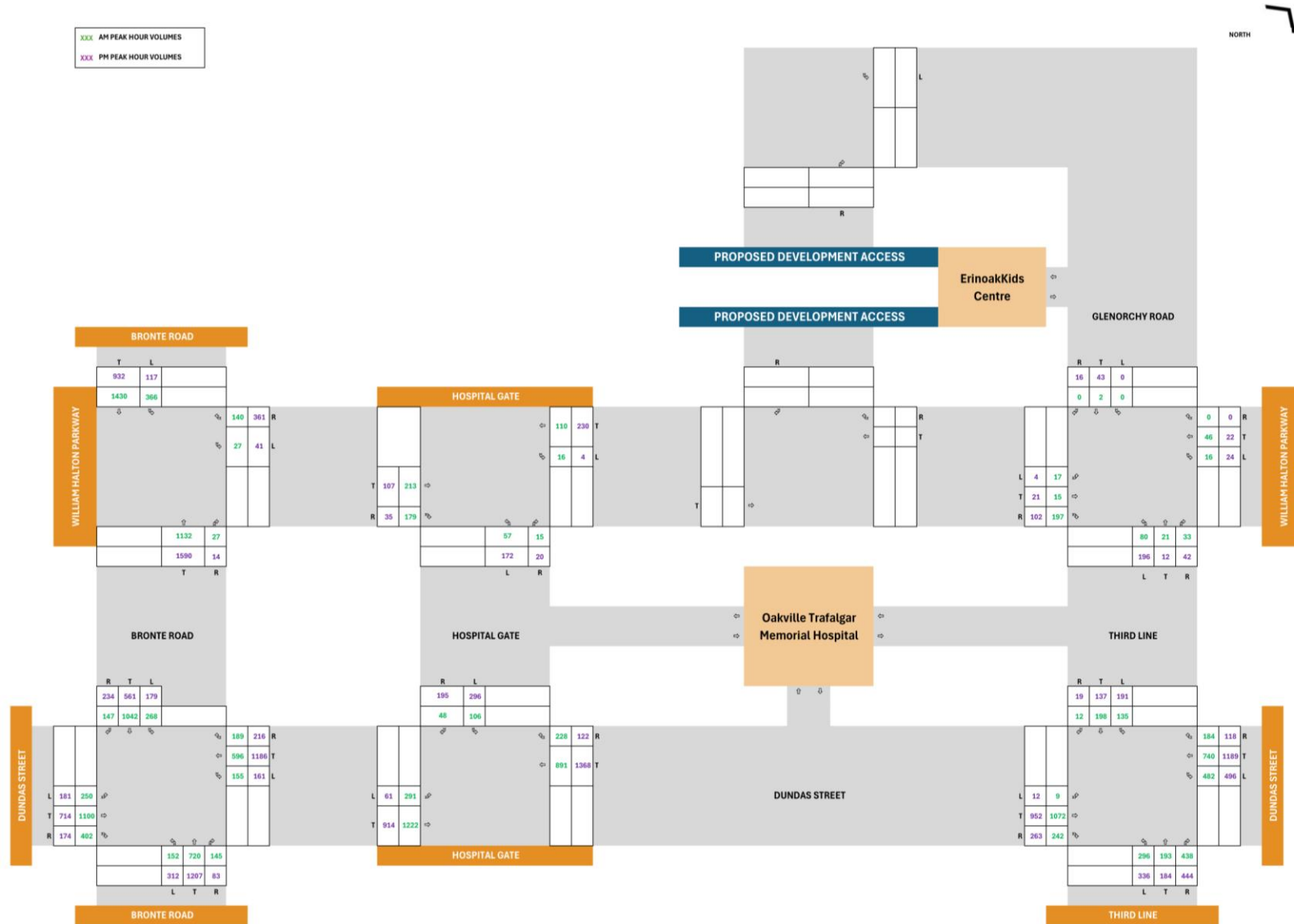


Figure 3 Existing Weekday Traffic Volumes



## 2.4 Accessibility by Alternative Modes of Transportation

The subject site is located on William Halton Parkway, between Hospital Gate Road and Third Line, within North Oakville. The site benefits from an established urban road network with existing sidewalks, transit service, and proximity to regional facilities. The surrounding area includes institutional, commercial, and recreational destinations within reasonable walking and cycling distance. While longer trips will likely require transit or private vehicle use, the site demonstrates moderate to strong potential for active transportation given the existing and planned infrastructure within the corridor.

The following section outlines walking, cycling, and transit opportunities in the vicinity of the site.

### 2.4.1 Walking Network

Pedestrian infrastructure in the study area is well established and supported by a combination of sidewalks and multi-use trails.

Within the immediate vicinity of the subject site:

- William Halton Parkway: sidewalk provided along the south side of the roadway; multi-use trail provided along the north side between Hospital Gate and Third Line
- Hospital Gate: sidewalks provided on both sides of the roadway, with a multi-use trail along the west side between William Halton Parkway and Dundas Street West
- Third Line: sidewalks provided on both sides of the roadway
- Glenorchy Road: sidewalk provided on the west side of the roadway.
- Dundas Street West: multi-use trails provided on both sides from Bronte Road to east of Proudfoot Trail

The multi-use trails are physically separated from vehicular traffic by barrier curb and/or landscaped boulevard and accommodate two-way travel for pedestrians and cyclists.

In addition, the McCraney Creek Trail, located south of the site, provides an off-road recreational connection extending from Dundas Street West toward the Queen Elizabeth Way corridor.

The existing sidewalk and trail network supports pedestrian connectivity to Oakville Trafalgar Memorial Hospital, North Oakville's commercial uses, and nearby transit services. The continuity of sidewalks and grade-separated trail facilities enhances pedestrian safety and comfort along the surrounding arterial and collector roads.

### 2.4.2 Cycling Network

Cycling infrastructure in the study area is provided through designated on-road bicycle lanes and multi-use trail facilities.

Designated bicycle facilities are provided along both sides of William Halton Parkway between Hospital Gate and Third Line, and along both sides of Third Line between William Halton Parkway and Dundas Street West. These facilities consist of painted cycle lanes, delineated by white pavement markings with bicycle symbols and dedicated signage

William Halton Parkway includes painted bicycle lanes in the east-west direction, providing continuous on-road cycling accommodation through the corridor.

Supplementing the on-road facilities, multi-use trails are provided:

- On the north side of William Halton Parkway between Hospital Gate and Third Line
- On the west side of Hospital Gate between William Halton Parkway and Dundas Street West



- On both sides of Dundas Street West within the broader corridor

These multi-use trails operate as physically separated facilities and support two-way cycling movements in addition to pedestrian activity.

There are currently no additional designated cycling facilities beyond those identified within the immediate study area road network.

### 2.4.3 Transit Network

The study area is served by multiple Oakville Transit routes, with transit stops located along Dundas Street West, Hospital Gate, and within the Oakville Trafalgar Memorial Hospital lands. Several of these stops are situated within convenient walking distance of the proposed development.

Inter-regional travel is available via GO Transit, with rail service provided at the Bronte GO Station and Oakville GO Station. GO Bus service is also accessible from the Bronte GO Park and Ride and Dundas GO Park and Ride facilities.

Based on current service information, the study area is served by the following transit routes:

- **Oakville Transit Route 5 – Dundas** provides frequent transit service between the Oakville GO Station and the Dundas GO Park and Ride facility along Dundas Street West and Trafalgar Road. Key stops include Sheridan College, the Uptown Core, and Oakville Trafalgar Memorial Hospital. Weekday service operates between approximately 5:53 AM and 11:50 PM, with 15- to 30-minute peak period headways. Weekend and holiday service is also provided.
- **Oakville Transit Route 3 – Third Line** provides service between the South Oakville Centre and Oakville Trafalgar Memorial Hospital along Third Line. Key stops include the Bronte GO Station and Glen Abbey Community Centre. Weekday service operates between approximately 5:56 AM and 11:17 PM, with 15-minute headways during the AM and PM peak periods. Weekend and holiday service is also provided.
- **Oakville Transit Route 34 – Pine Glen** provides service between the Bronte GO Station and the Pine Glen and Westmount neighbourhoods. Weekday service operates from approximately 7:04 AM to 8:20 PM with 60-minute headways.
- **GO Transit Bus Route 56** provides inter-regional service between Oakville GO Station and Oshawa GO Station via Trafalgar Road and Highway 407. This route offers connections to several intermediate terminals and park-and-ride facilities across the Greater Toronto and Hamilton Area. Service operates throughout the day with increased frequency during peak periods.
- **GO Transit Bus Routes 41 and 47 (Highway 407 Corridor)** operate along Highway 407, providing inter-regional connections between Hamilton GO Centre, Oakville GO Station, Streetsville GO Station, Meadowvale GO Station, and Bramalea GO Station, with access at the Bronte GO Park and Ride and Dundas GO Park and Ride facilities. Major destinations include McMaster University, University of Guelph, Sheridan College, and York University.
- **GO Transit Rail – Lakeshore West (LW) Line** provides commuter rail service between Hamilton and Toronto (Union Station). Stations serving the study area include Bronte GO Station and Oakville GO Station.

**Figure 4** presents the Town of Oakville's existing transit system map.





#### 2.4.3.1 Dundas Street Bus Rapid Transit

The Dundas Street Bus Rapid Transit (BRT) is a planned higher-order rapid transit connection along Dundas Street from Kipling Station in Toronto to Bronte Road in Oakville. The east-west running BRT corridor anticipates more than 20 kilometres of the 48-kilometre corridor will operate in dedicated bus lanes, allowing buses to bypass traffic and deliver faster, more reliable service. Peak-period headways are expected to be roughly five minutes, with direct connections and integration to the region's various transit services.

BRT combines the flexibility of buses with many of the benefits of light rail, offering rapid transit at a lower cost through features such as dedicated lanes and transit-priority signals designed to improve traffic flow for all road users.

The system is anticipated to deliver several regional benefits, including significant ridership gains, reduced congestion, lower greenhouse-gas emissions, better access to employment, improved travel time reliability, and more frequent service for the large population living within two kilometres of the corridor.

In Oakville, the Dundas BRT project is recommended for implementation within the Oakville Transit Five-Year Business Plan. While design work is ongoing, the nearest future stop to the site will be within steps at the Oakville Trafalgar Memorial Hospital. This stop will strengthen transit access for the surrounding area, offering a practical alternative to driving for employees and visitors.



## 3 FUTURE BACKGROUND CONDITIONS

### 3.1 Growth Rate

Future background operating conditions were evaluated for two horizon years: 2030 (full build-out of the proposed development) and 2035 (full build-out plus five years), during both the weekday morning and afternoon peak hours.

#### 3.1.1 Background Traffic Growth along William Halton Parkway

Future background traffic volumes for each horizon year were estimated using outputs from Halton Region's EMME model for 2031. The EMME model projects the 2031 PM peak hour volume along William Halton Parkway, between Bronte Road and Third Line, to be approximately 2,250 vehicles (1,300 westbound and 900 eastbound).

As EMME results were only available for the PM peak hour, the AM peak hour analysis applied the inverse directional split with a 20% reduction to reflect lower morning demand. This reduction is based on standard traffic engineering practice, whereby the AM and PM peak hours represent approximately 8% and 10% of daily traffic volume, respectively.

For the 2030 horizon year, a 2% reduction was applied to the 2031 EMME forecasts. For the 2035 horizon year, the EMME outputs were grown by five years of compound annual growth at 2%.

#### 3.1.2 Background Traffic Growth along Dundas Street West

Although vehicle capacity along Dundas Street may decrease over time due to the planned BRT service, a zero-percent vehicle growth rate has been applied. This reflects the expectation that overall people-moving capacity will improve with the introduction of BRT service.

### 3.2 Background Developments

#### 3.2.1 Palermo Village Multi-Use Development

Palermo Village is a 47.7-hectare mixed-use area in northwest Oakville, located north of Dundas Street West and organized around two properties on either side of Bronte Road that together form the Palermo Village Master Plan.

The site is planned to evolve through phased redevelopment featuring a mix of residential, retail, office, community, and parks. At full buildout, the community will include approximately 6,890 residential units and over 19,000 m<sup>2</sup> of non-residential space, supported by a walkable, transit-oriented street and open-space network.

As the development plans to support walkable, transit-oriented networking, the background development has applied a 20% reduction in projected traffic volumes to its network.

The peak hour trip rates for the AM and PM peak hours are summarized below in **Table 2**.



ITE Land Use Code	Trip Rate and Directional Split					
	AM Peak Hour			PM Peak Hour		
	Rate	Inbound	Outbound	Rate	Inbound	Outbound
<b>Residential</b>						
High Density: ITE 222	T=0.22(X) +18.85			T=0.26(X)+23.12		
Lower Density: ITE 215	T=0.31Ln(X)+1.16			T=0.31Ln(X)+20.55		
<b>Non-Residential</b>						
Office (Mixed-use): ITE 210	T=0.86Ln(X)+1.16			T=0.31Ln(X)+1.29		
Retail (Mixed-use): ITE 822	0.84	0.52	0.32	3.4	1.62	1.77

**Table 2 Palermo Village Multi-Use Background Development Trip Rates**

**Table 3** represents the net estimated vehicle trips generated from the background development. It is expected the site will generate 1775 vehicle trips (665 inbound / 1110 outbound) and 2175 vehicle trips (1155 inbound / 1015 outbound) during the weekday AM and PM peak hours, respectively.

Trips by Proposed Land-Use	AM Peak Hour			PM Peak Hour		
	Inbound	Outbound	Total	Inbound	Outbound	Total
Residential Trips	500	1070	1570	1020	780	1805
Office Trips	120	15	135	25	115	140
Retail Trips	45	25	70	110	120	230
<b>Total Trips:</b>	<b>665</b>	<b>1110</b>	<b>1775</b>	<b>1155</b>	<b>1015</b>	<b>2175</b>

**Table 3 Palermo Village Multi-Use Background Development Generated Trips**

Trip distribution for the background development referenced its Traffic Impact Study. Only trips passing through the project study area were distributed and included in this study. Trips occurring outside the study area were excluded from the study. All trips for the development were assigned to the 2030 Background traffic analysis scenario.

**Table 4** presents the Trip distributions for the Palermo Village Background Development. Note that the distribution extracted from the TIS do not equate to 100%.



Links including Direction (to/from)	Residential		Office		Retail	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
<b>Within the Project Study Area</b>						
Bronte Road – North	5%	5%	5%	10%	5%	5%
Bronte Road - South	50%	50%	20%	25%	30%	30%
Dundas Street W - East	40%	40%	20%	25%	20%	20%
<b>Outside of the Project Study Area</b>						
Highway 407 – East	5%	5%	0%	0%	5%	5%
Dundas Street W - West	5%	5%	30%	15%	5%	5%
Highway 407 - West	5%	0%	0%	0%	5%	0%

**Table 4: Palermo Village Multi-Use Background Distribution Trip Distribution**

### 3.2.1.1 William Halton Parkway & Bronte Street - Intersection Improvements

As part of the Palermo Village background development, the intersection of William Halton Parkway and Bronte Street will be upgraded from a three-legged to a four-legged configuration, extending William Halton Parkway westbound. To accommodate this development, the intersection will be modified to include dual left-turn lanes and dedicated right-turn storage lanes in both the northbound and southbound directions. The westbound approach will include a separate right-turn lane and a second left-turn lane.

These proposed improvements are reflected in the background and with-development scenarios of this TIS.

### 3.2.2 Sweetwater Gate Development

Two developments were identified at the intersection of Sweetwater Gate and Dundas Street West, and combined into a single background development for this study, as both will generate traffic entering the study area from the east along Dundas Street West. In the northwest quadrant of the intersection, a two-storey, 20,590 sq. ft. medical office is proposed, while the southwest quadrant will accommodate a two-storey daycare facility with a capacity of 168 students.

Consistent with the Palermo background development assumptions, a 20% trip reduction was applied to the generated trips to reflect anticipated improvements to transit level of service on Dundas Street West associated with the planned BRT system, which is expected to reduce auto demand within the study network. This reduction also considers trips by active transportation and Transportation Demand Management (TDM).

The peak hour trip rates for the AM and PM peak hours are summarized in **Table 5**.



**Table 5 Sweetwater Gate Background Development Trip Rates**

ITE Land Use Code	Trip Rate and Directional Split					
	AM Peak Hour			PM Peak Hour		
	Rate	Inbound	Outbound	Rate	Inbound	Outbound
Medical-Dental Office Building: ITE 720	2.68	81%	19%	2.84	25%	75%
Daycare: ITE 565	0.78	53%	47%	0.79	47%	53%

**Table 6** represents the net reduced estimated vehicle trips generated from the background development. For this development, it is expected the site will generate 149 vehicle trips (91 inbound / 58 outbound) and 153 vehicle trips (62 inbound / 153 outbound) during the weekday AM and PM peak hours, respectively.

Development Uses	Units	Density	AM Peak Hour			PM Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Medical-Dental Office Building	Sq. Ft. GFA	20.59	45	10	55	15	43	58
Daycare	Students	168	69	62	131	62	71	133
20% Reduction for transit, active transportation, and TDM initiatives			-23	-14	-37	-15	-23	-38
<b>Total Trips:</b>			<b>91</b>	<b>58</b>	<b>149</b>	<b>62</b>	<b>91</b>	<b>153</b>

**Table 6 Palermo Village Multi-Use Background Development Generated Trips**

Trip distribution for the background development was determined based on the study area road network and existing turning movement counts. Approximately 46% of generated trips enter the study area using Dundas Street West, while the remaining 54% are distributed along roadways outside the study area.

### 3.3 Future Background Traffic Volumes

Future background traffic volumes for the AM and PM peak hours at the study intersections for 2030 and 2035 are shown in **Figure 5** and **Figure 6**, respectively.



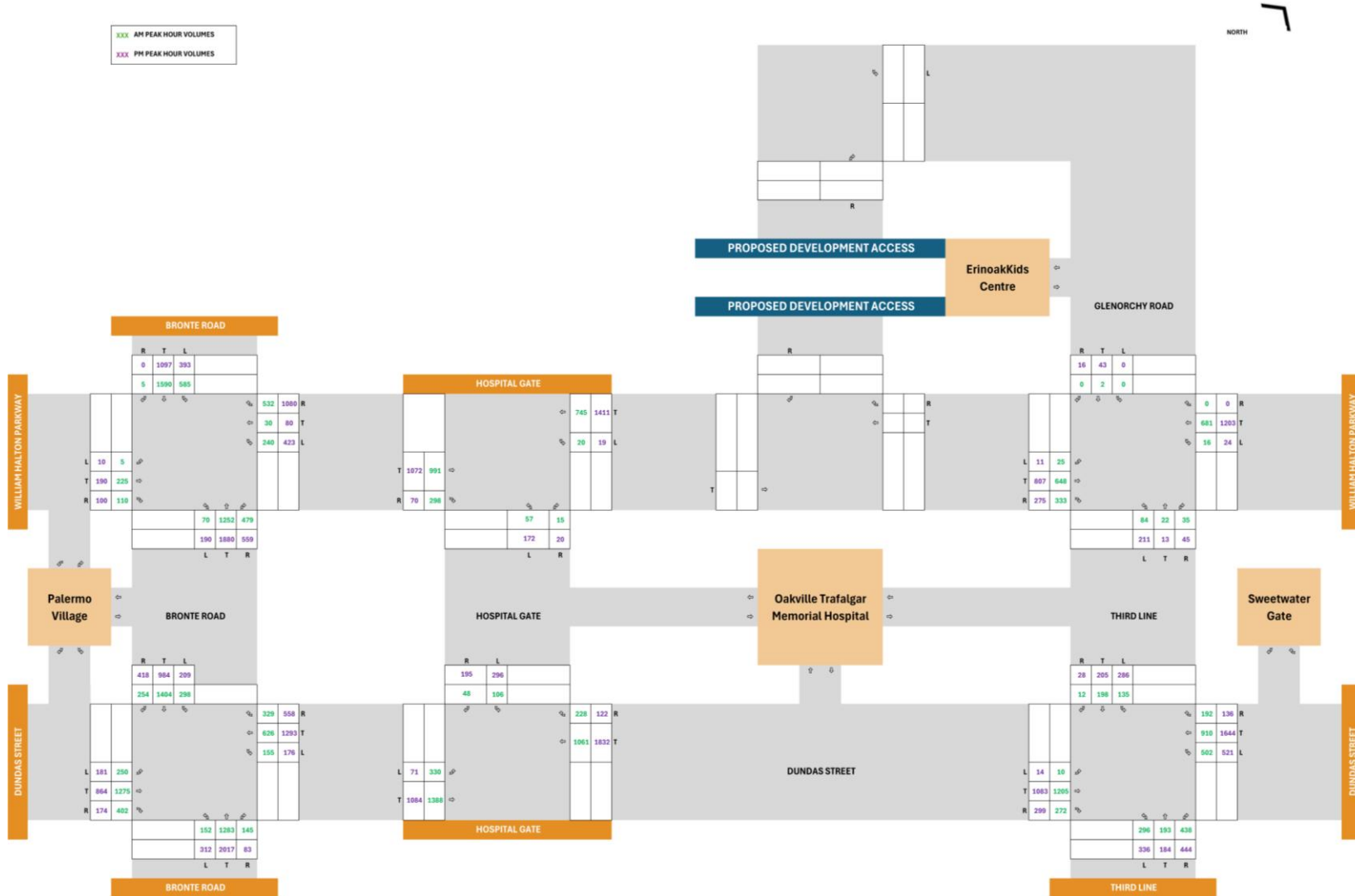


Figure 5 Background Peak Hour Traffic Volumes (2030)



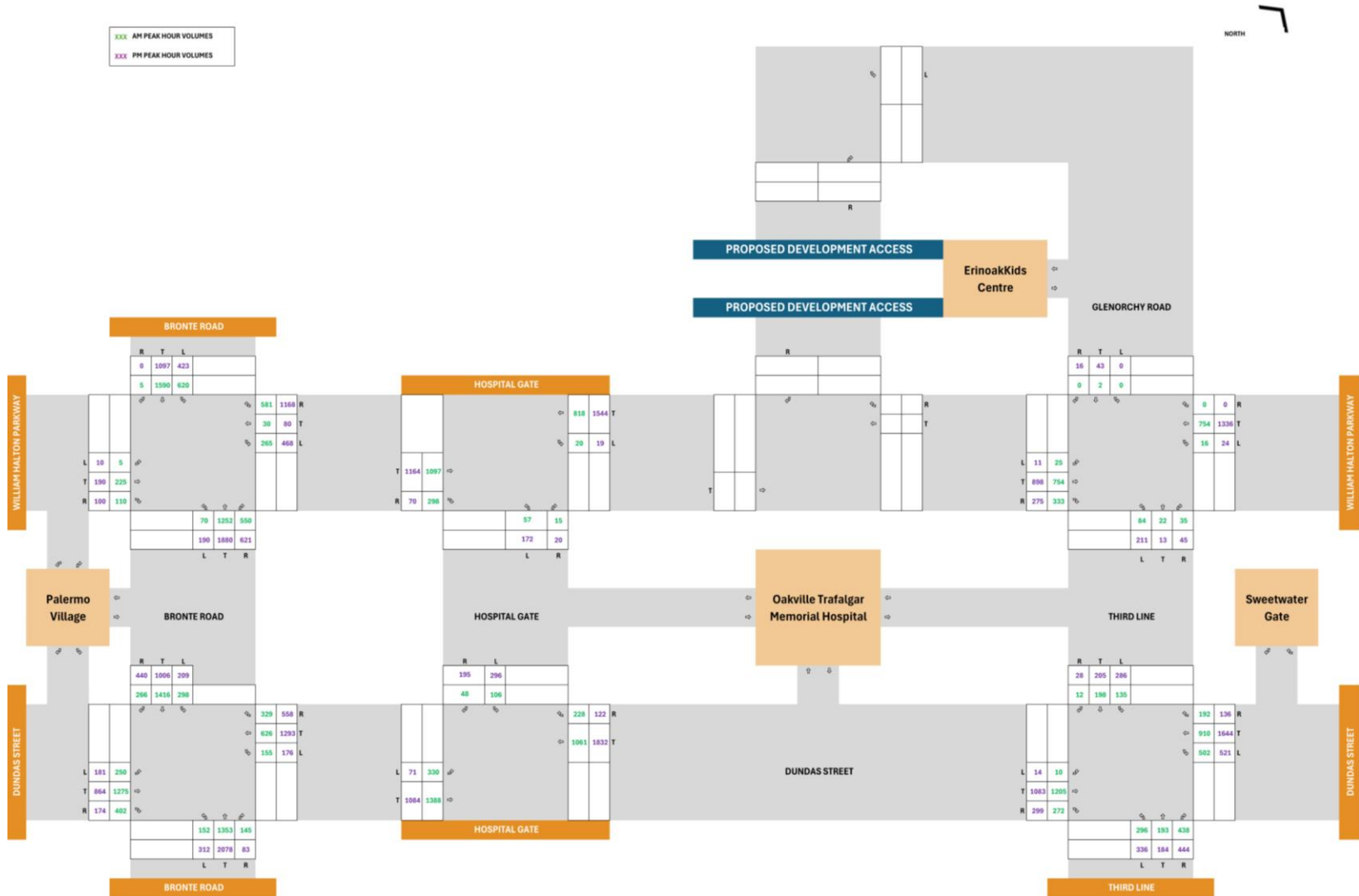


Figure 6 Background Peak Hour Traffic Volumes (2035)



## 4 PROPOSED DEVELOPMENT

### 4.1 Project Description

The project involves the development of a new 229,000 square-foot Science Facility Complex that will permanently replace the Ministry of the Environment, Conservation and Parks' (MECP) existing facility at 125 Resources Road, as well as the Ministry of Labour, Immigration, Training and Skills Development's (MLITSD) temporary facility at 6295 Northam Drive (formerly at 81A Resources Road). The new, purpose-built government complex will consolidate both ministries' operations into a single, modern science and laboratory hub designed to enhance Ontario's capacity to support critical environmental, public health, and safety mandates. As the project is being delivered through a P3 (Public-Private Partnership) model, the final design and configuration of the development may differ from the concept submitted as part of this application.

The facility is designed as a flexible, purpose-built complex featuring adaptable laboratory, science workshop, and office spaces that can accommodate current operational needs while supporting long-term growth. Co-locating the ministries' functions allows for more efficient workflows, shared use of specialized equipment, and improved emergency readiness through coordinated response capabilities. The infrastructure has been planned to meet future requirements, including advanced monitoring of radiological materials, environmental contaminants, and live viruses to better protect public health and the environment. In addition, the project incorporates significant sustainability measures, with the building designed to achieve LEED Silver certification and to provide adaptable, energy-efficient work and laboratory environments.

The proposed development is expected to accommodate approximately 250 employees working standard weekday business hours. The site is located adjacent to the Oakville Trafalgar Memorial Hospital on a 7.5-acre parcel of provincially owned land between William Halton Parkway and Glenorchy Road, the latter of which will be extended to the limits of the development. The application is being advanced through a Draft Plan of Subdivision process. Block 1 represents the overall development block, within which the subject development is identified as Block 2, as reflected in the draft plan of subdivision.

The development will also border the existing ErinoakKids Centre for Treatment and Development. Site access is planned through a full-movement intersection on Glenorchy Road for visitor and staff parking, while service vehicle parking/loading will be served by both a full-movement intersection on Glenorchy Road and a right-in/right-out access on William Halton Parkway.

#### 4.1.1 Pedestrian Circulation Plan

A pedestrian circulation plan was developed for the site, noting the proximity to the surrounding sidewalk and cycling network, bus routes, and existing bus stops. Vehicle circulation and pedestrian circulation through the site and the study area was also reviewed.

The pedestrian circulation plan is attached as **Appendix 5**. As the building design may evolve as the project advances, the final building configuration may change, which could influence the internal pedestrian circulation layout identified in the current plan.



## 4.2 Trip Generation

New trips generated by the proposed development was estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition*.

The land-use selected to estimate trips was Research and Development Centre, ITE Code #760.

Trip generation is the process of estimating the amount of vehicle traffic a development would generate and add to the surrounding roadway system based on the land use, development size and according to the methodology set out by the ITE.

The ITE Trip Generation trip rates for the AM and PM peak hours of the adjacent road network are summarized below in **Table 7**.

ITE Land Use Code	Trip Rate and Directional Split					
	AM Peak Hour			PM Peak Hour		
	Rate/Equation	Inbound	Outbound	Rate/Equation	Inbound	Outbound
#760 – Research and Development Centre	0.4	85%	15%	0.38	12%	88%

**Table 7 Site Trip Rates**

### 4.2.1 Modal Split

A 20% reduction in site-generated vehicle trips was applied to account for the planned Dundas Bus Rapid Transit (BRT) system, which is expected to substantially increase people-moving capacity and shift a portion of travel demand from private vehicles to higher-order transit. With more than 20 kilometres of the BRT operating in dedicated lanes, the improved reliability and frequency will further encourage transit uptake within the corridor. In addition, the proposed active transportation improvements and Transportation Demand Management (TDM) strategies will support this modal shift by providing viable non-auto travel options.

**Table 8** presents the net estimated vehicle trips generated by the research and development facility at full occupancy.

Proposed Use	Unit	Density	Vehicle Trips					
			AM Peak Hour			PM Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Research and Development Centre	Employees	515	175	31	206	23	172	195
20% Reduction Associated with Transit, Active Transportation, and TDM			-35	-6	-41	-5	-34	-39
<b>Total Trips:</b>			<b>140</b>	<b>25</b>	<b>165</b>	<b>18</b>	<b>138</b>	<b>156</b>

**Table 8 Site Trip Generation**

It is expected that the development will generate 165 vehicle trips (140 inbound / 25 outbound) in the AM peak hour, and 156 vehicle trips (18 inbound / 138 outbound) in the PM peak hour at opening day.



### 4.3 Trip Distribution & Assignment

Trip distribution for the proposed development was identified based on the area road network, existing vehicle turning movement counts, and the location of major attraction points in the area. The proposed trip distribution to and from the subject site is shown in **Table 9**.

Link	Inbound / Outbound
Dundas Street W – East	15%
William Halton Parkway – East	15%
Dundas Street W – West	10%
Bronte Road – North	30%
Bronte Road – North	20%
Third Line - North	20%
<b>Total:</b>	<b>100%</b>

**Table 9 Trip Distribution**

Trip Assignment for the site at full capacity is presented in **Figure 8**.



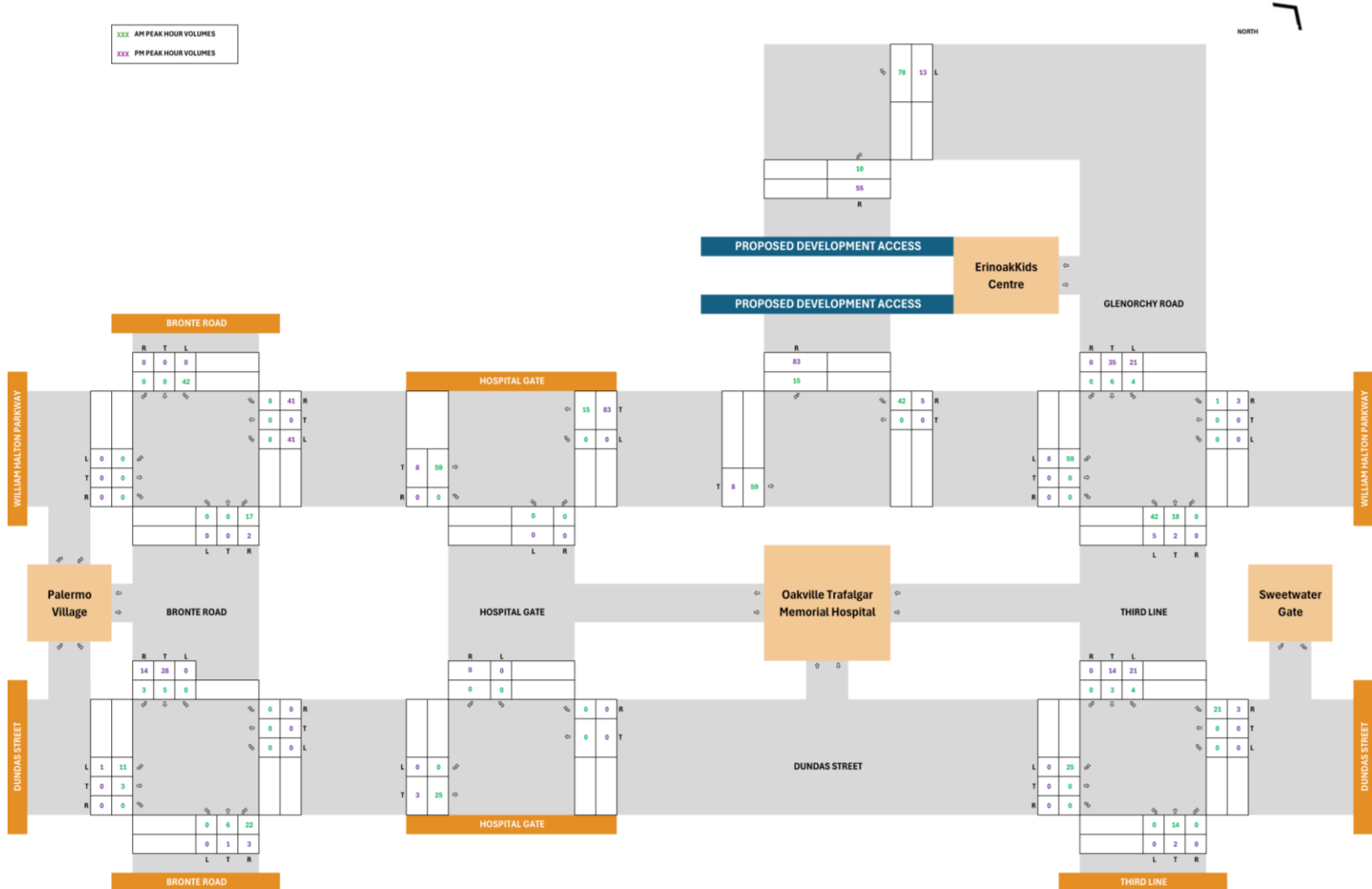


Figure 7 Trip Assignment



## 4.4 Total Traffic Volumes

Future total traffic volumes were determined by superimposing site-generated volumes to future background traffic volumes. Total traffic volumes for 2030 and 2035 are shown in **Figure 9**, and **Figure 10**, respectively.



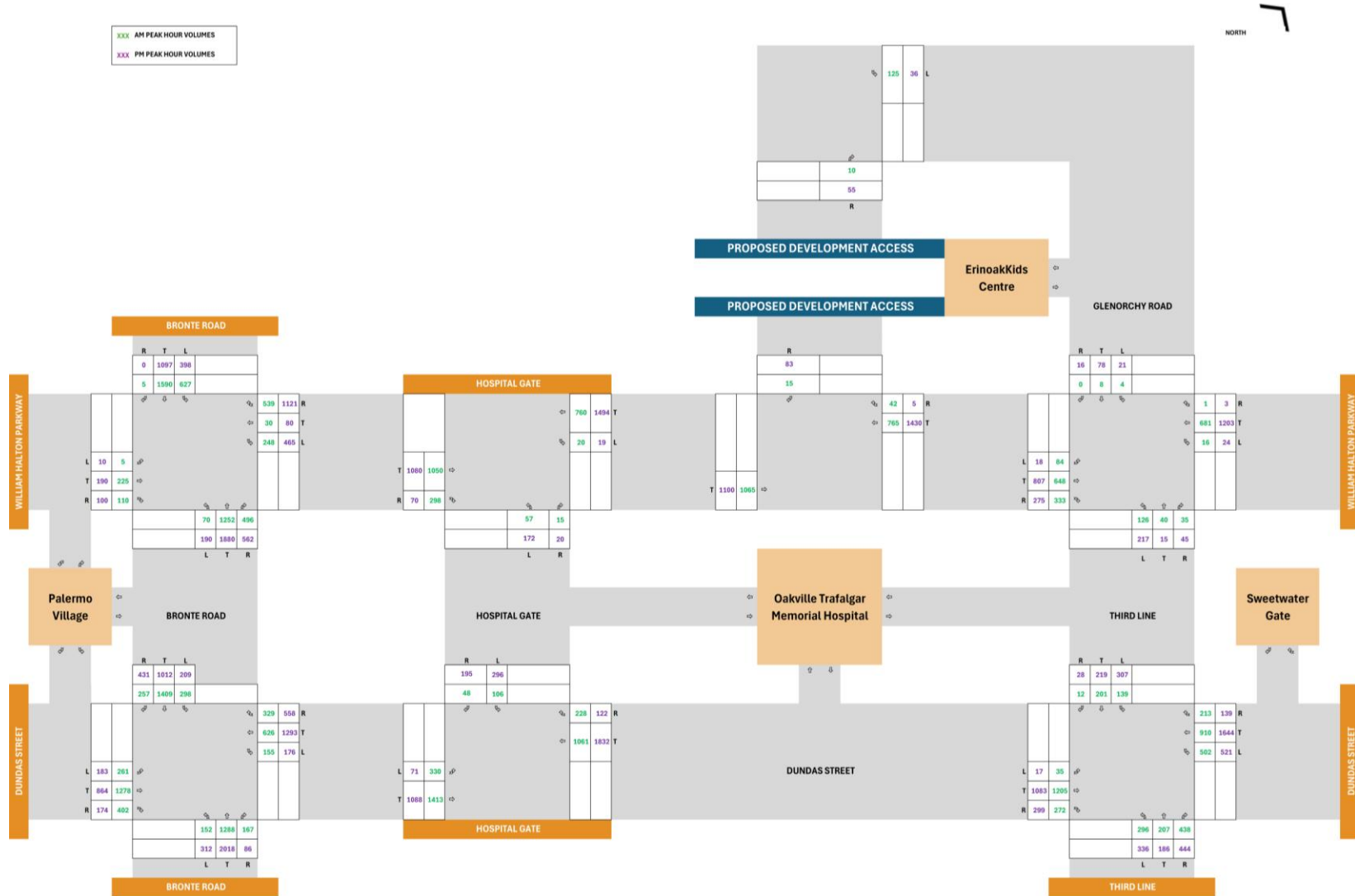


Figure 8 Total Traffic Volumes (2030)



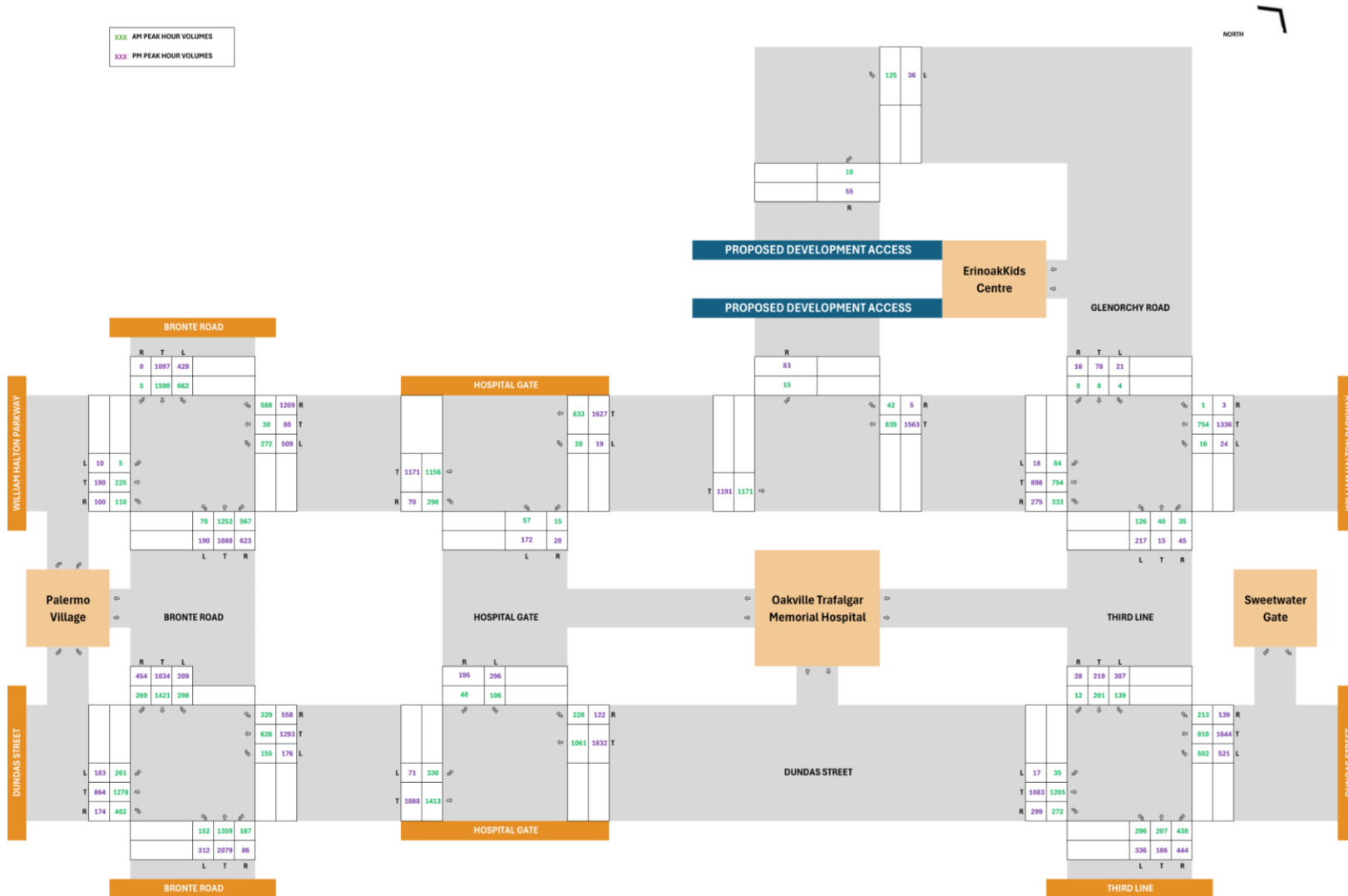


Figure 9 Total Traffic Volumes (2035)



## 5 OPERATIONAL ASSESSMENT

### 5.1 Performance Thresholds

Capacity analysis was completed for the six study intersections for the weekday AM and PM peak hours of the adjacent road network using Synchro 12 and SimTraffic.

Synchro 12 is an industry-standard software package that follows the Highway Capacity Manual to determine traffic conditions. It analyzes volumes, lane configurations, and types of traffic control to calculate average delays and queue lengths for each movement at an intersection. These average delays are then translated into Level-of-Service (LOS).

#### 5.1.1 Intersection Level-of-Service Criteria

Intersection capacity analysis provides an indication of traffic operations based on calculations of volume-to-capacity (v/c) ratio and delays for individual movements at an intersection. The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand.

The Level-of-Service (LOS) for an intersection provides an indication of the quality of traffic operations and relates to the delay being experienced by vehicles. Intersection LOS denoted by letter grades 'A' through 'D' indicates a satisfactory level of operations, with 'A' being free flow and level 'D' representing conditions approaching congestion. Levels designated 'E' and 'F' represent increasingly congested traffic conditions.

LOS definitions for signalized intersections as outlined in the Highway Capacity Manual are included in **Table 10**.

Level-of-Service	Signalised Intersection (Delays in Seconds)
A	≤ 10
B	10 - 20
C	20 - 35
D	35 - 55
E	55 - 80
F	> 80

**Table 10 Level-of-Service Criteria**

As noted within the Halton Region's *Transportation Impact Study Guidelines*, Section 3.6.1, if required, mitigation measures will be proposed based on the intersection capacity analysis results and according to the following acceptable threshold criteria:

- LOS D and v/c of 0.85 or better for the overall intersection operations.
- LOS E and v/c of 0.90 or better on all individual movements; and
- Adequate queue storage lengths provided based on 95<sup>th</sup> percentile queues for each lane group.

### 5.1.2 Multi-Modal Considerations

As the observed pedestrian and cyclist volumes noted within the existing turning movement counts were low and not representative of future growth in the study area, the following minimum volumes were applied to each intersection leg in alignment, supportive of the Halton Region's mode split targets:

- Existing Conditions
  - o Pedestrians: 5 peds/hr/leg
  - o Cyclists: 1 cyclist/hr/leg
- 2030 Horizon Year
  - o Pedestrians: 15 peds/hr/leg
  - o Cyclists: 5 cyclists/hr/leg
- 2035 Horizon Year
  - o Pedestrians: 25 peds/hr/leg
  - o Cyclists: 10 cyclists/hr/leg

For this study the estimated pedestrian calls assigned to each study intersection is based on observed and forecast pedestrian activity. Under existing conditions, pedestrian volumes of 5 pedestrians per hour per leg correspond to 0 pedestrian calls. At the 2030 horizon year, forecast volumes of 15 pedestrians per hour per leg fall within the 10–15 range, corresponding to 3 pedestrian calls. By the 2035 horizon year, volumes of 25 pedestrians per hour per leg estimates pedestrian call value of 5.



## 5.2 Existing Traffic Operations

Intersection capacity analysis was conducted at the study intersections for the existing (2025) conditions for the AM and PM peak hours. The existing laning and control type was used to model traffic operations at these intersections.

The intersections of William Halton Parkway & Hospital Gate, and Dundas Street West & Third Line achieve the minimum operating thresholds for the AM and PM peak hours in the existing conditions.

For the existing AM and PM peak hour conditions, the intersections of William Halton Parkway & Bronte Road, William Halton Parkway & Third Line/Glenorchy Road, Dundas Street & Bronte Road, and Dundas Street West & Third Line, present either individual movements and/or overall intersection operations below the required minimum thresholds.

For all noted intersections except Dundas Street & Bronte Road, the deficient movements can be improved by optimizing signal splits and allocating additional green time to the affected movements without causing other movements to become deficient.

A summary of the analysis results for the existing conditions including volume to capacity (v/c) ratio, 95th percentile queue length, delay, and LOS, is presented in **Table 11**. Detailed Synchro output results are provided in **Appendix 6**.

### 5.2.1 Dundas Street & Bronte Street Intersection

During peak hours, the intersection of Dundas Street & Bronte Street operates beyond its available capacity. Movements on all approaches fail during either the morning or afternoon peak period, or both. Significant delays are noted in the eastbound and southbound directions during the morning peak hour, and in the westbound and northbound directions during the afternoon peak hour.

#### 5.2.1.1 Recommended Mitigation Measure

To provide a slight overall improvement at the intersection through the southbound movement, it is recommended that a dual southbound left-turn storage lane be introduced within the existing roadway, which is currently delineated by hatched line markings. To mitigate the collision risk between simultaneous dual northbound and southbound left-turn movements operating under a protected phase, it is recommended that the two movements be separated into distinct phases using a lead-lag approach.

For the future background and total operating conditions, the intersection of Dundas Street & Bronte Street includes the operations of a dual southbound left movement within the available storage/roadway space.

#### 5.2.1.2 Intersection Considerations through future People-Moving Capacity Improvements

While delay and congestion along the arterial road corridor is expected, the planned Dundas BRT will offer meaningful alternatives for residents and visitors by expanding non-auto travel options throughout Oakville.

As traffic congestion and delays continue to increase, vehicle use during peak periods is expected to shift in favour of transit. The implementation of the planned Dundas Street BRT infrastructure will contribute to easing pressure on the corridor over time.

In the interim, no additional mitigation measures are recommended until the Dundas BRT is implemented. The BRT project may present opportunities to further improve intersection operating conditions along the corridor as needed at that time.

Table 11 Existing Operating Conditions

Intersection		Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Overall
1- William Halton Parkway & Bronte Road	AM Peak	v/c Ratio	-	-	-	0.74	-	0.39	-	0.79		0.86	0.65	-	0.86
		LOS	-	-	-	D	-	A	-	C		D	B	-	C
		95% Q (m)	-	-	-	66.4	-	17.1	-	228.0		102.6	138.6	-	-
	PM Peak	v/c Ratio	-	-	-	0.12	-	0.76	-	0.77		0.58	0.39	-	0.78
		LOS	-	-	-	D	-	B	-	B		C	A	-	B
		95% Q (m)	-	-	-	9.9	-	28.7	-	200.8		26.4	52.2	-	-
2- William Halton Parkway & Hospital Gate	AM Peak	v/c Ratio	-	0.20		0.03	0.05	-	0.08	-	0.05	-	-	-	0.20
		LOS	-	A		A	A	-	C	-	B	-	-	-	A
		95% Q (m)	-	21.1		3.8	11.6	-	11.7	-	6.5	-	-	-	-
	PM Peak	v/c Ratio	-	0.07		0	0.11	-	0.23	-	0.06	-	-	-	0.23
		LOS	-	A		B	B	-	D	-	B	-	-	-	C
		95% Q (m)	-	11.3		1.7	33.1	-	29.2	-	7.1	-	-	-	-
3- William Halton Parkway & Third Line/ Glenorchy Road	AM Peak	v/c Ratio	0.02	0.01	0.18	0.02	0.02		0.38	0.11		0	0		0.38
		LOS	B	A	A	A	A		D	C		A	D		B
		95% Q (m)	6.4	3.2	28.9	2.9	3.2		36.0	8.9		0	1.4		-
	PM Peak	v/c Ratio	0	0.01	0.10	0.03	0.01		0.75	0.08		0	0.9		0.55
		LOS	B	B	A	A	A		E	B		A	C		C
		95% Q (m)	3.2	4.9	21.3	6.1	3		70.3	6.3		0	9.7		-
4- Dundas Street West & Bronte Road	AM Peak	v/c Ratio	1.00	0.79	0.73	0.85	0.67		0.71	0.79	0.28	1.05	1.01	0.27	1.05
		LOS	F	D	C	F	D		F	D	A	F	E	A	E
		95% Q (m)	138.7	135.8	108.3	90.8	96.3		40.2	138.0	16.8	127.3	233.8	18.5	-
	PM Peak	v/c Ratio	0.80	0.51	0.32	0.83	1.08		1.38	1.27	0.17	0.79	0.53	0.37	1.03
		LOS	F	D	A	F	F		F	F	A	D	D	A	F
		95% Q (m)	82.4	82.5	18.1	87.1	218.2		98.7	300.5	6.0	71.1	94.5	19.0	-
5- Dundas Street West & Hospital Gate	AM Peak	v/c Ratio	0.61	0.34	-	-	0.32	0.24	-	-	-	0.37	-	0.28	0.61
		LOS	A	A	-	-	B	A	-	-	-	D	-	B	A
		95% Q (m)	20.4	32.0	-	-	51.6	10.8	-	-	-	21.7	-	12.4	-
	PM Peak	v/c Ratio	0.25	0.27	-	-	0.45	0.13	-	-	-	0.68	-	0.53	0.59
		LOS	A	A	-	-	B	A	-	-	-	D	-	B	B
		95% Q (m)	8.2	35.0	-	-	82.2	8.3	-	-	-	53.0	-	20.9	-
6- Dundas Street West & Third Line	AM Peak	v/c Ratio	0.03	0.67	0.37	0.81	0.29	0.21	0.84	0.32	0.81	0.46	0.45	0.04	0.84
		LOS	B	C	A	E	B	A	D	D	C	C	D	A	C
		95% Q (m)	3.8	125.6	19.8	92.6	64.9	13.5	95.7	34.0	62.8	43.0	37.3	0	-
	PM Peak	v/c Ratio	0.06	0.59	0.39	0.82	0.47	0.14	0.91	0.31	0.83	0.63	0.30	0.06	0.92
		LOS	B	C	A	E	B	A	E	D	C	D	D	A	C
		95% Q (m)	5.2	110.5	20.4	100.3	113.6	11.4	114.7	33.6	69.4	58.6	27.4	0	-

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### 5.3 Background Traffic Operations

If the site was not to develop, background traffic would be the traffic that would continue to be present on the road network. The operating conditions for 2030, and 2035 background traffic are summarised in the following subsections.

The 2030 and 2035 background operating conditions were analyzed using existing lane configurations for all intersections, except at Bronte Road & William Halton Parkway and Bronte Road & Dundas Street.

As part of the Palermo Village development, the intersection of William Halton Parkway and Bronte Road will be upgraded from a 3-legged to a 4-legged intersection, extending William Halton Parkway westbound. The upgraded intersection will incorporate dual left-turn lanes in the northbound and southbound directions, dedicated right-turn storage lanes on the northbound and southbound approaches, and separated westbound right-turn and left-turn movements.

At the intersection of Bronte Road and Dundas Street, a dual southbound left-turn storage lane will be introduced within the existing roadway, currently delineated by hatched line markings. To mitigate the collision risk between simultaneous dual northbound and southbound left-turn movements, the two phases will be separated using a lead-lag approach.

All traffic signal splits have been optimized while maintaining existing cycle lengths throughout the study area.

Despite the proposed mitigation measures, both noted intersections are expected to continue falling short of the required performance thresholds for multiple movements and overall operations. While adding a through lane in each direction could improve operations along this major regional corridor, it is recommended that Halton Region reassess traffic operational needs following the implementation of the Dundas BRT.

The intersection of Dundas Street & Third Line is at capacity with an overall v/c of just over 1. This does not meet minimum operating thresholds, however no mitigation measures are recommended, other than continued monitoring of the intersection by the Halton Region and the Town of Oakville.

The intersections of William Halton Parkway & Hospital Gate, William Halton Parkway & Third Line, and Dundas Street & Hospital Gate are all expected to continue meeting minimum operating thresholds during both the AM and PM peak hours under 2030 and 2035 background conditions.

The results of the 2030 and 2035 background operating conditions for the AM and PM peak hours are presented in **Table 12** and **Table 13**, respectively.



Table 12 2030 Background Operating Conditions

Intersection		Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Overall
1- William Halton Parkway & Bronte Road	AM Peak	v/c Ratio	0.04	0.65	0.42	0.68	0.07	0.52	0.60	0.94	0.65	0.95	0.90	0.01	0.87
		LOS	D	E	A	E	D	D	F	D	B	F	C	A	D
		95% Q (m)	5.8	49.8	12.6	51.4	15.3	21.1	22.5	261.2	88.2	134.7	309.1	0	-
	PM Peak	v/c Ratio	0.07	0.46	0.38	1.03	0.16	0.91	0.62	1.33	0.72	0.87	0.71	0	1.10
		LOS	D	E	B	F	D	D	E	F	C	E	C	A	F
		95% Q (m)	9.0	42.7	17.2	106.1	32.9	212.9	42.1	449.2	123.8	87.9	179.2	0	-
2- William Halton Parkway & Hospital Gate	AM Peak	v/c Ratio	-	0.68		0.10	0.36	-	0.08	-	0.05	-	-	-	0.68
		LOS	-	B		A	B	-	C	-	B	-	-	-	B
		95% Q (m)	-	147.8		6.0	74.7	-	11.7	-	6.5	-	-	-	-
	PM Peak	v/c Ratio	-	0.65		0.09	0.74	-	0.18	-	0.05	-	-	-	0.70
		LOS	-	C		A	B	-	C	-	B	-	-	-	C
		95% Q (m)	-	146.5		2.2	81.4	-	26.4	-	6.4	-	-	-	-
3- William Halton Parkway & Third Line/ Glenorchy Road	AM Peak	v/c Ratio	0.06	0.27	0.30	0.04	0.30		0.40	0.12		0	0		0.71
		LOS	A	B	A	A	A		D	C		A	D		B
		95% Q (m)	0	96.9	77.6	3.1	38.2		36.9	9.2		0	1.4		-
	PM Peak	v/c Ratio	0.06	0.37	0.27	0.07	0.58		0.78	0.09		0	0.08		0.68
		LOS	B	B	A	A	B		E	B		A	C		B
		95% Q (m)	1.7	48.8	18.9	6.9	131.7		75.1	6.3		0	9.5		-
4- Dundas Street West & Bronte Road	AM Peak	v/c Ratio	1.18	0.98	0.82	1.04	0.87		0.76	1.08	0.25	1.25	1.17	0.41	1.11
		LOS	F	E	D	F	E		F	F	B	F	F	B	F
		95% Q (m)	159.7	190.0	144.9	111.3	131.5		45.2	305.8	24.8	99.9	352.9	41.5	-
	PM Peak	v/c Ratio	1.56	0.60	0.32	1.56	1.31		0.88	1.62	0.14	1.16	0.92	0.73	1.29
		LOS	F	D	A	F	F		F	F	A	F	E	C	F
		95% Q (m)	128.8	99.7	17.7	128.7	299.3		76.3	523.8	10.7	66.4	199.4	119.1	-
5- Dundas Street West & Hospital Gate	AM Peak	v/c Ratio	0.71	0.41	-	-	0.45	0.27	-	-	-	0.26	-	0.22	0.71
		LOS	B	A	-	-	C	A	-	-	-	D	-	B	B
		95% Q (m)	85.8	98.5	-	-	131.0	19.4	-	-	-	20.5	-	10.9	-
	PM Peak	v/c Ratio	0.43	0.33	-	-	0.63	0.14	-	-	-	0.58	-	0.58	0.74
		LOS	B	A	-	-	B	A	-	-	-	D	-	C	B
		95% Q (m)	21.7	71.6	-	-	192.1	11.3	-	-	-	51.4	-	38.6	-
6- Dundas Street West & Third Line	AM Peak	v/c Ratio	0.04	0.80	0.42	0.81	0.37	0.22	0.81	0.31	0.76	0.44	0.43	0.04	0.96
		LOS	B	D	A	D	B	A	D	D	B	C	D	A	C
		95% Q (m)	4.6	180.1	23.2	99.1	90.7	14.9	93.7	33.7	47.2	42.2	37.0	0	-
	PM Peak	v/c Ratio	0.10	0.73	0.46	0.83	0.69	0.17	0.88	0.31	0.83	0.80	0.41	0.09	0.99
		LOS	B	D	A	E	C	A	E	D	C	D	D	A	C
		95% Q (m)	6.4	140.4	24.0	110.5	194.9	15.2	106.4	33.9	70.0	86.8	39.0	0	-

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Table 13 2035 Background Operating Conditions

Intersection		Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Overall
1- William Halton Parkway & Bronte Road	AM Peak	v/c Ratio	0.04	0.65	0.43	0.72	0.07	0.56	0.60	0.97	0.76	0.97	0.90	0.01	0.90
		LOS	D	E	A	E	D	A	F	E	C	F	C	A	D
		95% Q (m)	5.8	49.8	12.6	56.3	15.3	26.5	22.5	265.4	124.3	142.5	309.1	0	-
	PM Peak	v/c Ratio	0.07	0.46	0.39	1.11	0.16	1.05	0.66	1.24	0.75	1.24	0.72	0	1.14
		LOS	D	E	B	F	D	E	E	F	B	F	C	A	F
		95% Q (m)	9.0	42.7	17.2	119.9	32.9	268.6	43.3	431.5	133.4	117.3	171.8	0	-
2- William Halton Parkway & Hospital Gate	AM Peak	v/c Ratio	-	0.70		0.10	0.38	-	0.09	-	0.05	-	-	-	0.70
		LOS	-	B		A	B	-	D	-	B	-	-	-	B
		95% Q (m)	-	155.6		5.1	77.7	-	12.2	-	6.9	-	-	-	-
	PM Peak	v/c Ratio	-	0.59		0.08	0.70	-	0.27	-	0.07	-	-	-	0.74
		LOS	-	B		A	B	-	D	-	B	-	-	-	B
		95% Q (m)	-	129.0		1.8	84.0	-	30.5	-	7.4	-	-	-	-
3- William Halton Parkway & Third Line/ Glenorchy Road	AM Peak	v/c Ratio	0.06	0.31	0.30	0.04	0.33		0.41	0.12		0	0.17		0.72
		LOS	B	B	A	A	A		D	C		A	D		B
		95% Q (m)	4.9	105.1	67.1	3.1	43.1		37.0	9.2		0	1.4		-
	PM Peak	v/c Ratio	0.08	0.41	0.27	0.08	0.65		0.79	0.09		0	0.08		0.69
		LOS	B	A	A	A	B		E	B		A	C		B
		95% Q (m)	1.7	48.8	18.9	6.9	131.7		75.1	6.3		0	9.5		-
4- Dundas Street West & Bronte Road	AM Peak	v/c Ratio	1.38	0.98	0.82	1.04	0.82		0.71	1.17	0.25	1.28	1.22	0.44	1.11
		LOS	F	E	D	F	D		F	F	B	F	F	B	F
		95% Q (m)	161.0	179.7	136.0	105.5	119.4		40.2	316.7	24.0	95.4	344.4	40.8	-
	PM Peak	v/c Ratio	1.56	0.60	0.32	1.56	1.32		0.94	1.67	0.14	1.16	0.92	0.77	1.31
		LOS	F	D	A	F	F		F	F	A	F	E	D	F
		95% Q (m)	128.8	99.7	17.7	128.7	300.0		80.0	544.7	10.7	66.4	210.3	129.3	-
5- Dundas Street West & Hospital Gate	AM Peak	v/c Ratio	0.71	0.41	-	-	0.45	0.28	-	-	-	0.26	-	0.22	0.79
		LOS	B	A	-	-	C	A	-	-	-	D	-	B	B
		95% Q (m)	86.0	98.5	-	-	131.0	19.5	-	-	-	20.5	-	10.9	-
	PM Peak	v/c Ratio	0.43	0.33	-	-	0.63	0.14	-	-	-	0.58	-	0.58	0.79
		LOS	B	A	-	-	B	A	-	-	-	D	-	C	B
		95% Q (m)	21.7	71.6	-	-	192.1	11.3	-	-	-	51.4	-	38.8	-
6- Dundas Street West & Third Line	AM Peak	v/c Ratio	0.04	0.75	0.41	0.83	0.36	0.22	0.86	0.30	0.83	0.46	0.39	0.03	1.00
		LOS	B	D	A	E	B	A	E	D	C	D	D	A	C
		95% Q (m)	4.5	155.6	21.9	109.3	88.8	14.6	96.0	33.7	74.0	43.2	37.1	0	-
	PM Peak	v/c Ratio	0.10	0.74	0.46	0.83	0.69	0.17	0.87	0.31	0.84	0.80	0.41	0.09	1.03
		LOS	B	D	A	E	C	A	D	D	C	D	D	A	C
		95% Q (m)	6.4	140.5	24.1	110.5	195.2	15.3	106.3	33.9	73.2	86.7	39.0	0	-

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## 5.4 Total Traffic Operations

The total traffic operating conditions reflect the addition of site-generated traffic to the 2030 and 2035 background volumes. Background traffic lane configurations were maintained for all intersections under total traffic conditions.

Despite the proposed mitigation measures, the intersections of William Halton Parkway & Bronte Road and Dundas Street & Bronte Road are expected to continue falling short of the required performance thresholds for multiple movements and overall operations. While adding a through lane in each direction could improve operations along this major regional corridor, it is recommended that Halton Region reassess traffic operational needs following the implementation of the Dundas BRT.

The intersection of Dundas Street & Third Line continues to operate at or near capacity, with an overall v/c ratio approaching or exceeding 1.0 under both the 2030 and 2035 total traffic conditions. This does not meet minimum operating thresholds; however, no additional mitigation measures are recommended beyond continued monitoring by Halton Region and the Town of Oakville.

The intersections of William Halton Parkway & Hospital Gate, William Halton Parkway & Third Line, and Dundas Street & Hospital Gate are all expected to continue meeting minimum operating thresholds during both the AM and PM peak hours under 2030 and 2035 total traffic conditions.

The results of the 2030 and 2035 total traffic operating conditions for the AM and PM peak hours are presented in **Table 14** and **Table 15**, respectively.



Table 14 2030 Total Operating Conditions

Intersection		Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Overall
1- William Halton Parkway & Bronte Road	AM Peak	v/c Ratio	0.04	0.65	0.43	0.72	0.07	0.56	0.60	0.97	0.76	0.97	0.90	0.01	0.90
		LOS	D	E	A	E	D	A	F	E	C	F	C	A	D
		95% Q (m)	5.8	49.8	12.6	56.3	15.3	26.5	22.5	265.4	124.3	142.5	309.1	0	-
	PM Peak	v/c Ratio	0.07	0.46	0.39	1.11	0.16	1.05	0.66	1.24	0.75	1.24	0.72	0	1.14
		LOS	D	E	B	F	D	E	E	F	B	F	C	A	F
		95% Q (m)	9.0	42.7	17.2	119.9	32.9	268.6	43.3	431.5	133.4	117.3	171.8	0	-
2- William Halton Parkway & Hospital Gate	AM Peak	v/c Ratio	-	0.67		0.10	0.35	-	0.09	-	0.05	-	-	-	0.70
		LOS	-	B		A	B	-	D	-	B	-	-	-	B
		95% Q (m)	-	145.7		4.9	74.5	-	12.2	-	6.8	-	-	-	-
	PM Peak	v/c Ratio	-	0.56		0.07	0.68	-	0.26	-	0.06	-	-	-	0.72
		LOS	-	B		A	B	-	D	-	B	-	-	-	B
		95% Q (m)	-	118.1		1.5	63.1	-	30.2	-	7.4	-	-	-	-
3- William Halton Parkway & Third Line/ Glenorchy Road	AM Peak	v/c Ratio	0.19	0.27	0.30	0.04	0.30		0.58	0.14		0.02	0.01		0.71
		LOS	B	B	A	A	A		E	C		A	D		B
		95% Q (m)	27.6	95.0	70.6	3.6	43.9		51.0	11.7		3.8	3.2		-
	PM Peak	v/c Ratio	0.10	0.37	0.27	0.08	0.59		0.80	0.09		0.07	0.12		0.68
		LOS	B	B	A	A	B		E	B		C	C		B
		95% Q (m)	2.8	44.3	9.0	7.2	138.3		76.6	6.6		9.9	14.0		-
4- Dundas Street West & Bronte Road	AM Peak	v/c Ratio	1.44	0.96	0.80	1.04	0.79		0.71	1.13	0.29	1.28	1.24	0.43	1.12
		LOS	F	E	D	F	D		F	F	A	F	F	B	F
		95% Q (m)	169.3	175.8	125.1	105.5	117.8		40.2	298.2	25.8	95.4	344.7	39.8	-
	PM Peak	v/c Ratio	1.57	0.60	0.32	1.56	1.31		0.94	1.62	0.15	1.16	0.93	0.74	1.29
		LOS	F	D	A	F	F		F	F	A	F	E	C	F
		95% Q (m)	130.6	99.7	17.7	128.7	299.3		80.0	524.1	11.7	66.4	205.4	123.7	-
5- Dundas Street West & Hospital Gate	AM Peak	v/c Ratio	0.71	0.41	-	-	0.45	0.27	-	-	-	0.26	-	0.22	0.75
		LOS	B	A	-	-	C	A	-	-	-	D	-	B	B
		95% Q (m)	85.8	101.1	-	-	131.0	19.4	-	-	-	20.5	-	10.9	-
	PM Peak	v/c Ratio	0.43	0.33	-	-	0.63	0.14	-	-	-	0.58	-	0.58	0.74
		LOS	B	A	-	-	B	A	-	-	-	D	-	C	B
		95% Q (m)	21.7	71.8	-	-	192.1	11.3	-	-	-	51.4	-	38.6	-
6- Dundas Street West & Third Line	AM Peak	v/c Ratio	0.13	0.74	0.40	0.83	0.38	0.25	0.87	0.33	0.82	0.48	0.41	0.04	0.96
		LOS	B	D	A	E	B	A	E	D	C	D	D	A	C
		95% Q (m)	10.7	155.6	21.7	109.3	89.4	15.2	96.0	36.0	69.8	44.3	37.4	0	-
	PM Peak	v/c Ratio	0.12	0.74	0.46	0.83	0.69	0.17	0.88	0.32	0.84	0.83	0.43	0.09	0.99
		LOS	B	D	A	E	C	A	D	D	C	D	D	A	C
		95% Q (m)	7.4	140.9	24.0	110.5	196.5	15.5	106.6	34.5	71.5	93.6	41.3	0	-

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Table 15 2035 Total Operating Conditions

Intersection		Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Overall
1- William Halton Parkway & Bronte Road	AM Peak	v/c Ratio	0.04	0.65	0.43	0.73	0.07	0.56	0.60	0.99	0.79	1.01	0.90	0.01	0.91
		LOS	D	E	A	E	D	A	F	E	C	F	C	A	D
		95% Q (m)	5.8	49.8	12.6	57.7	15.3	24.2	22.5	269.0	139.5	153.8	309.1	0	-
	PM Peak	v/c Ratio	0.07	0.46	0.39	1.15	0.16	1.07	0.66	1.26	0.76	1.26	0.73	0	1.26
		LOS	D	E	B	F	D	F	E	F	C	F	C	A	F
		95% Q (m)	9.0	42.7	17.2	130.7	32.4	280.2	43.3	435.5	137.5	119.4	174.4	0	-
2- William Halton Parkway & Hospital Gate	AM Peak	v/c Ratio	-	0.73		0.11	0.38	-	0.09	-	0.05	-	-	-	0.73
		LOS	-	B		A	B	-	D	-	B	-	-	-	B
		95% Q (m)	-	168.1		2.8	83.5	-	12.2	-	6.9	-	-	-	-
	PM Peak	v/c Ratio	-	0.60		0.08	0.73	-	0.27	-	0.07	-	-	-	0.76
		LOS	-	B		A	B	-	D	-	B	-	-	-	B
		95% Q (m)	-	130.0		1.9	93.8	-	30.5	-	7.4	-	-	-	-
3- William Halton Parkway & Third Line/ Glenorchy Road	AM Peak	v/c Ratio	0.21	0.32	0.30	0.04	0.33		0.59	0.14		0.02	0.01		0.72
		LOS	B	B	A	A	A		E	C		D	D		B
		95% Q (m)	24.8	108.2	65.9	3.7	50.3		50.9	11.6		3.8	3.1		-
	PM Peak	v/c Ratio	0.13	0.42	0.27	0.09	0.66		0.81	0.09		0.07	0.12		0.69
		LOS	B	B	A	A	B		E	B		C	C		B
		95% Q (m)	2.1	38.1	5.6	7.3	164.1		77.2	6.6		9.9	14.0		-
4- Dundas Street West & Bronte Road	AM Peak	v/c Ratio	1.44	0.98	0.82	1.04	0.82		0.71	1.17	0.29	1.28	1.23	0.44	1.12
		LOS	F	E	D	F	D		F	F	B	F	F	B	F
		95% Q (m)	169.3	180.4	136.0	105.5	119.4		40.2	31.9.3	26.9	95.4	346.0	41.4	-
	PM Peak	v/c Ratio	1.57	0.60	0.32	1.56	1.32		0.94	1.67	0.15	1.16	0.95	0.79	1.31
		LOS	F	D	A	F	F		F	F	A	F	E	D	F
		95% Q (m)	130.6	99.7	17.7	128.7	300.0		80.0	545.0	11.7	66.4	213.3	136.5	-
5- Dundas Street West & Hospital Gate	AM Peak	v/c Ratio	0.71	0.41	-	-	0.45	0.28	-	-	-	0.26	-	0.22	0.79
		LOS	B	A	-	-	C	A	-	-	-	D	-	B	B
		95% Q (m)	86.0	101.1	-	-	131.0	19.5	-	-	-	20.5	-	10.9	-
	PM Peak	v/c Ratio	0.43	0.33	-	-	0.63	0.14	-	-	-	0.58	-	0.58	0.79
		LOS	B	A	-	-	B	A	-	-	-	D	-	C	B
		95% Q (m)	21.7	71.8	-	-	192.1	11.3	-	-	-	51.4	-	38.8	-
6- Dundas Street West & Third Line	AM Peak	v/c Ratio	0.13	0.75	0.41	0.83	0.38	0.25	0.87	0.32	0.83	0.48	0.40	0.03	1.00
		LOS	B	D	A	E	B	A	E	D	C	D	D	A	C
		95% Q (m)	10.7	155.6	22.4	109.3	89.4	15.2	96.0	36.0	74.0	44.3	37.4	0	-
	PM Peak	v/c Ratio	0.12	0.74	0.46	0.84	0.69	0.18	0.88	0.32	0.85	0.82	0.42	0.09	1.03
		LOS	B	D	A	E	C	A	E	D	C	D	D	A	D
		95% Q (m)	7.3	140.2	24.0	110.8	195.4	15.3	106.3	34.7	76.5	94.0	41.3	0	-

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## 6 SITE ACCESS REVIEW

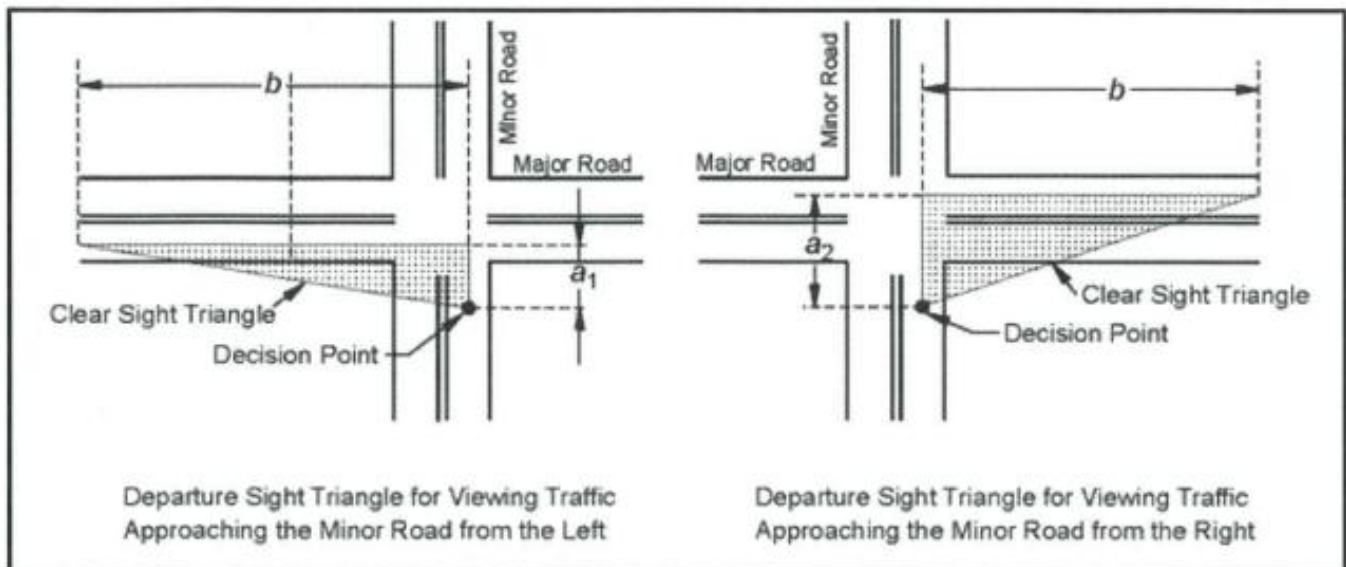
### 6.1 Access Sight Line Requirements

Chapter 9 Section 9.9.2 of TAC (2017) provides comprehensive guidance on intersection sight line requirements through the concept of sight triangles. These sight triangles are critical for ensuring that drivers can perceive and respond to potential conflicts at intersections, particularly in urban environments where space is constrained and competing curbside demands are high. Sight triangles include both approach and departure sight triangles.

Sight triangles require that the area within their bounds be free of visual obstructions, including parked vehicles, vegetation, signage, and street furniture. This has direct implications for parking setback policies near intersections, driveways, and crosswalks. Sight triangle requirements at intersections and site access points can be used to inform both geometric design and municipal policy on parking restrictions along roadways.

**Departure Sight Triangles:** These typically apply to two-way stop-controlled intersections or site access points/driveways where the minor road or driveway conflicting movement is required to come to a stop and the major road is uncontrolled (is not required to stop). Departure sight triangles as defined by TAC are shown in

**Figure 10.**



**Figure 10 Departure Sight Triangle (TAC Figure 9.9.2)**

Departure sight triangles ensure that drivers stopped on the minor road can see approaching traffic on the major road and select a gap in traffic that allows them to complete a crossing or turning maneuver without interfering with major-road traffic operations. In urban settings this is applicable for side streets intersecting collectors or arterials under two-way stop control conditions. Sight triangles also allow the drivers of vehicles on the major road to see any vehicles stopped on the minor-road approach and to be prepared to slow or stop if needed.

This study focuses on driveways with stop control on the minor road. The measurement of distance  $a_1$  and  $a_2$  depends on the location of the stopped vehicle prior to entering the roadway. TAC suggests 4.4m to 5.4m as a desirable value for this dimension (edge of travel lane to driver's eye at decision position). Observations have also shown that major road drivers will reduce their speed by as much as 30% when minor road vehicles turn on the major road. The recommended dimension 'b' for sight triangles depends on the type of intersection control. For additional information on sight triangle requirements for uncontrolled intersections refer to TAC Section 9.9.2.3.

For minor road stop-controlled intersections (two-way stop control), three movements are considered:

1. Left turn from the minor road (B1)
2. Right turn from the minor road (B2)
3. Crossing the major road from the minor road approach (B3)

TAC Intersection Sight Distance requirements are provided in **Figure 11** (TAC Table 9.9.4 Left Turn from Stop) and **Figure 12** (TAC Table 9.9.6 Right Turn from Stop and Crossing Maneuver).

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	41.7	45
30	35	62.6	65
40	50	83.4	85
50	65	104.3	105
60	85	125.1	130
70	105	146.0	150
80	130	166.8	170
90	160	187.7	190
100	185	208.5	210
110	220	229.4	230
120	250	250.2	255
130	285	271.1	275

**Figure 11 Intersection Sight Distance, B1 Left Turn from Stop (TAC Table 9.9.4)**

It is recommended that 95 m to 105 m of sight distance is provided in the form of an intersection sight triangle to enable vehicle maneuvers from the minor road without impeding major road traffic (does not required major road traffic to reduce speed to less than 70% of initial speed). For a 50 km/hr posted speed zone, this translates to ensuring that major road traffic can maintain speeds of 35 km/hr or greater when accommodating entering vehicle from the minor roadway. These values can be used for determining minimum parking setbacks near intersections, driveways, and crosswalks to ensure that parked vehicles do not obstruct sight lines.

Note that many municipalities have established parking bylaws that specify parking setback requirements. While TAC sight triangles can provide guidance on recommended parking setbacks at intersections and driveways, it is not intended to overrule municipal bylaws. Note that for 50 km/hr posted speed zones a minimum Stopping Sight Distance of 65 m is recommended by TAC.

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	36.1	40
30	35	54.2	55
40	50	72.3	75
50	65	90.4	95
60	85	108.4	110
70	105	126.5	130
80	130	144.6	145
90	160	162.6	165
100	185	180.7	185
110	220	198.8	200
120	250	216.8	220
130	285	234.9	235

**Figure 12 Intersection Sight Distance, B2 Right Turn from Stop and B3 Crossing Maneuver (TAC Table 9.9.6)**

Based on a review of the proposed site plan as shown in **Appendix 4**, the proposed development will be served by three access points. This includes one right-in/right-out access point on William Halton Parkway, and two full-movement access points on the Glenorchy Road extension.

#### 6.1.1 William Halton Parkway Access

Available sight distance for the William Halton Parkway access point for departing vehicles turning right is approximately 210m (looking to the left towards the William Halton Parkway/Glenorchy Rd intersection). This distance substantially exceeds TAC sight distance requirements of 95m. As this is a right-in/right-out access point, no other sight lines are required.

Available sight distance at this location also meets the requirements specified by the Halton Region Access Management Guideline. Access detail design should conform to geometric design criteria specified in the Access Management Guideline, including driveway width, curve radii, and clear throat length. Detail design should also ensure that the appropriate design vehicle is used to assess vehicle turning requirements.

#### 6.1.2 Glenorchy Road Access

For the full-movement access points on Glenorchy Road, the northern most access point has approximately 90m of sight distance for existing vehicles (looking to the right) due to the constraint imposed by the horizontal road curvature. This does not meet the 105m TAC sight distance requirement for left turn from stop for a 50 km/hr design speed. Available sight distance for Glenorchy Road north access exiting vehicles looking to the left exceeds 300m. As a result, the northern Glenorchy Road access should restrict the left-out movement.

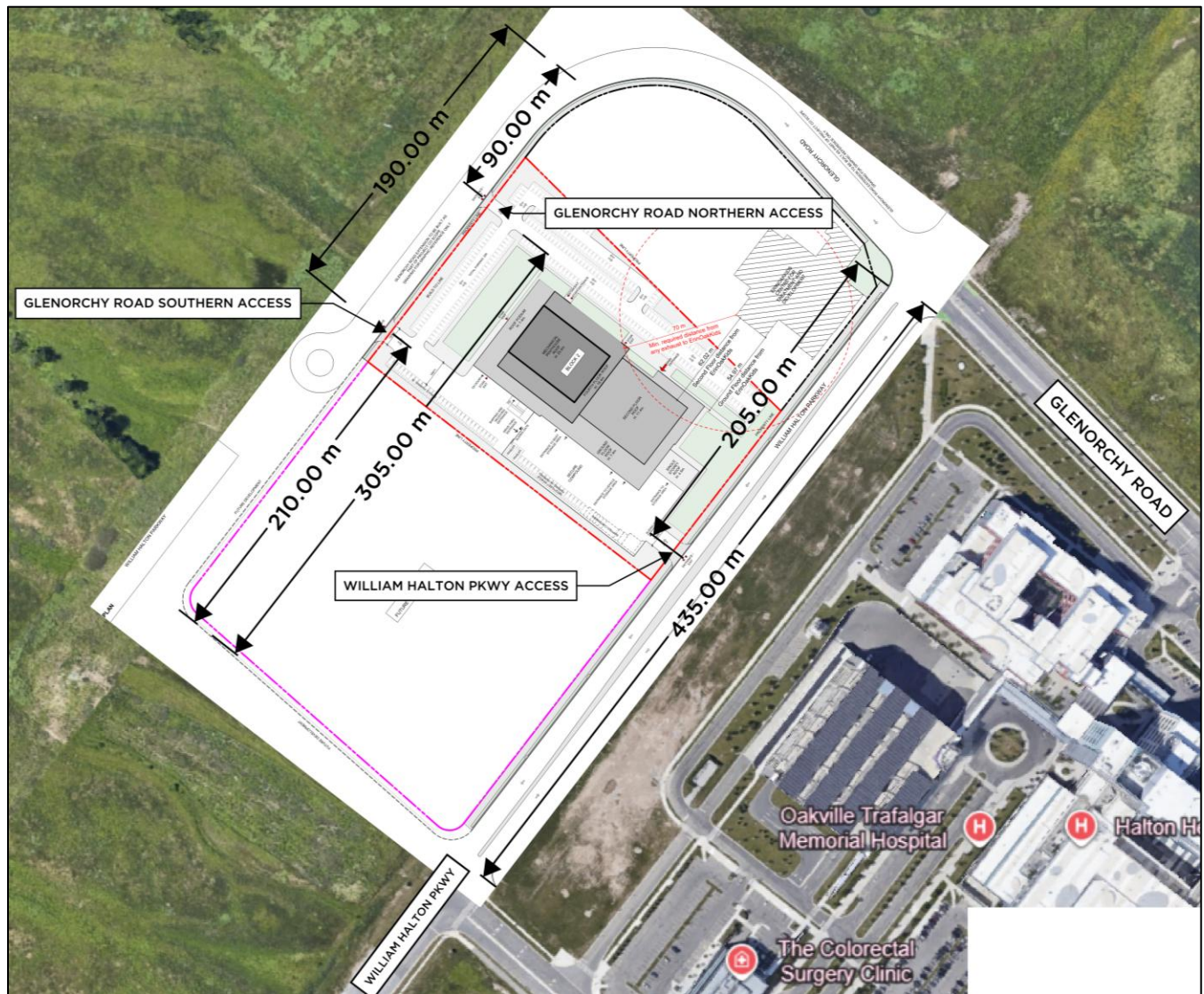
The left-in, and right-in/right-out movements at this location can be safely permitted based on available sight lines.



The southern Glenorchy Road access has approximately 190m of available sight distance for exiting vehicles looking to the right, and over 200m looking to the left. These distances substantially exceed all TAC sight distance requirements. As a result, the southern Glenorchy Road access can safely operate as full-movement driveway.

Similar to the William Halton Parkway access, detail geometric design of the Glenorchy Road access should ensure that driveway width, curve radii, and clear throat length meet the appropriate municipal design criteria standards. Detail design should ensure that the appropriate design vehicle is used to assess vehicle turning requirements.

Available sight lines for the proposed development site access points are shown in **Figure 13**.



**Figure 13 Available Sight Lines for the Proposed Development Site Access Points**

## 7 PARKING NEEDS ASSESSMENT

### 7.1 Vehicle Parking Space Requirements

The proposed development site includes 250 staff/visitor parking spaces, a mix of 30 spaces for service, deliveries, and loading-related activities, and 20 MECP fleet parking spaces for a total of 300 parking spaces including fleet vehicles. It is noted that an estimated 60 on-street parking spaces may be available on Glenorchy Road to supplement on-site parking.

Aplin Martin was directed to apply the Town of Oakville Zoning Bylaw 2009-189, Section 5.1B (Minimum Number of Parking Spaces) as the governing regulation for this study. The two primary building floor area definitions considered in the parking review were *Net Area* and *Gross Floor Area*. **Table 16** presents the site's floor areas based on the applicable site uses.

Site Use Area	Net Area (m <sup>2</sup> )	Gross Area (m <sup>2</sup> )
Laboratory (Research and Development)	5,177	7,248
Science Workshop (Research and Development)	2,410	3,374
General Office (Research and Development)	3,587	4,927
Outside Storage (Research and Development)	245	294
Secure Compound (Outside Storage)	606	NA

*\*Site usage is intended for a vehicle repair facility only*

**Table 16 Town of Oakville Zoning Bylaw 2009-189, Section 5.1B Minimum Number of Parking Spaces**

Net Area refers to the usable space within a building's interior, such as workstations, offices and rooms. Typically excluded from this floor area calculation are stairs, lifts, restrooms, hallways, columns, walls, HVAC, etc.

Gross Area refers to the total area within the building envelope, including non-usable areas (elevators, stairwells, share lobbies, etc.) in addition to the usable area.

In compliance with the Town of Oakville's Zoning Bylaw 2009-189, the building's Leasable Floor Area (LFA) was designated as the area used for this study's parking footprint calculations.

As such, the Net Area provided in the site plan's *Summary of Space Needs* was therefore interpreted as the leasable area, refer to **appendix 4** for a full breakdown of the development's footprints.

Using the net areas provided, 11,419 m<sup>2</sup> LFA of Research and Development usage, with a minimum rate of 1 space / 37m<sup>2</sup> LFA, was calculated to have a minimum parking requirement of 309 spaces. The maximum parking requirement of 1 space/30m<sup>2</sup> LFA was calculated to be 381 spaces.



For the outside storage and secure compound building components, a classification of Outside Storage was assumed for the 606 m<sup>2</sup> LFA, with no parking required. These results are tabulated below in **table 17**.

Use	Floor Area	Minimum Rate	Minimum Parking Required	Maximum Rate	Maximum Parking Allowed
Research and Development	11,419	1 space / 37m <sup>2</sup> LFA	309	1 space / 30m <sup>2</sup> LFA	381
Outside Storage	606	-	-	-	-
<b>Total</b>		-	<b>309</b>	-	381

**Table 17 Town of Oakville Zoning Bylaw 2009-189, Section 5.1B, Minimum Parking Requirements**

The bylaw therefore stipulates a parking minimum of 309 spaces, with a maximum of 381 spaces. Based on the proposed on-site parking supply of 250, and an estimated 60 on-street parking spaces (on Glenorchy Road), the Science Facility Complex fulfills the Town of Oakville's Zoning Bylaw 2009-189 Section 5.1B minimum and maximum parking requirements.

The bylaw's rationale of "space/LFA" has been considered a conservative approach for the proposed complex's needs, as the complex is not expected to function as a typical workspace. While the complex contains a mix of offices and laboratories – staff will not be occupying both spaces simultaneously. One staff member may require one office to support their laboratory, and vice-versa. Therefore, a parking requirement calculated on the complex's square-footage would overestimate the parking need.

It is the Ministry of the Environment, Conservation, and Parks; as well as the Ministry of Labour's official policy to provide workspaces for every full-time equivalent position – as there are 250 workspaces, the facility has planned for a peak occupancy of 250 staff. ITE Land Use Code 710 (General Office) identifies an average parking demand of approximately 0.79 spaces per employee; applied to a peak staff complement of 250, this equates to approximately 198 spaces. A 15% operational buffer (+30 spaces) is recommended to accommodate daily fluctuations, visitor activity, and operational considerations such as snow storage, resulting in a total supply of 228 spaces. Therefore, the proposed parking supply of 250 staff spaces exceeds the ITE-based demand projections, and is considered sufficient to support the functional needs of the facility. Please note, the final parking count for the development will be determined as part of detailed design. However, the proposed minimum parking number of 250 parking spaces includes a generous buffer and is expected to sufficiently cover any minor changes in design and parking demand.

The Town of Oakville Zoning Bylaw 2009-189 Section 5.2 also specifies the need for accessible parking spaces on-site based on the total number of required parking spaces in all parking areas on the lot. In accordance with the Bylaw's Table 5.2, 309 parking spaces require a total of 8 accessible parking spaces. Although not illustrated, the final detailed design will include identified accessible parking spaces.

It is noted that the site will be served by a future Bus Rapid Transit (BRT)/Transit Priority service along Dundas Street West and future Transit On-Demand that is expected to reduce parking demand. The site is also well served by existing active transportation facilities along both Dundas Street West and Hospital Gate.

In addition to being accessible by future fast and frequent transit service, the site will meet bicycle parking requirements and is expected to incorporate several Transportation Demand Management (TDM) initiatives that are expected to further reduce parking demand.

## 7.2 Bicycle Parking Space Requirements

**Table 18** summarizes the required minimum number of bicycle parking spaces for this development, based on the City's Zoning Bylaw 2009-189, Section 5.7.1 requirements for non-residential land uses.

Land Use	Number of Spaces	Bicycle Parking Space Requirement	Required Number of Bicycle Parking Spaces
Non-residential	309	7% of automobile parking-spaces, including a minimum of 5-bicycle parking spaces-visitor	<b>22 + 5</b>

**Table 18 Town of Oakville Zoning Bylaw 2009-189, Section 5.7 Bicycle Parking and End-of-Trip Requirements**

Based on the City's bylaw requirements for non-residential land-use, 24 bicycle parking spaces are required. Note that according to bylaw Table 5.7B, 5 bicycle parking spaces for visitors must also be provided – totalling 27 minimum bicycle parking spaces.

Bicycle parking should be in the form of lockers, compounds, or rooms with lockable doors securely located in convenient, well-lit areas accessible to visitors and subject to casual surveillance.



## 8 TRANSPORTATION DEMAND MANAGEMENT

The Regional Municipality of Halton has established transportation objectives through its Transportation Master Plan to 2031, aligning with provincial growth policies and the need to manage increasing travel demand. As one of the fastest growing regions in Ontario, Halton's long-term strategy recognizes that continued reliance on private vehicle travel is not sustainable from a financial, environmental, or network capacity perspective. The Plan places emphasis on Transportation Demand Management, transit investment, and active transportation to reduce auto trips and shift travel behavior over time.

Historically, travel in Halton has been dominated by private vehicles. In 2006, approximately 92% of trips were made by auto (driver and passenger combined), with the remaining 8% made by non-auto modes, including transit, walking and cycling. This high auto dependency reflects the Region's suburban development pattern, dispersed employment areas, and strong connections to the Greater Toronto and Hamilton Area. By 2031, Halton Region has set a target for mode splits to 20% transit, 5% active transportation, 3% TDM, and 72% auto. These mode split targets form the foundation for the Region's Transportation Demand Management Strategy.

Transportation Demand Management (TDM) refers to a range of strategies designed to reduce reliance on single-occupant vehicles and encourage a more balanced mix of travel options, especially during peak commuting periods. TDM initiatives encourage residents and employees to reduce the number and length of trips they make, shift travel outside peak periods, and choose alternatives such as transit, carpooling, cycling, walking, and telecommuting. TDM measures are essential to achieving the 2031 objectives and ensuring that future growth does not purely translate into proportional increases in vehicle congestion.

TDM initiatives in Halton include the region working with Local Municipalities, Metrolinx, and private local employers to promote TDM measures through Smart Commute. Additionally, the Town of Oakville has identified TDM strategies in the 2025 Oakville Transportation Master Plan. Some of the key TDM strategies include:

- Demand-based dynamic parking pricing
- Employer focused on sustainable commuting agreements and smart commute employer TDM programs
- Improve trip-end facilities (bike parking, showers, lockers)
- Designated carpool lots
- Active transportation amenities
- Digital content for sustainable transportation education

The Town of Oakville and Regional Municipality of Halton TDM strategies present opportunities for application at the MECP-MLITSD Science Facility Complex. As a new 229,000-square-foot provincial research and laboratory facility, the Science Facility Complex is well situated to support and benefit from sustainable travel initiatives. Its 7.5-acre provincially owned site sits within an established institutional and office district across from Oakville Trafalgar Memorial Hospital, an area already served by strong multimodal infrastructure, including continuous sidewalks and a multi-use pathway along William Halton Parkway. Existing local bus routes and a frequent transit line provide immediate transit access, while the planned Dundas Bus Rapid Transit corridor will further enhance regional connectivity. With a future BRT stop located directly at the hospital, there is an opportunity for the Science Facility Complex to implement TDM measures that encourage transit use, walking, cycling, and carpooling, supporting both municipal and regional goals for more sustainable travel behavior.

## 8.1 Applicable TDM Measures

The TDM measures and strategies proposed for the Science Facility Complex consider the land-use, its location, accessibility by alternative modes of transportation, and alignment with the Oakville Transportation Master Plan and Halton Region Transportation Master Plan.

For each of the applicable TDM measures, a cost-benefit assessment is provided using a three-star rating scale representing the potential cost-effectiveness of the proposed measure. Under this framework, one-star represents a low cost-benefit rating, and three-stars represents a high cost-benefit rating.

The cost-benefit assessment considers costs and benefits using the scales shown in **Table 19**.

Cost Assessment (CA)	Benefit Assessment (BA)
Based on average yearly costs per case study data: \$ = Less than \$10k \$\$ = \$10k-\$100k \$\$\$ = More than \$100k	Expected reduction in Vehicle Kilometres Travelled and Single-Occupancy Vehicle mode share: ◆ = Less than 2% VKT reduction ◆◆ = 2%–10% VKT reduction ◆◆◆ = 10% or greater VKT reduction

**Table 19 Cost and Benefit Assessment Framework**

The following TDM measures and strategies are applicable for the proposed development:

1	<i>Provision of Secure Bicycle Parking</i>	CA: \$\$\$	BA: ◆◆	C/B: ★★
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Secure bicycle parking that is accessible, safe and convenient is vital to promote cycling as a viable alternative to driving a personal vehicle.

The secure bicycle parking rooms should be located at-grade with a separate access point from motorised vehicles to ensure that cyclists are not required to navigate the steep inclines in a parkade or interact with incoming and outgoing vehicle traffic.

These bicycle parking rooms, or through the use of bicycle parking boxes on unused parking spaces, should allow for the parking of cargo bikes and other accessible bikes.

The secure rooms and storage areas should be well-lit with CCTV monitoring at all times of the day.

2	<i>Trip-end Facilities</i>	CA: \$	BA: ◆	C/B: ★★
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High-quality showers and change rooms for employees who bike or walk to work are an essential component of any facility seeking to promote active transportation as a viable commuting option.

Trip-end facilities should be conveniently located, well-maintained, and easily accessible from secure bicycle parking areas to create a seamless end-of-trip experience for active commuters. Providing these amenities removes a significant barrier to cycling and walking to work, particularly for employees at office and institutional developments where professional appearance is expected. Well-appointed facilities signal to employees that

sustainable commuting is actively supported, contributing to higher rates of active transportation adoption and reduced reliance on single-occupancy vehicles.

3	<i>Partnership with Smart Commute</i>	CA: \$	BA: ◆◆	C/B: ★★★
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Establishing a partnership with Smart Commute is an effective strategy that supports long-term reductions in single-occupant vehicle travel. Smart Commute is a regional program delivered in partnership with municipalities and major employers across the Greater Toronto and Hamilton Area, including participation within Oakville. The program works directly with workplaces to develop customized commuting solutions that encourage transit use, carpooling, cycling, walking, and other sustainable travel options.

Through a Smart Commute partnership, the Science Facility Complex could access a range of employer-focused services, including employee commute surveys, customized trip planning support, carpool ride-matching platforms, promotional campaigns, and educational workshops. These tools help employers better understand how staff are travelling and identify targeted measures to reduce drive-alone commuting. Smart Commute coordinators also assist with implementing programs such as carpool parking incentives, emergency ride home programs, and commuter challenges that build a culture of sustainable travel within the workplace.

4	<i>Providing Transit Passes or Subsidies</i>	CA: \$\$\$	BA: ◆◆◆	C/B: ★★
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Providing transit passes or employer-subsidized transit programs is an effective strategy to encourage a shift away from single-occupant vehicle travel and support more sustainable commuting patterns. Financial incentives reduce the cost barrier associated with transit use and signal that the development actively supports alternative transportation choices.

The site is served by multiple routes operated by Oakville Transit, including conventional local bus routes and the town's higher-frequency corridor service. In addition, the planned Metrolinx Dundas Bus Rapid Transit corridor will further enhance connectivity across the Greater Toronto area, improving regional access to the Science Facility Complex. Employees could utilize a PRESTO card to access both local Oakville Transit services and regional connections, creating a seamless travel experience.

Corporate transit subsidies could take the form of fully funded or partially reimbursed monthly PRESTO passes, payroll deduction programs with employer top-ups, or bulk-purchase discount agreements coordinated with Oakville Transit.

5	<i>Real-time Transportation Information to Employees</i>	CA: \$	BA: ◆	C/B: ★★
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Interactive displays are recommended to be provided within the lobby and in elevators of the complex to provide employees and visitors with an array of information including transportation updates. Examples of information include expected arrival time for the next bus on nearby routes using real-time transit data.



6	<i>On-site Transit/Active Transportation Wayfinding</i>	CA: \$\$	BA: ◆◆	C/B: ★★
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The proposed Science Facility Complex may consider implementing onsite wayfinding to transit and active transportation connections to direct employees and visitors to nearby transit stops, cycling infrastructure and pedestrian paths.

Well-designed wayfinding contributes to a positive experience at a workplace, making it more convenient for people to connect with sustainable transportation options. This may also enhance the public perception of the Complex and improve satisfaction for employees and visitors.

7	<i>TDM Marketing Initiatives</i>	CA: \$	BA: ◆◆◆	C/B: ★★★
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Providing transportation information can help facilitate non-auto trips. This information should help employees and visitors view and understand their travel options before establishing new travel habits, particularly given the strong transit and active transportation network serving the Science Facility Complex. In turn, this will increase the chance that these alternatives are included in their travel patterns after beginning work at the facility.

The Science Facility Complex, in collaboration with the Town of Oakville, Halton Region, Oakville Transit, and Metrolinx, could provide information about transportation options in an information package that can include items such as:

- Existing transit services, including Oakville Transit service maps with seven-day schedules for nearby stops, relevant fare information, and details on the frequent transit line serving the site. Information should also highlight the planned Dundas Bus Rapid Transit corridor, including expected service frequency and the location of the future BRT stop at Oakville Trafalgar Memorial Hospital.
- Maps of surrounding active transportation facilities outlining available sidewalk and cycling facilities. Information should include local and regional cycling maps, cycling and pedestrian safety tips, nearby destinations that can be walked or biked to, and information on active transportation events.
- Transportation-share options, including information on carpool programs supported through Smart Commute Halton, as well as any available car-share or bike-share services in the area.

The Science Facility Complex would be responsible for coordinating the information packages with information obtained from Oakville Transit and Metrolinx. The information package would be provided to tenants at the time of move-in.

## 9 CONCLUSIONS AND RECOMMENDATIONS

The objective of this Traffic Impact Study was to identify potential impacts and required improvements to the surrounding transportation road network as a result of the additional traffic generated by the proposed development.

This study analyzed the operating conditions at the study intersections for the existing conditions, with background development, and total traffic (post-development) conditions. The analysis for future scenarios was carried out for the full build out (2030), and full build-out + 5 years (2035) horizon years.

This study led to the following conclusions and recommendations:

### **Summary of Network Road Improvement Recommendations**

#### **Existing Operation Conditions**

- Dundas Street & Bronte Road
  - o During peak AM & PM hours, this intersection operates beyond its available capacity.
  - o Recommended Mitigation Measure(s):
    - Dual southbound left-turn storage lanes with a lead/lag traffic split to eliminate potential SBL-NBL conflicts.

#### **2030 Background Operation Conditions**

- William Halton Parkway & Bronte Road (As recommended within the Palermo Development TIS).
  - o During peak AM & PM hours, this intersection operates below the required minimum performance thresholds.
  - o Recommended Mitigation Measure(s):
    - Eastbound intersection leg with two thru lanes and separated right-turn and left-turn storage lanes.
    - One westbound thru lane, and dual westbound left-turn and right-turn storage lanes.
    - Dual westbound right-turn movement to operate as a protected with overlap split.
- All Intersections
  - o Recommended Mitigate Measure(s):
    - Optimized traffic splits while maintaining the existing cycle lengths throughout the study area.

### **Summary of TDM Recommendations**

- Applicable TDM Measures for Consideration:
  - o Provision of secure bicycle parking (\$\$\$).
  - o Trip end facilities (\$).
  - o On-site transit/active transportation wayfinding (\$\$).
  - o Partnership with Smart Commute (\$).
  - o Providing transit passes or subsidies (\$\$\$).



- Real-time transportation information to employees (\$).

### **Site Access Review**

- Based on available sight distances, the northern Glenorchy Road access should restrict the left-out movement. The left-in, and right-in/right-out movements at this location can be safely permitted based on available sight lines.
- The southern Glenorchy Road access can safely operate as a full-movement driveway.
- Detail geometric design of the Glenorchy Road access should ensure that driveway width, curve radii, and clear throat length meet the appropriate municipal design criteria standards.
- Available sight distance for the proposed right-in/right-out William Halton Parkway access substantially exceeds TAC sight distance requirements. Available sight distance at this location also meets the requirements specified by the Halton Region Access Management Guideline.
- William Halton Parkway access detail design should conform to geometric design criteria specified in the Halton Region Access Management Guidelines, including driveway width, curve radii, and clear throat length.

### **Parking Review**

- The development's Leasable Floor Area (LFA) was used as the basis for parking calculations, in compliance with the Town of Oakville Zoning Bylaw 2009-189, with Net Areas from the site plan's Summary of Space Needs interpreted as leasable area.
- The 11,419 m<sup>2</sup> Research and Development LFA warrants a minimum parking requirement of 309 spaces (1 space/37m<sup>2</sup> LFA) and a maximum of 381 spaces (1 space/30m<sup>2</sup> LFA).
- The 606 m<sup>2</sup> outside storage and secure compound area, classified as Outside Storage, does not require parking.
- In total, Zoning Bylaw 2009-189 Section 5.1B stipulates a minimum of 309 and a maximum of 381 parking spaces for the development.
  - Given the unique operations of the proposed facility, a minimum of 250 parking spaces is expected to satisfy parking demand.
  - It should be noted that approximately 60 on-street parking spaces may be available on Glenorchy Road to supplement on-street parking.
- The site meets bicycle parking requirements and is expected to integrate several Transportation Demand Management (TDM) initiatives to support future fast and frequent transit service accessibility.
  - The site's proximity to active transportation facilities along Dundas Street West and Hospital Gate, combined with planned Transportation Demand Management (TDM) initiatives, is expected to further reduce parking demand.
- Per Zoning Bylaw 2009-189 Section 5.7B, a minimum of 27 bicycle parking spaces is required (22 standard + 5 visitor spaces), which the development is expected to satisfy.





## Appendix 1: Terms of Reference

January 8, 2026

**A&M Project Number:** 25-7027

**Attention:** Paul Barrette, Manager, Planning Services  
Town of Oakville

Ayesha Khan, Project Manager, Transportation Development Review  
Halton Region

**Subject:** Terms of Reference for the Transportation Impact Study (TIS) supporting the Proposed Development of the MECP-MLITSD Science Complex – **Revision 1**

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Aplin & Martin Consultants Ltd. (Aplin Martin) has been retained by Sajecki Planning Inc. to provide transportation consulting services in support of the proposed MECP Science Facility Complex, located within the Oakville Land Assembly (OLA) in the Town of Oakville, Ontario.

This Terms of Reference (ToR) has been revised to address comments received from the Town of Oakville and Halton Region as part of their review of the initial ToR submission dated July 14, 2025. The Town of Oakville's and Halton Region's comments are provided in **Appendix 1** for reference.

At the time of the initial ToR submission, it was anticipated that a Parking Justification Report may be required to support a potential parking reduction for the site. However, it has since been confirmed by the project team that the proposed development will meet the applicable zoning by-law parking requirements. As such, no additional parking justification or supporting parking studies are required.

This ToR outlines the proposed scope of work for the Transportation Impact Study (TIS), in accordance with the following:

- Development Application Guidelines: Transportation Impact Analysis – Town of Oakville
- Transportation Impact Study Guidelines – Halton Region

This study will incorporate findings from previous due diligence, including the 2016 Transportation Memorandum and the 2018 Halton Courthouse Transportation Impact Study.

Upon receiving confirmation from the Town of Oakville and the Halton Region to proceed, Aplin Martin will undertake the work as outlined in this ToR. Should you have any questions or require further clarification, please do not hesitate to contact us to discuss further.

Yours truly,

**APLIN & MARTIN CONSULTANTS LTD.**



**Saavin Khurana, P.Eng., PMP | Senior Transportation Engineer**  
skhurana@aplinmartin.com

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## 1 PROJECT BACKGROUND

The proposed MECP-MLITSD Science Complex facility is a provincially led initiative to consolidate and modernize the Ministry of Environment, Conservation, and Parks (MECP) and the Ministry of Labour, Immigration, Training and Skills Development (MLITSD) operations into a single, state-of-the-art facility. The new complex will be approximately 229,000 square feet and will include laboratory, science workshop, and office components.

The facility is to be located on a 7.5-acre parcel within the Oakville Land Assembly (OLA), a larger tract of provincially owned land situated north of Dundas Street and south of Highway 407 in the Town of Oakville. The site is immediately north of the Oakville Trafalgar Memorial Hospital and adjacent to ErinOakKids. An adjacent undeveloped site (initially planned as a courthouse in 2018) immediately west of the Science Facility Complex, and coordination between the two projects may be required throughout the planning and development process.

Previous planning applications submitted in 2018 for the adjacent potential courthouse included a zoning by-law amendment (approved) and a draft plan of subdivision (lapsed in 2023). A new draft plan of subdivision is expected to be required to create development blocks for both the potential courthouse and the Science Facility Complex. The study will evaluate the adequacy of the proposed parking supply, identify any off-site infrastructure upgrades required to accommodate the development, and support the removal of Holding Provision H22 and other planning approvals.

## 2 PROPOSED TRANSPORTATION IMPACT STUDY (TIS) SCOPE

### 2.1 Study Area

The study area encompasses the arterial and collector road network surrounding the OLA, specifically focused on the northeast quadrant of the William Halton Parkway and Hospital Gate intersection. It includes both existing and planned roadways and intersections that will serve the proposed MECP- MLITSD Science Facility Complex.

The following intersections are recommended for inclusion in the MECP- MLITSD Science Facility Complex TIA:

- William Halton Parkway & Bronte Road
- William Halton Parkway & Hospital Gate
- William Halton Parkway & Third Line
- Dundas Street West & Bronte Road
- Dundas Street West & Third Line
- Dundas Street West & Hospital Gate

This study will also include analysis of the proposed site access intersections with:

- William Halton Parkway (right-in/right-out)
- Glenorchy Road

**Figure 1** shows the project study area including the study intersections and site access locations.

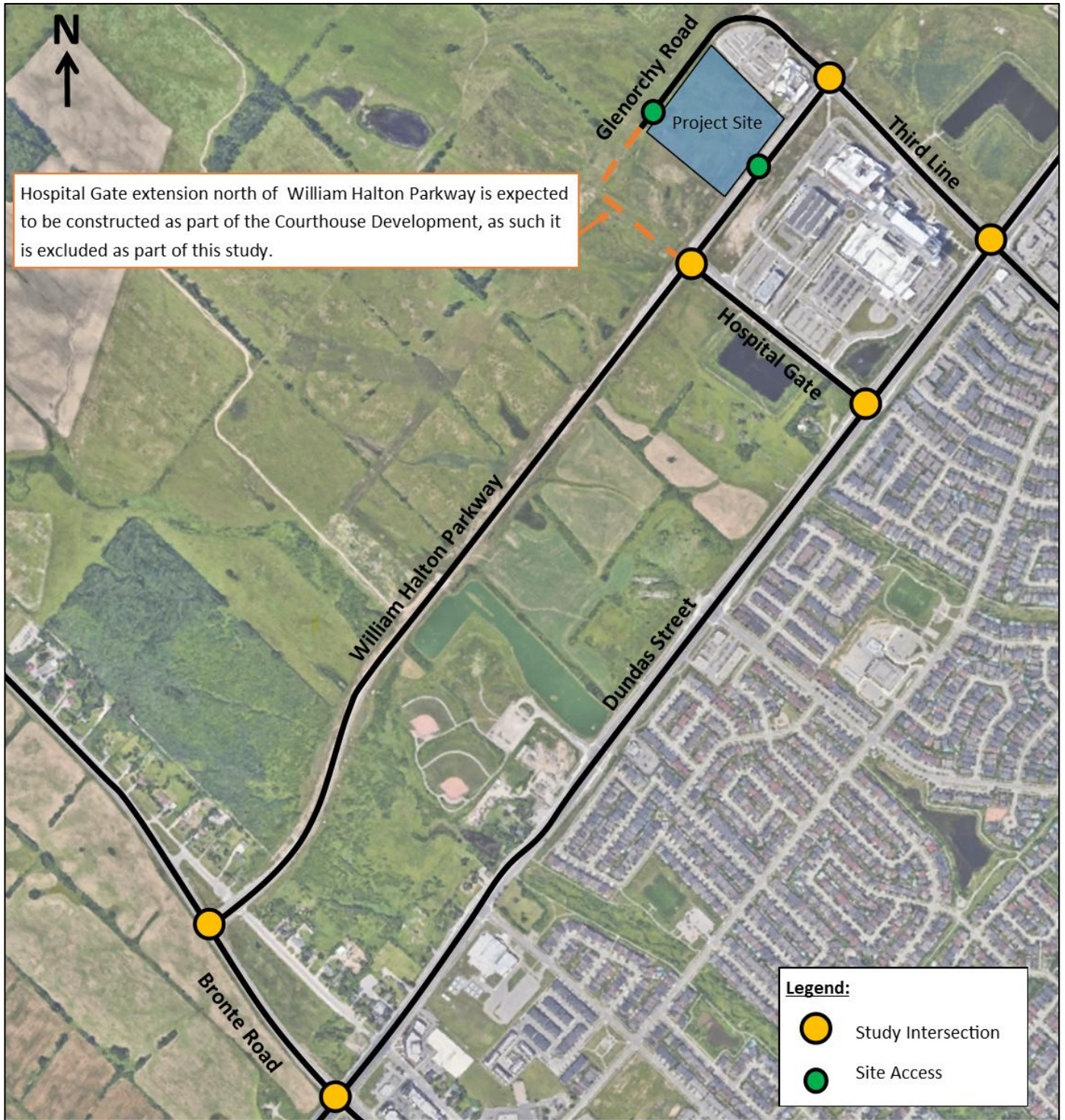


Figure 1 Project Study Area

## 2.2 Horizon Years & Analysis Scenarios

The proposed development is currently assumed to be completed in a single phase. The analysis will be carried out for the following horizon years:

- Existing Conditions (2025);
- Full Build-out (2030); and
- Full Build-out + 5 Years (2035).

Furthermore, the analysis will be conducted for the following peak periods:

- Weekday AM Peak Hour (7:00 a.m. – 9:00 a.m.)
- Weekday PM Peak Hour (2:30 p.m. – 5:30 p.m.)

These periods represent the highest traffic volumes on the surrounding road network and are consistent with the Town of Oakville and Halton Region's expectations for development-related traffic studies. If the MECP-MLITSD facility is expected to generate unique peak periods (e.g. shift changes or deliveries), additional peak hour analyses may be included based on consultation with Town staff.

## 2.3 Existing Background Conditions

The assessment of existing (and future) background conditions will be conducted in accordance with the Town of Oakville's Development Application Guidelines for a Transportation Impact Analysis. Existing operating conditions will be assessed at all study intersections for the peak periods, and will include:

- Site and Area Description: Overview of the MECP- MLITSD Science Complex site and surrounding land uses
- Study Area Description: Description of the study area boundaries
- Road Network: Description of the classification, jurisdiction, number of lanes, speed limits, and cross-sections of roads within the study area
- Traffic Volumes: Existing turning movement counts at study intersections\*
- Transit Service: Summary of existing Oakville Transit routes and service levels in the study area
- Bicycle and Pedestrian Facilities: Inventory of existing pedestrian and cycling infrastructure, including sidewalks, multi-use trails, and crossings
- Traffic Intersection Operations: Capacity analysis of existing conditions using industry standard software (e.g. Synchro/SimTraffic), including level of service (LOS), volume-to-capacity (v/c) ratios, and queuing

\* Where recent data is unavailable, Aplin Martin will coordinate with the Town of Oakville to determine whether new traffic counts are required.

## 2.4 Future Background Conditions

The future background conditions analysis will evaluate traffic operations in the study area at the anticipated opening year of the MECP-MLITSD Science Complex, excluding site-generated traffic. This scenario will establish the baseline against which the incremental impacts of the proposed development will be assessed. The analysis will include:

- Planned Road Network Improvements: Identification and incorporation of all relevant road infrastructure projects planned by the Town of Oakville and Halton Region, including:
  - Extension of Glenorchy Road through the Oakville Land Assembly

- Any other improvements identified by the Halton Region. The 2025 Budget and Business Plan Capital Report was reviewed, and no transportation improvements were identified within the project study area.
- Background Traffic Growth: Application of an annual background traffic growth rate (typically 2% per year, unless otherwise directed by the Town) to existing traffic volumes, based on information provided by Halton Region.
- For William Halton Parkway, the same growth rates previously applied to other developments in the area will be used to ensure consistency across corridor studies. These rates are based on the Halton Region EMME Model, which established the following 2031 PM peak hour traffic forecast volumes along William Halton Parkway. EMME results present 2,250 vehicles (westbound 1,300 / eastbound 900) between Bronte Road to Third Line, within the project study area.
- Future Background Intersection Operations: Capacity analysis of all study intersections under future background conditions during the peak periods. The analysis will include LOS, v/c ratios, queuing

As noted by the Town of Oakville, the TIS will include background traffic relating to the following two major background developments that are currently under process and at the planning stage within the study area:

- [File Nos: 24T-23002/1331 and Z.1331.02 - Palermo Village Corporation - 3069 Dundas Street West and 3278 Regional Road 25](#)
- Development located at the Southeast quadrant of Old Bronte Road and William Halton Road.
  - As the referenced development information is not publicly available, we kindly request that the Town provide the project site plan and proposed development statistics.

## 2.5 New Trips Generated by the Site

New trips generated by the development was estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. The applicable land use code is 760 – Research and Development Center.

According to the 2016 Transportation Memo prepared by Paradigm Transportation Solutions, the proposed MECP-MLITSD facility was expected to employ approximately 515 people working regular weekday business hours.

The ITE Trip Generation trip rates for the AM and PM peak hours of the adjacent road network are summarized below in **Table 1**.

Table 1 ITE Trip Generation Trip Rates for the MECP Science Facility Complex

ITE Land Use Code	Trip Rate and Directional Split					
	AM Peak Hour			PM Peak Hour		
	Rate/Equation	Inbound	Outbound	Rate/Equation	Inbound	Outbound
#760 – Research and Development Centre	0.40	85%	15%	0.38	12%	88%

**Table 2** presents the net estimated vehicle trips generated by the mixed-use development at full occupancy.

*Table 2 Site Trip Generation*

Land Use	Unit	Density	Vehicle Trips			
			AM Peak Hour		PM Peak Hour	
			Inbound	Outbound	Inbound	Outbound
Research and Development Centre	employees	515	175	31	23	173

As requested by the Town and the Halton Region, the rationale difference between the projected site trip generation and the estimates presented in the 2017 Transportation Memo reflects the methodology proposed for this analysis. The proposed site trip generation is based on ITE Trip Generation Survey data derived from comparable developments in an urban/suburban context. The selected ITE trip generation rate is consistent with the published ITE Trip Generation rates for General Office land uses, where employees typically work regular weekday business hours.

The 2017 Transportation Memo does not provide supporting documentation or rationale for the trip generation rates applied, making it difficult to validate the basis for the previously estimated site traffic volumes. Given the unique nature of the proposed land use, a first-principles or direct site-to-site comparison is not available; therefore, the use of established ITE survey data from similar employment-based land uses represents the most appropriate approach.

Based on this methodology, the proposed development is expected to generate 206 vehicle trips (175 inbound / 31 outbound) during the weekday AM peak hour and 196 vehicle trips (23 inbound / 173 outbound) during the weekday PM peak hour at full build-out. These estimates differ from the 2017 Transportation Memo, which forecasted approximately 300 to 350 peak-direction trips during the weekday AM and PM peak hours.

## 2.6 Future Total Conditions

This scenario will build upon the future background conditions and incorporate site-generated traffic to assess intersection performance and identify any required mitigation measures. Future total volumes will be estimated by superimposing the new site generated trips to the future background traffic volumes.

### 2.6.1 Trip Distribution and Assignment

Trip distribution will be developed using a combination of existing travel patterns and turning movement data, regional travel demand models (if available), and engineering judgement in consultation with Town staff. Site generated trips will be assigned to the study area network and added to the future background volumes to produce total traffic volumes.

The 2018 TIS presents information regarding the future population distribution within the Halton Region, used to determine the percentage of office trips to/from the roads approaching the Courthouse for all peak hours. Refer to **Figure 2** for the 2031 population distribution projection from the report.

**Table 2** shows the courthouse visitor and office trip distribution, based on the population distribution projection. It is assumed that this information remains valid for the purposes of this analysis.

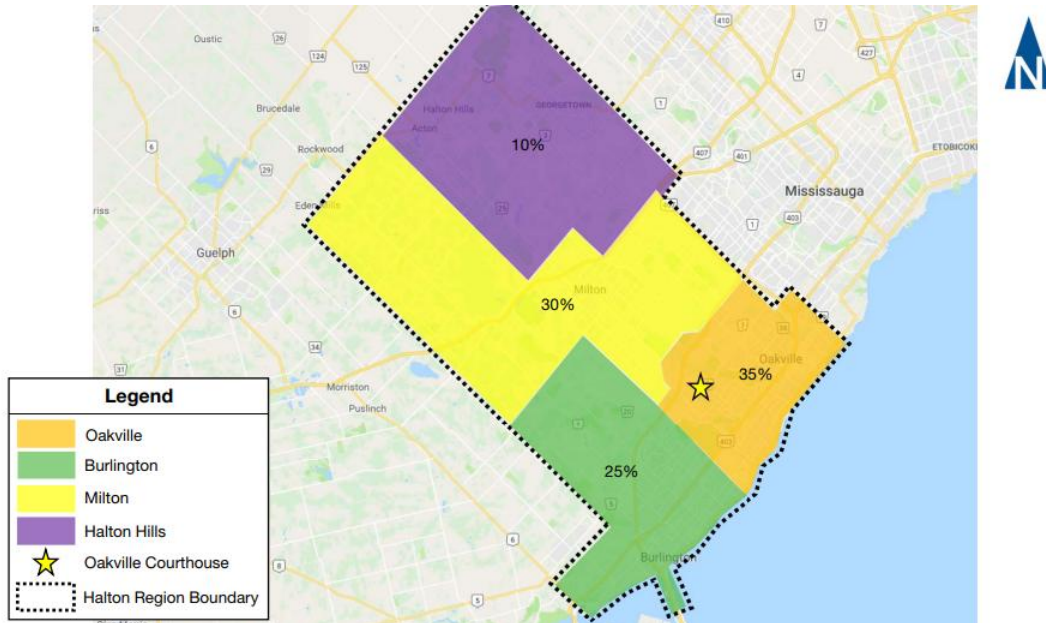


Figure 2 Distribution of 2031 Population Within Halton Region (Source: Halton Region Courthouse - Transportation Impact Study, Figure 4.4B)

Table 2 Courthouse Visitor and Office Trip Distributions (Source: Halton Region Courthouse - Transportation Impact Study, Table 4.4)

To/From	Via	% of Trips
East	Dundas Street W	15%
	William Halton Parkway	15%
West	Dundas Street W	10%
North	Bronte Road	30%
South	Bronte Road	20%
	Third Line	10%
<b>TOTAL</b>		<b>100%</b>

## 2.6.2 Analysis of Traffic Operations

Intersection capacity analysis will be conducted for the AM and PM peak hours under future total conditions. Metrics will include LOS, v/c ratios, delay and queuing. The analysis will be completed using industry-standard software (e.g. Synchro/SimTraffic) and will identify any operational deficiencies resulting from the proposed development.

If required, mitigation measures will be proposed based on the intersection capacity analysis results and according to the following acceptable threshold criteria:

### 2.6.2.1 Signalised Intersections

- Overall intersections Level of Service: LOS D or better
- Overall intersection v/c ratio: 0.85 or less
- Individual movement Level of Service: LOS E or better
- Individual movement v/c ratio: 0.90 or less

### 2.6.3 Unsignalized Intersections

- Individual movement Level of Service: LOS E or better, unless traffic volumes are very low, in which case LOS F is acceptable.

### 2.7 Site Access and Circulation

The assessment will consider key components of site access and internal circulation, including provisions for emergency vehicle access, the adequacy and location of pick-up/drop-off areas, and the design and connectivity of the internal road network.

### 2.8 Pedestrian, Cyclists and Transit Review

The study will assess existing and planned infrastructure for active transportation modes, including walking, cycling, and public transit. Relevant planning documents, both existing and proposed, will be reviewed to identify applicable policies, objectives, or improvements related to pedestrian, cyclist, and transit networks.

### 2.9 Parking Review

At the time of the initial Terms of Reference (ToR) submission, it was anticipated that a Parking Justification Report may be required to support a potential parking reduction for the site. However, it has since been confirmed by the project team that the proposed development will meet the applicable zoning by-law parking requirements. As such, no additional parking justification or supporting parking studies are required.

As part of the Transportation Impact Study (TIS), the study will reference the Town of Oakville Zoning By-law No. 2014-014, *Section 5: Parking Regulations*, to identify the number of parking spaces required for the proposed development.

In addition, a Parking Needs Assessment for the MECP–MLITSD Science Complex will be completed to evaluate the anticipated parking demand and supply associated with the proposed development. The assessment will follow the Town of Oakville’s *Development Application Guidelines for Parking Studies* and will consider the unique operational characteristics of the facility, including laboratory, workshop, and office functions. The assessment will include the following components:

- Parking Supply Analysis: Review of the proposed parking supply (on-site, on-street, and off-street) to evaluate adequacy relative to anticipated demand and zoning by-law requirements.
- Alternative Parking Strategies: Evaluation of shared parking opportunities with adjacent land uses.

# APPENDIX I

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## Town of Oakville and Halton Region Comments on the Initial ToR Submission

July 14, 2025

Our File: 25-7027

Town of Oakville  
Planning & Development  
[planningapps@oakville.ca](mailto:planningapps@oakville.ca)

**Attention:** To whom it may concern

**Re:** Terms of Reference for the Transportation Impact Assessment (TIA) and Parking Needs Assessment Supporting the Proposed Development of the MECP-MLITSD Science Complex

---

Aplin & Martin Consultants Ltd. (Aplin Martin) has been retained by Sajecki Planning Inc. to provide transportation consulting services in support of the proposed MECP Science Facility Complex, located within the Oakville Land Assembly (OLA) in the Town of Oakville, Ontario.

This Terms of Reference (ToR) outlines the proposed scope of work for the Transportation Impact Assessment (TIA) and Parking Needs Assessment, in accordance with the Town of Oakville's Development Application Guidelines and the requirements outlined in the project's planning scope of work. This study will also incorporate findings from previous due diligence work, including the 2016 Transportation Memo and the 2018 Halton Courthouse Transportation Impact Study.

Upon receiving confirmation from the Town of Oakville to proceed, Aplin Martin will undertake the work as outlined in this ToR. Should you have any questions or require further clarification, please don't hesitate to contact us to discuss further.

Yours truly,

**APLIN & MARTIN CONSULTANTS LTD.**

Chesley Blahut, P.Eng., CPESC  
Engineering Lead, GTA

CAB/nk

Enclosure  
2024-AM General Letterhead-Single Page



## PROJECT BACKGROUND

The proposed MECP-MLITSD Science Complex facility is a provincially led initiative to consolidate and modernize the Ministry of Environment, Conservation, and Parks (MECP) and the Ministry of Labour, Immigration, Training and Skills Development (MLITSD) operations into a single, state-of-the art facility. The new complex will be approximately 229,000 square feet and will include laboratory, science workshop, and office components.


The facility is to be located on a 7.5-acre parcel within the Oakville Land Assembly (OLA), a larger tract of provincially owned land situated north of Dundas Street and south of Highway 407 in the Town of Oakville. The site is immediately north of the Oakville Trafalgar Memorial Hospital and adjacent to ErinOakKids. An adjacent undeveloped site (initially planned as a courthouse in 2018) immediately west of the Science Facility Complex, and coordination between the two projects maybe required throughout the planning and development process.

Previous planning applications submitted in 2018 for the adjacent potential courthouse included a zoning by-law amendment (approved) and a draft plan of subdivision (lapsed in 2023). A new draft plan of subdivision is expected to be required to create development blocks for both the potential courthouse and the Science Facility Complex. The study will evaluate the adequacy of the proposed parking supply, identify any off-site infrastructure upgrades required to accommodate the development, and support the removal of Holding Provision H22 and other planning approvals.

## STUDY AREA

The study area encompasses the arterial and collector road network surrounding the OLA, specifically focused on the northeast quadrant of the William Halton Parkway and Hospital Gate intersection. It includes both existing and planned roadways and intersections that will serve the proposed MECP- MLITSD Science Facility Complex and adjacent potential courthouse.

The following intersections were included in the original study area and are recommended for inclusion in the MECP- MLITSD Science Facility Complex TIA:

- William Halton Parkway & Bronte Road (Regional Road 25) 
- William Halton Parkway & Hospital Gate
- William Halton Parkway & Third Line
- Dundas Street West (Region Road 5) & Third Line
- Dundas Street West (Region Road 5) & Hospital Gate

This study will also include analysis of the proposed

- William Halton Parkway (right-in/right-out)
- Hospital Gate extension
- Future Glenorchy Road

Sticky Note	SRizvi
<p><b>Add following intersection in study network analysis:</b></p> <p><b>1. Dundas Street West and Bronte Road</b></p> <p>site access intersections with:</p>	

**Figure 1** shows the locations of the site access intersections, taken from the 2018 TIS.

Figure 1 has been removed as the previous project did not proceed to construction.

*Figure 1 Draft Plan of Subdivision Lanes (Source: Halton Region Courthouse – Transportation Impact Study, Figure 2.1A)*

## HORIZON YEARS & ANALYSIS SCENARIOS

The proposed development is currently assumed to be completed in a single phase. The analysis will be carried out for the following horizon years:

- Existing Conditions (2025);
- Full Build-out (2030); and
- Full Build-out + 5 Years (2035).

Furthermore, the analysis will be conducted for the following peak periods:

- Weekday AM Peak Hour (7:00 a.m. – 9:00 a.m.)
- Weekday PM Peak Hour (2:30 p.m. – 5:30 p.m.)

These periods represent the highest traffic volumes on the surrounding road network and are consistent with the Town of Oakville and Halton Region's expectations for development-related traffic studies. If the MECP-MLITSD facility is expected to generate unique peak periods (e.g. shift changes or deliveries), additional peak hour analyses may be included based on consultation with Town staff.

## EXISTING BACKGROUND CONDITIONS

The assessment of existing (and future) background conditions will be conducted in accordance with the Town of Oakville's Development Application Guidelines for a Transportation Impact Analysis. Existing operating conditions will be assessed at all study intersections for the peak periods, and will include:

- Site and Area Description: Overview of the MECP- MLITSD Science Complex site and surrounding land uses
- Study Area Description: Description of the study area boundaries
- Road Network: Description of the classification, jurisdiction, number of lanes, speed limits, and cross-sections of roads within the study area
- Traffic Volumes: Existing turning movement counts at study intersections\*
- Transit Service: Summary of existing Oakville Transit routes and service levels in the study area
- Bicycle and Pedestrian Facilities: Inventory of existing pedestrian and cycling infrastructure, including sidewalks, multi-use trails, and crossings
- Traffic Intersection Operations: Capacity analysis of existing conditions using industry standard software (e.g. Synchro/SimTraffic), including level of service (LOS), volume-to-capacity (v/c) ratios, and queuing

\* Where recent data is unavailable, Aplin Martin will coordinate with the Town of Oakville to determine whether new traffic counts are required



## FUTURE BACKGROUND CONDITIONS

The future background conditions analysis will evaluate the study area at the anticipated opening year of the MLITSD Science Complex, excluding site-generated traffic. This scenario will include background conditions against which the incremental impacts of the proposed development will be assessed. The analysis will include:

- Planned Road Network Improvements: Identification and incorporation of all relevant road infrastructure projects planned by the Town of Oakville and Halton Region, including:
  - o Extension of Hospital Gate north of William Halton Parkway
  - o Extension of Glenorchy Road through the Oakville Land Assembly
  - o Any other improvements identified in the Town's capital forecast or regional transportation master plan
- Background Traffic Growth: Application of an annual growth rate (typically 2% per year unless otherwise directed by the Town) to existing traffic volumes
- Background Development Traffic: Inclusion of traffic generated by other approved or anticipated developments within the study area
- Future Background Intersection Operations: Capacity analysis of all study intersections under future background conditions during the peak periods. The analysis will include LOS, v/c ratios, queuing

If the municipality is aware of any other developments within the study area, we ask they provide the development statistics for Aplin Martin to include the anticipated generated trips within the background traffic determination.

## NEW TRIPS GENERATED BY THE SITE

New trips generated by the development was estimated by Transportation Engineers (ITE) Trip Generation Manual. The applicable land use code is 760 - Research and Development Center.

**Sticky Note** SRizvi

For Signal Timing Plan and TMC's contact service Oakville at Oakville.ca

**Sticky Note** SRizvi

There are two major development applications are under process and at the planning stage with in the study area:

1. Palermo Village Corporation (North west quadrant of Dundas Steeet West/Bronte Road
2. Southeast quadrant of Old Bronte Road

According to the 2016 Transportation Memo prepared by Paradigm Transportation Solutions, the proposed MECP-MLITSD facility was expected to employ approximately 515 people working regular weekday business hours.

The ITE Trip Generation average trip rates and vehicle trips for the AM and PM weekday peak hours of the adjacent road network are summarized below in **Table 1**.

*Table 1 ITE Trip Generation for MECP Science Facility Complex*

Study Period	Rate/Equation	Directional Distribution		Vehicle Trips	
		Inbound	Outbound	Inbound	Outbound
Weekday AM Peak Hour	0.40	85%	15%	175	31
Weekday PM Peak Hour	0.38	12%	88%	23	173

It is expected that the development will generate 206 vehicle trips (175 inbound / 31 outbound) in the weekday AM peak hour, 196 vehicle trips (23 inbound / 173 outbound) in the weekday PM peak at full build-out. These numbers are different from the figures presented in the 2017 transportation memo, which estimated 300 to 350 peak direction trips during the AM and PM peak hours.



**Sticky Note** SRizvi  
 It is important to note that justification should be provided for reduction in the trips from previous study.

## FUTURE TOTAL CONDITIONS

This scenario will build upon the future background conditions and incorporate site-generated traffic to assess intersection performance and identify any required mitigation measures. Future total volumes will be estimated by superimposing the new site generated trips to the future background traffic volumes.

## TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution will be developed using a combination of existing travel patterns and turning movement data, regional travel demand models (if available), and engineering judgement in consultation with Town staff. Site generated trips will be assigned to the study area network and added to the future background volumes to produce total traffic volumes.

The 2018 TIS presents information regarding the future population distribution within the Halton Region, used to determine the percentage of office trips to/from the roads approaching the Courthouse for all peak hours. Refer to **Figure 2** below for the 2031 population distribution projection from the report. **Table 2** shows the courthouse visitor and office trip distribution, based on the population distribution projection. It is assumed that this information remains valid for the purposes of this analysis.

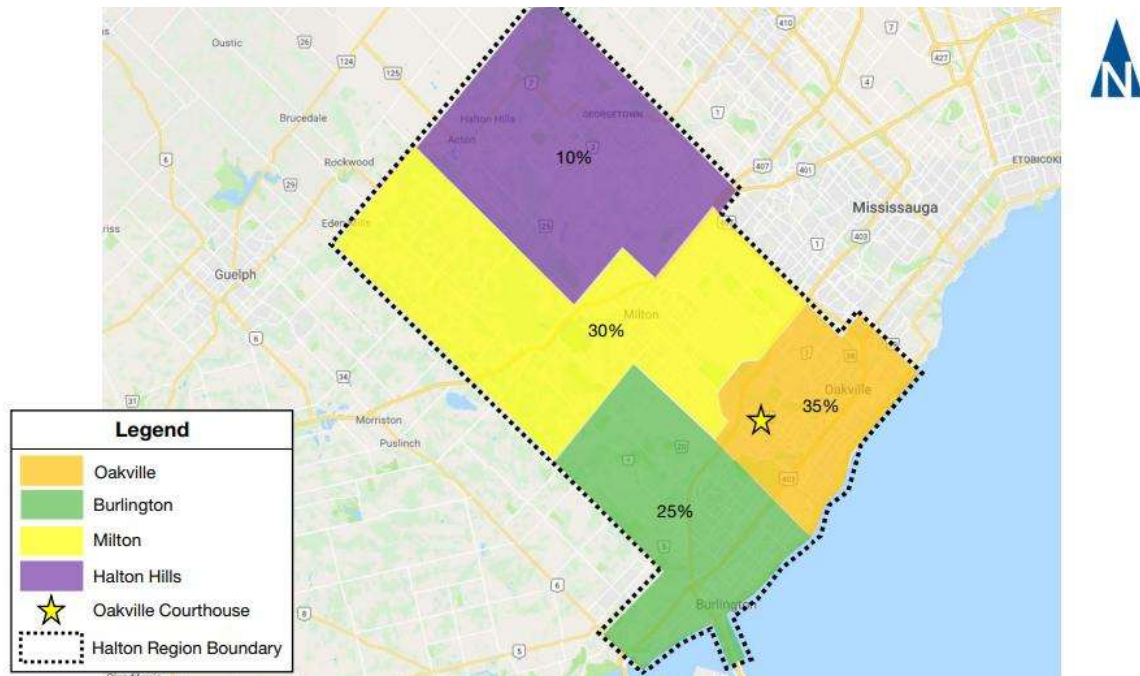


Figure 2 Distribution of 2031 Population Within Halton Region (Source: Halton Region Courthouse - Transportation Impact Study, Figure 4.4B)

Table 2 Courthouse Visitor and Office Trip Distributions (Source: Halton Region Courthouse - Transportation Impact Study, Table 4.4)

To/From	Via	% of Trips
East	Dundas Street W	15%
	William Halton Parkway	15%
West	Dundas Street W	10%
North	Bronte Road	30%
South	Bronte Road	20%
	Third Line	10%
<b>TOTAL</b>		<b>100%</b>

**ANALYSIS OF TRAFFIC OPERATIONS**

Intersection capacity analysis will be conducted for the AM and PM peak hours under future total conditions. Metrics will include LOS, v/c ratios, delay and queuing. The analysis will be completed using industry-standard software (e.g. Synchro/SimTraffic) and will identify any operational deficiencies resulting from the proposed development.

If required, mitigation measures will be proposed based on the intersection capacity analysis results and according to the following acceptable threshold criteria:

**SIGNALIZED INTERSECTIONS**

- Overall intersections Level of Service: LOS D or better
- Overall intersection v/c ratio: 0.85 or less

- Individual movement Level of Service: LOS E or better
- Individual movement v/c ratio: 0.90 or less

#### UNSIGNALIZED INTERSECTIONS

- Individual movement Level of Service: LOS E or better, unless traffic volumes are very low, in which case LOS F is acceptable.

#### SITE ACCESS AND CIRCULATION

The assessment will consider key components of site access and internal circulation, including provisions for emergency vehicle access, the adequacy and location of pick-up/drop-off areas, and the design and connectivity of the internal road network.

#### PEDESTRIANS, CYCLISTS & TRANSIT REVIEW

The study will assess existing and planned infrastructure for active transportation modes, including walking, cycling, and public transit, within the surrounding neighbourhood.

Relevant planning documents, both existing and proposed, will be reviewed to identify applicable policies, objectives, or improvements related to pedestrian, cyclist, and transit networks.

#### PARKING REVIEW

The Parking Needs Assessment for the MECP-MLITSD Science Complex will evaluate the anticipated parking demand and supply associated with the proposed development. The assessment will be guided by the Town of Oakville's Development Application Guidelines for Parking Studies and will consider the unique operational characteristics of the facility, including laboratory, workshop, and office functions.

In reference to the Town of Oakville Zoning Bylaw No. 2014-014, "Section 5: Parking Regulations", Aplin Martin will identify any variances or amendments required, to ensure alignment with the Oakville Hospital District Area Specific Plan. The parking review will also include:

- Existing Conditions: Including an inventory of existing and planning parking facilities on-site and in the vicinity, a review a current utilization rates (if available), and relevant background studies (e.g., 2018 Courthouse TIS, 2016 MOECC Memo)
- Parking Demand Estimation: Generated by each component of development including residents, employees, and visitors/customers/patrons
- Parking Supply Analysis: Review of proposed parking supply (on-site, on-street, and off-street) to evaluate adequacy relative to demand and zoning by-law requirements
- Alternative parking strategies: Evaluate the feasibility of shared parking with adjacent users (e.g. courthouse, hospital)

Should any parking reduction be required, potential measures through Transportation Demand Management (TDM)

**Sticky Note** **SRizvi**  
It is noted that a parking Justification Report is required to justify parking reduction. The TOR's of the PJR should be approved by the Transportation staff prior to the study.

## DATA REQUEST

Aplin Martin would like to request the following information from the Town of Oakville

- Existing traffic counts and signal timing plans at the study intersections;
- Any additional background Development information within the study area (if applicable); and
- Any future planned changes to the study road network.

## Saavin Khurana

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**From:** Khan, Ayesha <Ayesha.Khan@halton.ca>  
**Sent:** Tuesday, August 19, 2025 1:52 PM  
**To:** Paul Barrette  
**Cc:** Campbell, Michaela; Krusto, Matt; Syed Rizvi  
**Subject:** RE: [EXTERNAL] RE: Pre-Consultation Meeting Request - Infrastructure Ontario - MECP-MLITSD Science Complex

Hi Paul,

Thank you for providing the draft Terms of Reference for the proposed MECP-MLITSD Science Complex Transportation Impact Study. Regional staff have reviewed the document and offer the following comments to be forwarded onto the Aplin Martin team:

1. Study Area

- The proposed study area intersections are appropriate and acceptable to Halton Region.
- Please ensure that the proposed site access to William Halton Parkway (right-in/right-out) is shown and dimensioned clearly within the study area figures and all plans

▪ Traffic Data and Assumptions

- Traffic data (updated Turning Movement Counts, signal timing plans, etc.) is available from Halton Region upon request via [accesshalton@halton.ca](mailto:accesshalton@halton.ca) to obtain the most up-to-date information.
- Future background conditions must include the Region's approved capital works. Please incorporate projects and timing as per Halton's 2025–2034 Capital Budget, found here - <https://www.halton.ca/Repository/2025-Budget-and-Business-Plan-Capital-Report>
- For growth rates along William Halton Parkway, please apply the same rates previously used for other developments in the area to ensure consistency across studies in the corridor - based on the Halton EMME Model which determined the following 2031 PM Peak Hour traffic forecast volumes along William Halton Parkway and major roads based on screen-line growth rate and diversion factors:
  - **Bronte to Third Line – 2,250** (westbound 1,300 / eastbound 900)
  - **Third Line to Neyagawa – 2,700** (westbound 1,500 / eastbound 1,200)
- Background development traffic should be based on information provided by the Town of Oakville. Please confirm with Town staff.

▪ Trip Generation

- A notable difference exists between the ITE trip generation rates cited in the Terms of Reference and the higher trip volumes identified in the 2017 Paradigm Transportation Memorandum. The report must provide a clear rationale for this discrepancy and confirm that the assumptions applied are appropriate for the Science Complex.

▪ Horizon Years and Peak Periods

- The proposed horizon years (2025, 2030, 2035) and peak periods (AM, PM) are acceptable. If unique operational peaks are anticipated (e.g., laboratory shift changes, etc.), additional analysis periods may be required.

▪ Standard Requirements

- The TIS must follow and reference Halton Region's *2015 Transportation Impact Study Guidelines* in addition to the Town of Oakville's Development Application Guidelines.

- The TIS report must include:
  1. Site Plan and Map,
  2. Size & Number of Development Phases,
  3. Existing Conditions (Study Area Intersections, Road Network, Pedestrian Routes, Cycling Routes, Transit Services),
  4. Existing Traffic Conditions (Site Operating Characteristics, Data Collection/Traffic Counts, Analysis Periods (5 years Ahead),
  5. Future Background Conditions (Horizon Years, Horizon Year Volumes)
  6. Background Traffic Demand (with TMC's < 2 years old),
  7. Background Traffic Demand Forecast (with acceptable growth rates)
  8. Site Generated Traffic (Transit Modal Split, Trip Generation/Distribution/Assignment)
  9. Future Total Traffic Demand,
  10. Capacity Analysis (by Intersection, with LOS, Avg. Delay, V/C ratios),
  11. Traffic Impacts (Tables – Total Traffic with/without Mitigation)
  12. Access Considerations – Existing, Proposed, Geometrics (turn lanes, sight lines),
  13. Recommendations - Identify required/recommended road improvements either as a result of the development impacts, or general non-development improvements.
  14. TDM recommendations (Transit, Pedestrian & Cycling Facilities Analysis)
  15. Conclusions
  16. Appendices with Terms of Reference correspondence from all agencies.

In addition to the above, please ensure that the study clearly documents any reasonable and professional engineering assumptions that are made within the report for our review as part of the study submission.

Thanks,  
Ayesha

**Ayesha Khan**  
**Project Manager I – Transportation Development Review**  
 Development Services  
 Public Works  
**Halton Region**  
 905-825-6000, ext. | 1-866-442-5866




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**From:** Campbell, Michaela <[Michaela.Campbell@halton.ca](mailto:Michaela.Campbell@halton.ca)>  
**Sent:** Tuesday, August 12, 2025 12:02 PM  
**To:** Khan, Ayesha <[Ayesha.Khan@halton.ca](mailto:Ayesha.Khan@halton.ca)>; Krusto, Matt <[Matt.Krusto@halton.ca](mailto:Matt.Krusto@halton.ca)>  
**Cc:** Syed Rizvi <[syed.rizvi@oakville.ca](mailto:syed.rizvi@oakville.ca)>; Paul Barrette <[paul.barrette@oakville.ca](mailto:paul.barrette@oakville.ca)>  
**Subject:** FW: [EXTERNAL] RE: Pre-Consultation Meeting Request - Infrastructure Ontario - MECP-MLITSD Science Complex

Hi Paul,

**Valeriya Sokolenko**

Associate

**Sajecki Planning**

O: 416-448-2280 ext. 106

C: 416-646-4948

[valeriya@sajeckiplanning.com](mailto:valeriya@sajeckiplanning.com)

[www.sajeckiplanning.com](http://www.sajeckiplanning.com)

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**From:** Paul Barrette <[paul.barrette@oakville.ca](mailto:paul.barrette@oakville.ca)>

**Sent:** Wednesday, February 4, 2026 6:27 PM

**To:** Valeriya Sokolenko <[valeriya@sajeckiplanning.com](mailto:valeriya@sajeckiplanning.com)>

**Cc:** Catherine Buckerfield <[catherine.buckerfield@oakville.ca](mailto:catherine.buckerfield@oakville.ca)>; Syed Rizvi <[syed.rizvi@oakville.ca](mailto:syed.rizvi@oakville.ca)>; Khan, Ayesha <[ayasha.khan@halton.ca](mailto:ayasha.khan@halton.ca)>

**Subject:** RE: MECP-MLITSD Science Complex - Transportation TOR

Hi Val,

Here are the Town and Region's comments on attached Terms of Reference for the TIS received from Aplin Martin for the MECP – MLITSD Science Complex:

TOWN

- Proposed Site Access Locations – The spacing and placement of all proposed site access points, including access to the parking garage and building entrance along Glenorchy Road, shall comply with the access spacing and design criteria outlined in Geometric Design Guide for Canadian Roads - TAC Manual 12 . Proposed access to William Halton Parkway is subject to review and approval by Halton Region and must conform to Regional access management policies and standards.

*Noted. The spacing and placement of each site access will be reviewed for compliance with the Geometric Design Guide for Canadian Roads. The parking garage access will not be assessed, as it is located outside the project area. (Future Project Phase)*

- The TIS shall confirm the required roadway cross-sections, right-of-way widths, lane configurations, and any necessary turning lanes or auxiliary lanes required to support the proposed development. These elements must be assessed and documented within the study to demonstrate adequacy of the surrounding transportation network.

*In consultation with the project team's Civil Engineer, it is our understanding that the roadway cross-sections have been designed in accordance with the Town and Regional design specifications and have been confirmed through the consultation process. As part of the traffic analysis, the assessment will also confirm the adequacy of the surrounding transportation network.*

- Planned Road Network Improvements in Study Area – It is noted that the extension of Glenorchy Road is not currently included in the Town of Oakville's approved 10-Year Capital Budget Program.

*Noted.*

- The TIS shall identify all new trips generated by the proposed development and apply appropriate modal split targets for all transportation modes, in accordance with Halton Region guidelines for William Halton Parkway. The current TOR does not address these modal split requirements and shall be updated accordingly.

Noted. Our team will apply mode split targets for all transportation modes. Can the Town or Region please forward the Halton Region Guidelines for William Halton Parkway. The current TIA was developed based on the Halton Region Transportation Impact Study Guidelines, January 2015.

- Parking Review – A Parking Justification Report (PJR) shall be required where the proposed development seeks a reduction from the minimum parking requirements of the applicable Zoning By-law. The TOR for the PJR must be submitted to, and approved by, Oakville Transportation staff prior to commencement of the study. Where full zoning compliance is achieved, a separate PJR will not be required.

The proposed development is proposing to meet the minimum parking requirements noted within the Zoning Bylaw. Can the Town please confirm that the parking justification report is not required.

- For the most current traffic signal timing plans and Turning Movement Counts (TMCs) of the proposed study area intersections, you may contact ServiceOakville.ca and Halton Region Road Operations. The TIS must utilize the most up-to-date and representative traffic data available.

Noted. Thank you!

- Transportation Demand Management (TDM) – The TIS shall identify and evaluate appropriate Transportation Demand Management (TDM) measures to support and encourage sustainable travel modes, including transit, walking, cycling, and carpooling.

Noted.

- Active Transportation Facilities – The study shall confirm that all proposed and existing pedestrian and cycling facilities connecting to and through the site meet current Town of Oakville and Halton Region design standards and provide safe, continuous, and accessible connections.

Noted.

## Region

### 1.

#### Study Area

- The proposed study area intersections are appropriate and acceptable to Halton Region, including the addition of the Dundas Street at Bronte Road intersection
- Please ensure that the proposed site access to William Halton Parkway (right-in/right-out) is shown and dimensioned clearly within the study area figures and all plans

Noted.

- Traffic Data and Assumptions
  - Traffic data (updated Turning Movement Counts, signal timing plans, etc.) is available from Halton Region upon request via [accesshalton@halton.ca](mailto:accesshalton@halton.ca) to obtain the most up-to-date information.
  - Background development traffic should be based on information provided by the Town of Oakville.

Noted. Thank you!

- Horizon Years and Peak Periods
  - The proposed horizon years (2025, 2030, 2035) and peak periods (AM, PM) are acceptable. If unique operational peaks are anticipated (e.g., laboratory shift changes, etc.), additional analysis periods may be required.

Noted.

- Standard Requirements
  - The TIS must follow and reference Halton Region's *2015 Transportation Impact Study Guidelines* in addition to the Town of Oakville's Development Application Guidelines.
  - The TIS report must include:
    1. Site Plan and Map,
    2. Size & Number of Development Phases,
    3. Existing Conditions (Study Area Intersections, Road Network, Pedestrian Routes, Cycling Routes, Transit Services),
    4. Existing Traffic Conditions (Site Operating Characteristics, Data Collection/Traffic Counts, Analysis Periods (5 years Ahead),
    5. Future Background Conditions (Horizon Years, Horizon Year Volumes)
    6. Background Traffic Demand (with TMC's < 2 years old),

Traffic Data received from the Halton Region for the Study:

- Dundas @ Regional Rd 25 – Wednesday, April 17, 2024
- Dundas @ Hospital Gate – Wednesday, October 1, 2025
- Dundas @ Third Line – Wednesday, October 1, 2025
- Regional Road 25 @ William Halton – Wednesday, April 17, 2024
- William Halton @ Hospital Gate – Monday, November 21, 2022
- William Halton @ Third Line – Monday, November 21, 2022

Could the Region please confirm if the above noted traffic data is acceptable for the traffic study? Aplin Martin will calibrate the network and apply growth rates as recommended by the Halton Region.

7. Background Traffic Demand Forecast (with acceptable growth rates)
8. Site Generated Traffic (Transit Modal Split, Trip Generation/Distribution/Assignment)
9. Future Total Traffic Demand,
10. Capacity Analysis (by Intersection, with LOS, Avg. Delay, V/C ratios),
11. Traffic Impacts (Tables – Total Traffic with/without Mitigation)
12. Access Considerations – Existing, Proposed, Geometrics (turn lanes, sight lines),

13. Recommendations - Identify required/recommended road improvements either as a result of the development impacts, or general non-development improvements.
14. TDM recommendations (Transit, Pedestrian & Cycling Facilities Analysis)
15. Conclusions
16. Appendices with Terms of Reference correspondence from all agencies.

Noted.

In addition to the above, please ensure that the study clearly documents any reasonable and professional engineering assumptions that are made within the report for our review as part of the study submission.

Paul

---

**From:** Valeriya Sokolenko <[valeriya@sajeckiplanning.com](mailto:valeriya@sajeckiplanning.com)>

**Sent:** Tuesday, January 20, 2026 9:05 AM

**To:** Catherine Buckerfield <[catherine.buckerfield@oakville.ca](mailto:catherine.buckerfield@oakville.ca)>

**Cc:** Paul Barrette <[paul.barrette@oakville.ca](mailto:paul.barrette@oakville.ca)>; David Sajecki <[david@sajeckiplanning.com](mailto:david@sajeckiplanning.com)>; Christina Borowiec <[christina@sajeckiplanning.com](mailto:christina@sajeckiplanning.com)>

**Subject:** [EXTERNAL] FW: MECP-MLITSD Science Complex - Transportation TOR

Hi Catherine,

I forgot to cc you on the below email to Paul. Are you able to forward the attached TIS TOR to the relevant reviewer (I see Paul is out of office until next week)? As noted below, we're open to scheduling a call to walk through the TOR if easier/more expeditious.

Best,

Val

**Valeriya Sokolenko**

Associate

**Sajecki Planning**

O: 416-448-2280 ext. 106

C: 416-646-4948



## Appendix 2: Turning Movement Counts

Major Route: William Halton Parkway (West / East)  
 Minor Route: Hospital Gate (North / South)  
 Municipality: Oakville, Ontario

Date: 26-Feb-26  
 Day-of-week: Thursday

Intersection Type: 3 Legged Signalised Intersection  
 Weather: AM: Mostly Sunny -9°C PM: Mostly Sunny -2°C



Time Period	NORTH Approach (Hospital Gate)								EAST Approach (William Halton Pkwy)								WEST Approach (William Halton Pkwy)								Total Volume	
	Left		Thru (N/A)		Right		Crossing (B)		Left (N/A)		Thru		Right		Crossing (N/A)		Left		Thru		Right (N/A)		Crossing (A)		Car	Ped
	Car	Heavy	Car	Heavy	Car	Heavy	Ped	Bike	Car	Heavy	Car	Heavy	Car	Heavy	Ped	Bike	Car	Heavy	Car	Heavy	Car	Heavy	Ped	Bike		
6:30	5				3	1					18		11				4		9						51	0
6:45	11				1		1				15		26	1			0		6						60	1
7:00	10				1						12		39	1			0		6						69	0
7:15	3										24	4	30				5		21						87	0
7:30	23				5	1					50	1	37				4		26						147	0
7:45	15				2						42		50				5	1	27						142	0
8:00	9				2		1				44		35				3		31	2			1		126	2
8:15	10				4	1	1				58		39				3		24						139	1
8:30	11				4	1					56		45				6		21	1					145	0
8:45	7				5						63	2	30	1			3		21	1					133	0
9:00	10	2			2						55	1	22				3		17	1					113	0
9:15	5				4	1					18	1	16	1			7		13	2					68	0
<b>Total</b>	<b>119</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>33</b>	<b>5</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>455</b>	<b>9</b>	<b>380</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>43</b>	<b>1</b>	<b>222</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1280</b>	<b>4</b>
15:00	46				8	1					22	1	8				5		39	1					131	0
15:15	31				8						23	1	14				3		34	1					115	0
15:30	31				7						27		11				2		54	1					133	0
15:45	36				2	1					30	1	8				2		43						123	0
16:00	68	2			7		2				27	2	13				2		45	2					168	2
16:15	35	1			5	1					28		9				3		51	2					135	0
16:30	35				3						27		5				3		69	1					143	0
16:45	31				4		2				34		8				1		64						142	2
17:00	37	1			2						21		9				3		44						117	0
17:15	24	1					1				29		8				3		61	1			1		127	2
17:30	20	1					1				28		7				0		40						96	1
17:45	14	2			3		1				24		12	1			1		28						85	1
<b>Total</b>	<b>408</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>3</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>320</b>	<b>5</b>	<b>112</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>572</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1515</b>	<b>8</b>



Turning Movement Count Data  
Regular Vehicles

Major Route: William Halton Parkway (West / East)  
 Minor Route: Glenorchy Rd / Third Line (North / South)  
 Municipality: Oakville, Ontario

Date: 26-Feb-26  
 Day-of-week: Thursday

Intersection Type: 4 Legged Signalised Intersection  
 Weather: AM: Mostly Sunny -9°C PM: Mostly Sunny -2°C

Time Period	NORTH Approach (Third Line)								SOUTH Approach (Glenorchy)								WEST Approach (WHP)								EAST Approach (William Halton Pkway)								Total Volume			
	Left		Thru		Right		Crossing		Left		Thru		Right		Crossing		Left		Thru		Right		Crossing		Left		Thru		Right		Crossing		Car	Ped		
	Car	Heavy	Car	Heavy	Car	Heavy	Ped	Bike	Car	Heavy	Car	Heavy	Car	Heavy	Ped	Bike	Car	Heavy	Car	Heavy	Car	Heavy	Ped	Bike	Car	Heavy	Car	Heavy	Car	Heavy	Ped	Bike				
6:30	7				1									1		4		1					1								5				18	2
6:45	7		1		2										5		1											2		14				32	0	
7:00	7		1		5										8		5										3		14				43	0		
7:15	18				4											7	1	5									1		22				58	0		
7:30	23		5		3		1							1		7	1	5							5		3		46				98	2		
7:45	22		2		3		2				1		1			5		8	1						2		1		40				86	2		
8:00	21	1	10		2			1							10		10					1	5		3		33						95	2		
8:15	12		9		6	3	1				1				10		7						5		5		49						107	2		
8:30	19		1		6	1								1		13		8	1					5		2		51						107	1	
8:45	11	1	5		9		1								7		8							7		9		57						114	1	
9:00	16	1	5	1	8						1				10		3							6		5		40						96	0	
9:15	15	2	2		7		2					2			7		5							3		3		20						66	2	
<b>Total</b>	<b>178</b>	<b>5</b>	<b>41</b>	<b>1</b>	<b>56</b>	<b>4</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>93</b>	<b>2</b>	<b>66</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>38</b>	<b>0</b>	<b>37</b>	<b>0</b>	<b>391</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>920</b>	<b>14</b>		

15:00																																			0	0	
15:15	29	1			8			1				3		1		3	1	4						1		8		28			1			87	2		
15:30	44	2	4		4	2	1				1		5			5		3						1		8		23						102	1		
15:45	38		2		6	1							2			8	1	3	1					1		4		21						91	0		
16:00	36	2	4		13		4						14		8		7		4					3		3		25						119	4		
16:15	45	2	3		5								6		4		7		2	1					2		23							100	0		
16:30	60		3		9	1	1						3		3		7	1	3	1				1		6		22						120	1		
16:45	45		2		14		2						10		1		2		7						2		2		24						107	2	
17:00	35	1	2		10								2		4		3		6						3		22								88	0	
17:15	49		4		8		2						2		2		5		6						4		15								95	2	
17:30	31				12	1							2		2		3	1	7	1					5		18								83	0	
17:45	33			1	16		1								3		5		4					1		6		25								94	1
<b>Total</b>	<b>445</b>	<b>8</b>	<b>24</b>	<b>1</b>	<b>105</b>	<b>5</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>46</b>	<b>0</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>55</b>	<b>4</b>	<b>49</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>51</b>	<b>0</b>	<b>246</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1086</b>	<b>13</b>			

# Regional Rd 25 @ William Halton Pkwy W

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:45:00

**To:** 8:45:00

**Municipality:** Halton Region  
**Site #:** 1027535100  
**Intersection:** Regional Rd 25 & William Halton Pk  
**TFR File #:** 16  
**Count date:** 17-Apr-2024

### Weather conditions:

Cloudy/Wet

### Person(s) who counted:

Pyramid Traffic Inc

### \*\* Signalized Intersection \*\*

**Major Road:** Regional Rd 25 runs N/S

North Leg Total: 2986  
 North Entering: 1761  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	0	0
Trucks	102	5	107
Cars	1300	354	1654
<b>Totals</b>	<b>1402</b>	<b>359</b>	

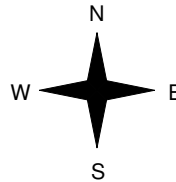


Cyclists	0
Trucks	54
Cars	1171
<b>Totals</b>	<b>1225</b>

East Leg Total: 506  
 East Entering: 121  
 East Peds: 0  
 Peds Cross:  $\times$



Regional Rd 25

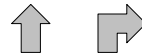


	Cars	Trucks	Cyclists	Totals
	115	1	0	116
	5	0	0	5
	120	1	0	

William Halton Pkwy W



Regional Rd 25



Cars	1305	Cars	1056	24	1080
Trucks	102	Trucks	53	2	55
Cyclists	0	Cyclists	0	0	0
<b>Totals</b>	<b>1407</b>	<b>Totals</b>	<b>1109</b>	<b>26</b>	



Cars	Trucks	Cyclists	Totals
378	7	0	385

Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 1135  
 South Leg Total: 2542

## Comments

# Regional Rd 25 @ William Halton Pkwy W

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00

**To:** 14:00:00

### One Hour Peak

**From:** 11:45:00

**To:** 12:45:00

**Municipality:** Halton Region  
**Site #:** 1027535100  
**Intersection:** Regional Rd 25 & William Halton Pk  
**TFR File #:** 16  
**Count date:** 17-Apr-2024

### Weather conditions:

Cloudy/Wet

### Person(s) who counted:

Pyramid Traffic Inc

### \*\* Signalized Intersection \*\*

**Major Road:** Regional Rd 25 runs N/S

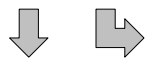
North Leg Total: 1714  
 North Entering: 904  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	0	0
Trucks	90	3	93
Cars	699	112	811
<b>Totals</b>	<b>789</b>	<b>115</b>	

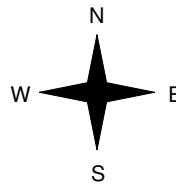


Cyclists	0
Trucks	66
Cars	744
<b>Totals</b>	<b>810</b>

East Leg Total: 274  
 East Entering: 146  
 East Peds: 0  
 Peds Cross:  $\times$



Regional Rd 25

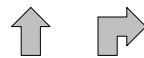


	Cars	Trucks	Cyclists	Totals
Northbound	131	8	0	139
Southbound	5	2	0	7
<b>Totals</b>	<b>136</b>	<b>10</b>	<b>0</b>	

William Halton Pkwy W



Regional Rd 25



Cars	704	Cars	613	13	626
Trucks	92	Trucks	58	0	58
Cyclists	0	Cyclists	0	0	0
<b>Totals</b>	<b>796</b>	<b>Totals</b>	<b>671</b>	<b>13</b>	



	Cars	Trucks	Cyclists	Totals
Westbound	125	3	0	128

Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 684  
 South Leg Total: 1480

## Comments

# Regional Rd 25 @ William Halton Pkwy W

## Afternoon Peak Diagram

### Specified Period

**From:** 15:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 16:15:00

**To:** 17:15:00

**Municipality:** Halton Region  
**Site #:** 1027535100  
**Intersection:** Regional Rd 25 & William Halton Pk  
**TFR File #:** 16  
**Count date:** 17-Apr-2024

### Weather conditions:

Cloudy/Wet

### Person(s) who counted:

Pyramid Traffic Inc

### \*\* Signalized Intersection \*\*

**Major Road:** Regional Rd 25 runs N/S

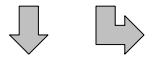
North Leg Total: 2944  
 North Entering: 1029  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	0	0
Trucks	43	0	43
Cars	871	115	986
<b>Totals</b>	<b>914</b>	<b>115</b>	<b>986</b>

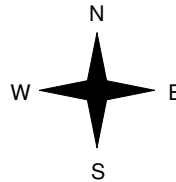


Cyclists	0
Trucks	60
Cars	1855
<b>Totals</b>	<b>1915</b>

East Leg Total: 515  
 East Entering: 395  
 East Peds: 0  
 Peds Cross:  $\times$



Regional Rd 25



Cars	Trucks	Cyclists	Totals
350	4	0	354

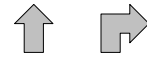


Cars	Trucks	Cyclists	Totals
41	0	0	41
<b>391</b>	<b>4</b>	<b>0</b>	<b>395</b>

William Halton Pkwy W

Cars	Trucks	Cyclists	Totals
120	0	0	120

Regional Rd 25



Cars	912	Cars	1505	5	1510
Trucks	43	Trucks	56	0	56
Cyclists	0	Cyclists	0	0	0
<b>Totals</b>	<b>955</b>	<b>Totals</b>	<b>1561</b>	<b>5</b>	<b>1566</b>



Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 1566  
 South Leg Total: 2521

## Comments

# Regional Rd 25 @ William Halton Pkwy W

## Total Count Diagram

**Municipality:** Halton Region  
**Site #:** 1027535100  
**Intersection:** Regional Rd 25 & William Halton Pk  
**TFR File #:** 16  
**Count date:** 17-Apr-2024

**Weather conditions:**  
 Cloudy/Wet  
**Person(s) who counted:**  
 Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Regional Rd 25 runs N/S

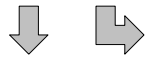
North Leg Total: 18450  
 North Entering: 8780  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	0	0
Trucks	604	15	619
Cars	6890	1271	8161
<b>Totals</b>	<b>7494</b>	<b>1286</b>	

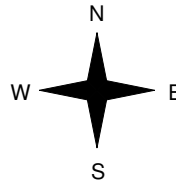


Cyclists	0
Trucks	512
Cars	9158
<b>Totals</b>	<b>9670</b>

East Leg Total: 3073  
 East Entering: 1664  
 East Peds: 0  
 Peds Cross:  $\times$



Regional Rd 25



	Cars	Trucks	Cyclists	Totals
Northbound	1491	29	0	1520
Southbound	135	9	0	144
<b>Totals</b>	<b>1626</b>	<b>38</b>	<b>0</b>	

William Halton Pkwy W



	Cars	Trucks	Cyclists	Totals
Westbound	1386	23	0	1409

Cars	7025
Trucks	613
Cyclists	0
<b>Totals</b>	<b>7638</b>



Regional Rd 25

Cars	7667	115	7782
Trucks	483	8	491
Cyclists	0	0	0
<b>Totals</b>	<b>8150</b>	<b>123</b>	

Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 8273  
 South Leg Total: 15911

### Comments

# Dundas St W @ Regional Rd 25

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:45:00

**To:** 8:45:00

**Municipality:** Halton Region  
**Site #:** 1000680100  
**Intersection:** Dundas St W & Regional Rd 25  
**TFR File #:** 15  
**Count date:** 17-Apr-2024

**Weather conditions:**  
 Cloudy/Wet  
**Person(s) who counted:**  
 Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 2485  
 North Entering: 1352  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	13	72	17	102
Cars	106	924	220	1250
<b>Totals</b>	<b>119</b>	<b>996</b>	<b>237</b>	



Cyclists	0
Trucks	56
Cars	1077
<b>Totals</b>	<b>1133</b>

East Leg Total: 2542  
 East Entering: 921  
 East Peds: 4  
 Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	72	780	852

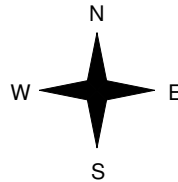


Regional Rd 25

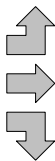
Cars	Trucks	Cyclists	Totals
177	8	0	185
534	50	0	584
124	28	0	152
<b>835</b>	<b>86</b>	<b>0</b>	



Dundas St W



Cyclists	Trucks	Cars	Totals
0	7	236	243
0	41	1170	1211
0	13	381	394
<b>0</b>	<b>61</b>	<b>1787</b>	



Dundas St W



Regional Rd 25



Cars	Trucks	Cyclists	Totals
1556	65	0	1621

Peds Cross:  $\times$   
 West Peds: 0  
 West Entering: 1848  
 West Leg Total: 2700

Cars	1429	Cars	140	664	166	970
Trucks	113	Trucks	9	41	7	57
Cyclists	0	Cyclists	0	0	0	0
<b>Totals</b>	<b>1542</b>	<b>Totals</b>	<b>149</b>	<b>705</b>	<b>173</b>	



Peds Cross:  $\times$   
 South Peds: 2  
 South Entering: 1027  
 South Leg Total: 2569

## Comments

# Dundas St W @ Regional Rd 25

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00

**To:** 14:00:00

### One Hour Peak

**From:** 12:00:00

**To:** 13:00:00

**Municipality:** Halton Region  
**Site #:** 1000680100  
**Intersection:** Dundas St W & Regional Rd 25  
**TFR File #:** 15  
**Count date:** 17-Apr-2024

**Weather conditions:**  
 Cloudy/Wet  
**Person(s) who counted:**  
 Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 1488  
 North Entering: 762  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	10	78	2	90
Cars	99	435	138	672
<b>Totals</b>	<b>109</b>	<b>513</b>	<b>140</b>	



Cyclists	0
Trucks	59
Cars	667
<b>Totals</b>	<b>726</b>

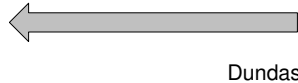
East Leg Total: 1651  
 East Entering: 805  
 East Peds: 4  
 Peds Cross:  $\times$

Cyclists	0
Trucks	51
Cars	744
<b>Totals</b>	<b>795</b>

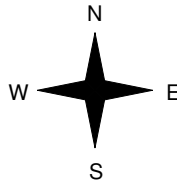


Regional Rd 25

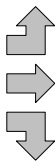
Cars	102	Trucks	6	Cyclists	0	<b>Totals</b>	108
Cars	503	Trucks	31	Cyclists	0	<b>Totals</b>	534
Cars	144	Trucks	19	Cyclists	0	<b>Totals</b>	163
<b>Totals</b>	<b>749</b>	<b>Totals</b>	<b>56</b>	<b>Totals</b>	<b>0</b>		



Dundas St W



Cyclists	0
Trucks	3
Cars	137
<b>Totals</b>	<b>140</b>
Cyclists	0
Trucks	26
Cars	522
<b>Totals</b>	<b>548</b>
Cyclists	0
Trucks	6
Cars	132
<b>Totals</b>	<b>138</b>
Cyclists	0
Trucks	35
Cars	791
<b>Totals</b>	<b>791</b>



Regional Rd 25

Dundas St W



Cars	801	Trucks	45	Cyclists	0	<b>Totals</b>	846
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Peds Cross:  $\times$   
 West Peds: 0  
 West Entering: 826  
 West Leg Total: 1621

Cars	711	Cars	142	428	141	711
Trucks	103	Trucks	10	50	17	77
Cyclists	0	Cyclists	0	0	0	0
<b>Totals</b>	<b>814</b>	<b>Totals</b>	<b>152</b>	<b>478</b>	<b>158</b>	



Peds Cross:  $\times$   
 South Peds: 1  
 South Entering: 788  
 South Leg Total: 1602

## Comments

# Dundas St W @ Regional Rd 25

## Afternoon Peak Diagram

### Specified Period

**From:** 15:00:00  
**To:** 18:00:00

### One Hour Peak

**From:** 16:30:00  
**To:** 17:30:00

**Municipality:** Halton Region  
**Site #:** 1000680100  
**Intersection:** Dundas St W & Regional Rd 25  
**TFR File #:** 15  
**Count date:** 17-Apr-2024

### Weather conditions:

Cloudy/Wet

### Person(s) who counted:

Pyramid Traffic Inc

### \*\* Signalized Intersection \*\*

**Major Road:** Dundas St W runs W/E

North Leg Total: 2518  
North Entering: 935  
North Peds: 1  
Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	5	24	1	30
Cars	218	519	168	905
<b>Totals</b>	<b>223</b>	<b>543</b>	<b>169</b>	



Cyclists	0
Trucks	53
Cars	1530
<b>Totals</b>	<b>1583</b>

East Leg Total: 2552  
East Entering: 1602  
East Peds: 1  
Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	50	1665	1715

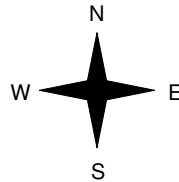
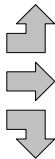


Regional Rd 25

Cars	Trucks	Cyclists	Totals
230	5	0	235
1148	38	0	1186
176	5	0	181
<b>1554</b>	<b>48</b>	<b>0</b>	



Cyclists	Trucks	Cars	Totals
0	1	164	165
0	24	676	700
0	7	164	171
0	32	1004	



Dundas St W

Dundas St W



Peds Cross:  $\times$   
West Peds: 1  
West Entering: 1036  
West Leg Total: 2751

Cars	859	Cars	299	1136	78	1513
Trucks	36	Trucks	7	47	3	57
Cyclists	0	Cyclists	0	0	0	0
<b>Totals</b>	<b>895</b>	<b>Totals</b>	<b>306</b>	<b>1183</b>	<b>81</b>	



Regional Rd 25



Peds Cross:  $\times$   
South Peds: 1  
South Entering: 1570  
South Leg Total: 2465

## Comments

# Dundas St W @ Regional Rd 25

## Total Count Diagram

**Municipality:** Halton Region

**Site #:** 1000680100

**Intersection:** Dundas St W & Regional Rd 25

**TFR File #:** 15

**Count date:** 17-Apr-2024

**Weather conditions:**

Cloudy/Wet

**Person(s) who counted:**

Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 15476

North Entering: 7298

North Peds: 1

Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	77	477	35	589
Cars	1050	4472	1187	6709
<b>Totals</b>	<b>1127</b>	<b>4949</b>	<b>1222</b>	



Cyclists	0
Trucks	480
Cars	7698
<b>Totals</b>	<b>8178</b>

East Leg Total: 16533

East Entering: 8573

East Peds: 22

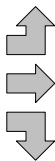
Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	444	8559	9003

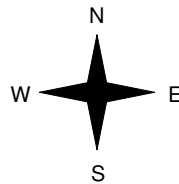


Dundas St W

Cyclists	Trucks	Cars	Totals
0	56	1353	1409
0	239	5529	5768
0	81	1540	1621
0	376	8422	



Regional Rd 25



Cars	Trucks	Cyclists	Totals
1101	40	0	1141
5930	307	0	6237
1075	120	0	1195
8106	467	0	

Dundas St W



Cars	Trucks	Cyclists	Totals
7604	356	0	7960

Peds Cross:  $\times$

West Peds: 1

West Entering: 8798

West Leg Total: 17801

Cars	7087	Cars	1579	5244	888	7711
Trucks	678	Trucks	60	384	82	526
Cyclists	0	Cyclists	0	0	0	0
<b>Totals</b>	<b>7765</b>	<b>Totals</b>	<b>1639</b>	<b>5628</b>	<b>970</b>	



Peds Cross:  $\times$

South Peds: 11

South Entering: 8237

South Leg Total: 16002

### Comments

# Dundas St W @ Hospital Gate

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 8:00:00

**To:** 9:00:00

**Municipality:** Halton Region  
**Site #:** 1000750100  
**Intersection:** Dundas St W & Hospital Gate  
**TFR File #:** 2  
**Count date:** 1-Oct-2025

**Weather conditions:**  
Clear/Dry  
**Person(s) who counted:**  
Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 611  
 North Entering: 171  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	1	0	1	
Trucks	7	4	11	
Cars	57	102	159	
<b>Totals</b>	<b>65</b>	<b>106</b>	<b>159</b>	



Cyclists	1
Trucks	13
Cars	426
<b>Totals</b>	<b>440</b>

East Leg Total: 2370  
 East Entering: 1122  
 East Peds: 1  
 Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
1	67	890	958



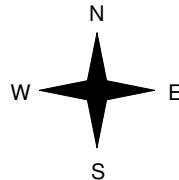
Hospital Gate



Cars	Trucks	Cyclists	Totals
219	9	1	229
833	60	0	893
<b>1052</b>	<b>69</b>	<b>1</b>	



Dundas St W



Cyclists	Trucks	Cars	Totals
0	4	207	211
0	46	1096	1142
<b>0</b>	<b>50</b>	<b>1303</b>	



Dundas St W



Cars	Trucks	Cyclists	Totals
1198	50	0	1248

Peds Cross:  $\times$   
 West Peds: 1  
 West Entering: 1353  
 West Leg Total: 2311

## Comments

# Dundas St W @ Hospital Gate

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00  
**To:** 14:00:00

### One Hour Peak

**From:** 11:45:00  
**To:** 12:45:00

**Municipality:** Halton Region  
**Site #:** 1000750100  
**Intersection:** Dundas St W & Hospital Gate  
**TFR File #:** 2  
**Count date:** 1-Oct-2025

**Weather conditions:**  
Clear/Dry  
**Person(s) who counted:**  
Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 599  
North Entering: 326  
North Peds: 8  
Peds Cross:  $\times$

Cyclists	0	0	0
Trucks	3	11	14
Cars	108	204	312
<b>Totals</b>	<b>111</b>	<b>215</b>	<b>312</b>



Cyclists 0  
Trucks 15  
Cars 258  
Totals 273

East Leg Total: 1936  
East Entering: 921  
East Peds: 4  
Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	29	827	856



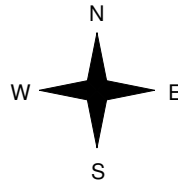
Hospital Gate



Cars	Trucks	Cyclists	Totals
165	11	0	176
719	26	0	745
<b>884</b>	<b>37</b>	<b>0</b>	



Dundas St W



Cyclists	Trucks	Cars	Totals
0	4	93	97
1	47	752	800
<b>1</b>	<b>51</b>	<b>845</b>	



Dundas St W



Cars	Trucks	Cyclists	Totals
956	58	1	1015

Peds Cross:  $\times$   
West Peds: 2  
West Entering: 897  
West Leg Total: 1753

## Comments

# Dundas St W @ Hospital Gate

## Afternoon Peak Diagram

### Specified Period

**From:** 15:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 15:15:00

**To:** 16:15:00

**Municipality:** Halton Region  
**Site #:** 1000750100  
**Intersection:** Dundas St W & Hospital Gate  
**TFR File #:** 2  
**Count date:** 1-Oct-2025

**Weather conditions:**  
 Clear/Dry  
**Person(s) who counted:**  
 Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 698

North Entering: 491

North Peds: 3

Peds Cross:  $\times$

Cyclists	0	0	0
Trucks	5	14	19
Cars	190	282	472
<b>Totals</b>	<b>195</b>	<b>296</b>	



Cyclists 0

Trucks 14

Cars 193

Totals 207

East Leg Total: 2724

East Entering: 1490

East Peds: 7

Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	58	1505	1563



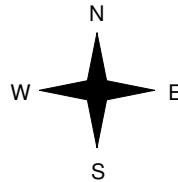
Hospital Gate



Cars	Trucks	Cyclists	Totals
114	8	0	122
1315	53	0	1368
<b>1429</b>	<b>61</b>	<b>0</b>	



Dundas St W



Dundas St W



Cyclists	Trucks	Cars	Totals
0	6	79	85
0	38	900	938
<b>0</b>	<b>44</b>	<b>979</b>	



Cars	Trucks	Cyclists	Totals
1182	52	0	1234

Peds Cross:  $\times$

West Peds: 7

West Entering: 1023

West Leg Total: 2586

## Comments

# Dundas St W @ Hospital Gate

## Total Count Diagram

**Municipality:** Halton Region  
**Site #:** 1000750100  
**Intersection:** Dundas St W & Hospital Gate  
**TFR File #:** 2  
**Count date:** 1-Oct-2025

**Weather conditions:**  
 Clear/Dry  
**Person(s) who counted:**  
 Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 4437  
 North Entering: 2351  
 North Peds: 22  
 Peds Cross:  $\times$

Cyclists	4	1	5
Trucks	36	61	97
Cars	828	1421	2249
Totals	868	1483	



Cyclists 1  
 Trucks 113  
 Cars 1972  
 Totals 2086

East Leg Total: 17960  
 East Entering: 8916  
 East Peds: 22  
 Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
7	356	8291	8654



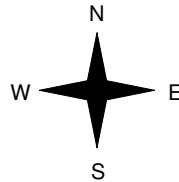
Hospital Gate



Cars	Trucks	Cyclists	Totals
1056	73	1	1130
7463	320	3	7786
8519	393	4	



Dundas St W



Cyclists	Trucks	Cars	Totals
0	40	916	956
3	316	7242	7561
3	356	8158	



Dundas St W



Cars	Trucks	Cyclists	Totals
8663	377	4	9044

Peds Cross:  $\times$   
 West Peds: 22  
 West Entering: 8517  
 West Leg Total: 17171

### Comments

# Dundas St W @ Third Line

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 8:00:00

**To:** 9:00:00

**Municipality:** Halton Region  
**Site #:** 1000780100  
**Intersection:** Dundas St W & Third Line  
**TFR File #:** 3  
**Count date:** 1-Oct-2025

**Weather conditions:**  
Clear/Dry  
**Person(s) who counted:**  
Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 733  
 North Entering: 345  
 North Peds: 2  
 Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	0	6	4	10
Cars	12	192	131	335
<b>Totals</b>	<b>12</b>	<b>198</b>	<b>135</b>	



Cyclists 2  
 Trucks 4  
 Cars 382  
 Totals 388

East Leg Total: 3052  
 East Entering: 1407  
 East Peds: 10  
 Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	68	980	1048

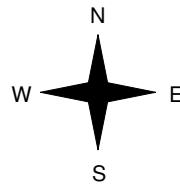


Third Line

Cars	Trucks	Cyclists	Totals
182	2	1	185
685	55	0	740
464	18	0	482
<b>1331</b>	<b>75</b>	<b>1</b>	



Dundas St W



Cyclists	Trucks	Cars	Totals
0	0	9	9
0	52	1020	1072
0	7	235	242
0	59	1264	



Dundas St W



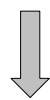
Third Line



Cars	Trucks	Cyclists	Totals
1577	68	0	1645

Peds Cross:  $\times$   
 West Peds: 26  
 West Entering: 1323  
 West Leg Total: 2371

Cars	891	Cars	283	191	426	900
Trucks	31	Trucks	13	2	12	27
Cyclists	0	Cyclists	0	1	0	1
<b>Totals</b>	<b>922</b>	<b>Totals</b>	<b>296</b>	<b>194</b>	<b>438</b>	



Peds Cross:  $\times$   
 South Peds: 23  
 South Entering: 928  
 South Leg Total: 1850

## Comments

# Dundas St W @ Third Line

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00  
**To:** 14:00:00

### One Hour Peak

**From:** 12:00:00  
**To:** 13:00:00

**Municipality:** Halton Region  
**Site #:** 1000780100  
**Intersection:** Dundas St W & Third Line  
**TFR File #:** 3  
**Count date:** 1-Oct-2025

**Weather conditions:**  
Clear/Dry  
**Person(s) who counted:**  
Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 435  
North Entering: 242  
North Peds: 9  
Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	2	6	2	10
Cars	27	93	112	232
<b>Totals</b>	<b>29</b>	<b>99</b>	<b>114</b>	



Cyclists	0
Trucks	3
Cars	190
<b>Totals</b>	<b>193</b>

East Leg Total: 2189  
East Entering: 1101  
East Peds: 14  
Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
2	42	917	961

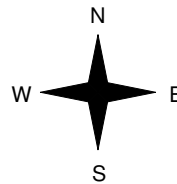


Third Line

Cars	Trucks	Cyclists	Totals
86	2	0	88
647	31	2	680
322	11	0	333
<b>1055</b>	<b>44</b>	<b>2</b>	



Dundas St W



Cyclists	Trucks	Cars	Totals
0	0	9	9
0	36	643	679
0	6	181	187
<b>0</b>	<b>42</b>	<b>833</b>	



Dundas St W



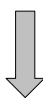
Third Line



Cars	Trucks	Cyclists	Totals
1041	47	0	1088

Peds Cross:  $\times$   
West Peds: 55  
West Entering: 875  
West Leg Total: 1836

Cars	596	Cars	243	95	286	624
Trucks	23	Trucks	9	1	9	19
Cyclists	0	Cyclists	0	0	0	0
<b>Totals</b>	<b>619</b>	<b>Totals</b>	<b>252</b>	<b>96</b>	<b>295</b>	



Peds Cross:  $\times$   
South Peds: 39  
South Entering: 643  
South Leg Total: 1262

## Comments

# Dundas St W @ Third Line

## Afternoon Peak Diagram

### Specified Period

**From:** 15:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 15:30:00

**To:** 16:30:00

**Municipality:** Halton Region  
**Site #:** 1000780100  
**Intersection:** Dundas St W & Third Line  
**TFR File #:** 3  
**Count date:** 1-Oct-2025

### Weather conditions:

Clear/Dry

### Person(s) who counted:

Pyramid Traffic Inc

### \*\* Signalized Intersection \*\*

**Major Road:** Dundas St W runs W/E

North Leg Total: 661

North Entering: 347

North Peds: 9

Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	0	6	3	9
Cars	19	131	188	338
<b>Totals</b>	<b>19</b>	<b>137</b>	<b>191</b>	



Cyclists 0

Trucks 12

Cars 302

**Totals 314**

East Leg Total: 3393

East Entering: 1805

East Peds: 20

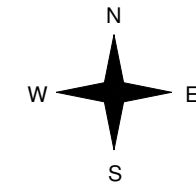
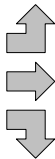
Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
2	61	1483	1546



Dundas St W

Cyclists	Trucks	Cars	Totals
0	2	10	12
0	36	916	952
0	6	257	263
0	44	1183	



Third Line

Cars	Trucks	Cyclists	Totals
117	1	0	118
1142	47	2	1191
481	15	0	496
<b>1740</b>	<b>63</b>	<b>2</b>	

Dundas St W



Cars	Trucks	Cyclists	Totals
1536	51	1	1588

Peds Cross:  $\times$

West Peds: 37

West Entering: 1227

West Leg Total: 2773

Cars	869	Cars	322	175	432	929
Trucks	27	Trucks	14	9	12	35
Cyclists	0	Cyclists	0	0	1	1
<b>Totals</b>	<b>896</b>	<b>Totals</b>	<b>336</b>	<b>184</b>	<b>445</b>	



Peds Cross:  $\times$

South Peds: 26

South Entering: 965

South Leg Total: 1861

## Comments

# Dundas St W @ Third Line

## Total Count Diagram

**Municipality:** Halton Region  
**Site #:** 1000780100  
**Intersection:** Dundas St W & Third Line  
**TFR File #:** 3  
**Count date:** 1-Oct-2025

**Weather conditions:**  
 Clear/Dry  
**Person(s) who counted:**  
 Pyramid Traffic Inc

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St W runs W/E

North Leg Total: 4226  
 North Entering: 2144  
 North Peds: 47  
 Peds Cross:  $\times$

Cyclists	0	2	0	2
Trucks	6	46	32	84
Cars	125	962	971	2058
<b>Totals</b>	<b>131</b>	<b>1010</b>	<b>1003</b>	



Cyclists	4
Trucks	51
Cars	2027
<b>Totals</b>	<b>2082</b>

East Leg Total: 21641  
 East Entering: 10723  
 East Peds: 89  
 Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
11	395	8713	9119

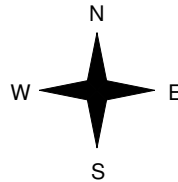


Third Line

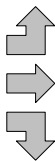
Cars	Trucks	Cyclists	Totals
835	18	1	854
6452	308	11	6771
3007	91	0	3098
<b>10294</b>	<b>417</b>	<b>12</b>	



Dundas St W



Cyclists	Trucks	Cars	Totals
0	3	74	77
4	337	6711	7052
3	48	1660	1711
<b>7</b>	<b>388</b>	<b>8445</b>	



Dundas St W



Third Line



Cars	Trucks	Cyclists	Totals
10463	450	5	10918

Peds Cross:  $\times$   
 West Peds: 309  
 West Entering: 8840  
 West Leg Total: 17959

Cars	5629
Trucks	185
Cyclists	5
<b>Totals</b>	<b>5819</b>



Cars	2136	1118	2781	6035
Trucks	81	30	81	192
Cyclists	0	3	1	4
<b>Totals</b>	<b>2217</b>	<b>1151</b>	<b>2863</b>	

Peds Cross:  $\times$   
 South Peds: 237  
 South Entering: 6231  
 South Leg Total: 12050

### Comments



## Appendix 3: Signal Timing Plans



Tech: S.Shams

Date: 8-Apr-2025

Intersection: Bronte Rd (Regional Rd 25) @ Dundas St (Regional Rd 5)

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use	X	X	X	X	X	X	X	X	X	x	x	x
Direction	WBLT	EBT	NBLT	SBT	EBLT	WBT	SBLT	NBT				
Min Green	7	20	10	10	7	20	7	10				
Veh Ext.	3.0	6.0	3.0	5.0	3.0	6.0	3.0	5.0				
Yellow	3	4.2	3	4.2	3	4.2	3	4.2				
Red	1.0	3	1	3.5	1	3	1	3.5				
Walk		7		7		7		7				
Don't Walk		30		31		30		31				
Max 1	11	55	15	30	11	45	15	30				
Max 2												
Max 3												
Veh Recall		x				x						
Ped Recall												
<b>Notes:</b>	Sync Reference 3:15											

<p><b>Pattern 1</b>  <b>Time:</b> 6:00  <b>Cycle Length:</b> 140  <b>Offset (%):</b> 35%</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>WBLT</th> <th>EBT</th> <th>NBLT</th> <th>SBT</th> </tr> </thead> <tbody> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>13</td> <td>36</td> <td>14</td> <td>37</td> </tr> <tr> <th>Direction</th> <th>EBLT</th> <th>WBT</th> <th>SBLT</th> <th>NBLT</th> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>13</td> <td>36</td> <td>14</td> <td>37</td> </tr> </tbody> </table>	Direction	WBLT	EBT	NBLT	SBT	Phase	1	2	3	4	%	13	36	14	37	Direction	EBLT	WBT	SBLT	NBLT	Phase	5	6	7	8	%	13	36	14	37	<p><b>Pattern 2</b>  <b>Time:</b> 9:00  <b>Cycle Length:</b> 140  <b>Offset (%):</b> 0%</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>WBLT</th> <th>EBT</th> <th>NBLT</th> <th>SBT</th> </tr> </thead> <tbody> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>11</td> <td>37</td> <td>15</td> <td>37</td> </tr> <tr> <th>Direction</th> <th>EBLT</th> <th>WBT</th> <th>SBLT</th> <th>NBLT</th> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>11</td> <td>37</td> <td>15</td> <td>37</td> </tr> </tbody> </table>	Direction	WBLT	EBT	NBLT	SBT	Phase	1	2	3	4	%	11	37	15	37	Direction	EBLT	WBT	SBLT	NBLT	Phase	5	6	7	8	%	11	37	15	37
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%	11	37	15	37																																																									
<p><b>Pattern 3</b>  <b>Time:</b> 15:15  <b>Cycle Length:</b> 140  <b>Offset (%):</b> 55%</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>WBLT</th> <th>EBT</th> <th>NBLT</th> <th>SBT</th> </tr> </thead> <tbody> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>12</td> <td>34</td> <td>21</td> <td>33</td> </tr> <tr> <th>Direction</th> <th>EBLT</th> <th>WBT</th> <th>SBLT</th> <th>NBLT</th> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>12</td> <td>34</td> <td>12</td> <td>42</td> </tr> </tbody> </table>	Direction	WBLT	EBT	NBLT	SBT	Phase	1	2	3	4	%	12	34	21	33	Direction	EBLT	WBT	SBLT	NBLT	Phase	5	6	7	8	%	12	34	12	42	<p><b>Pattern 4</b>  <b>Time:</b> 18:00  <b>Cycle Length:</b> 140  <b>Offset (%):</b> 0%</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>WBLT</th> <th>EBT</th> <th>NBLT</th> <th>SBT</th> </tr> </thead> <tbody> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>11</td> <td>37</td> <td>15</td> <td>37</td> </tr> <tr> <th>Direction</th> <th>EBLT</th> <th>WBT</th> <th>SBLT</th> <th>NBLT</th> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>11</td> <td>37</td> <td>15</td> <td>37</td> </tr> </tbody> </table>	Direction	WBLT	EBT	NBLT	SBT	Phase	1	2	3	4	%	11	37	15	37	Direction	EBLT	WBT	SBLT	NBLT	Phase	5	6	7	8	%	11	37	15	37
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Date: 5-Mar-26

Intersection: Dundas & Hospital Entrance

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use		X		X	X	X			X	X	X	
Direction		EB		SB	EBL	WB						
Min Green		20		10	7	20						
Veh Ext.				3.0	3.0							
Yellow		4.2		3.3	3	4.2						
Red		1.9		3.5	1	1.9						
Walk		7		7		7						
Don't Walk		21		35		21						
Max 1												
Max 2												
Max 3												
Veh Recall												
Ped Recall												
<b>Notes:</b>	Check Sync Reference Point											

<p><b>Pattern 1</b> SSMTWTF  <b>Time:</b> 6:00-09:00  <b>Cycle Length:</b> 140  <b>Offset (%):</b> 93%</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>EB</th> <th>3</th> <th>SB</th> </tr> </thead> <tbody> <tr> <td>Phase 1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>63</td> <td>0</td> <td>37</td> </tr> <tr> <th>Direction</th> <th>EBL</th> <th>WB</th> <th>NB</th> </tr> <tr> <td>Phase 5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>54</td> <td>0</td> <td>37</td> </tr> </tbody> </table>	Direction	EB	3	SB	Phase 1	2	3	4	%	63	0	37	Direction	EBL	WB	NB	Phase 5	6	7	8	%	54	0	37	<p><b>Pattern 2</b> SSMTWTF  <b>Time:</b> 09:00-15:00  <b>Cycle Length:</b> 110  <b>Offset (%):</b> 28%</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>EB</th> <th>3</th> <th>SB</th> </tr> </thead> <tbody> <tr> <td>Phase 1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>53</td> <td>0</td> <td>47</td> </tr> <tr> <th>Direction</th> <th>EBL</th> <th>WB</th> <th>NB</th> </tr> <tr> <td>Phase 5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>43</td> <td>0</td> <td>47</td> </tr> </tbody> </table>	Direction	EB	3	SB	Phase 1	2	3	4	%	53	0	47	Direction	EBL	WB	NB	Phase 5	6	7	8	%	43	0	47
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Phase 5	6	7	8																																														
%	43	0	47																																														
<p><b>Pattern 3</b> SSMTWTF  <b>Time:</b> 15:00-18:00  <b>Cycle Length:</b> 140  <b>Offset (%):</b> 88%</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>EB</th> <th>3</th> <th>SB</th> </tr> </thead> <tbody> <tr> <td>Phase 1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>63</td> <td>0</td> <td>37</td> </tr> <tr> <th>Direction</th> <th>EBL</th> <th>WB</th> <th>NB</th> </tr> <tr> <td>Phase 5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>54</td> <td>0</td> <td>37</td> </tr> </tbody> </table>	Direction	EB	3	SB	Phase 1	2	3	4	%	63	0	37	Direction	EBL	WB	NB	Phase 5	6	7	8	%	54	0	37	<p><b>Pattern 4</b> SSMTWTF  <b>Time:</b> 18:00-21:00  <b>Cycle Length:</b> 110  <b>Offset (%):</b> 28%</p> <table border="1"> <thead> <tr> <th>Direction</th> <th>EB</th> <th>3</th> <th>SB</th> </tr> </thead> <tbody> <tr> <td>Phase 1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>53</td> <td>0</td> <td>47</td> </tr> <tr> <th>Direction</th> <th>EBL</th> <th>WB</th> <th>NB</th> </tr> <tr> <td>Phase 5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>43</td> <td>0</td> <td>47</td> </tr> </tbody> </table>	Direction	EB	3	SB	Phase 1	2	3	4	%	53	0	47	Direction	EBL	WB	NB	Phase 5	6	7	8	%	43	0	47
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Date: 20-Feb-20

Intersection: Dundas & Third Line

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use	X	X	X	X	X	X	X	X	X	X	X	X
Direction	DWBL	EB	NBL	SB	EBL	WB	SBL	NB				
Min Green	10	20	7	10	7	20	7	10				
Veh Ext.	3.0	4.0	3.0	3.0	3.0	4.0	3.0	3.0				
Yellow	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7				
Red	1	2.6	1	3.1	1	2.6	1	3.1				
Walk		7.0		7.0		7.0		7.0				
Don't Walk		29		31		29		31				
Max 1	20	50	20	25	14	40	14	25				
Max 2												
Max 3												
Veh Recall		X				X						
Ped Recall		X				X						
<b>Notes:</b>	Currently using basic plan timing as per bicycle tracks Resting in Walk phase 2+6 Pedestrian Reservice Active Local Zero Override Active Sync Reference 3:15											

<p><b>Pattern 1</b> Time: Cycle Length: Offset (%):</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>DWBL</td> <td>EB</td> <td>NBL</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>EBL</td> <td>WB</td> <td>SBL</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Direction	DWBL	EB	NBL	SB	Phase	1	2	3	4	%					Direction	EBL	WB	SBL	NB	Phase	5	6	7	8	%					<p><b>Pattern 2</b> Time: Cycle Length: Offset (%):</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>DWBL</td> <td>EB</td> <td>NBL</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>EBL</td> <td>WB</td> <td>SBL</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Direction	DWBL	EB	NBL	SB	Phase	1	2	3	4	%					Direction	EBL	WB	SBL	NB	Phase	5	6	7	8	%				
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Tech: S.Shams

Date: 3-Apr-25

Intersection: Bronte @ William Halton Parkway

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use	X	X				X		X	X		X	
Direction	SBL	NB				SB		WB				
Min Green	7	20				20		10				
Veh Ext.	3.0	3.0				3.0		3.0				
Yellow	3	4.2				4.2		3.7				
Red	1	2.3				2.3		2.8				
Walk		7										
Don't Walk		27										
Max 1	15	45				45		45				
Max 2	20	55				55		55				
Max 3												
Veh Recall		X				X						
Ped Recall												
<b>Notes:</b>	Coordinate N/S. No east-west ped crossings facilities No north-south crossing facilities on the west leg											

4/3/2025

**Pattern 1**

Time: 6:00  
 Cycle Length: 140  
 Offset (%): 15%

Direction	SBL	NB	0	0
Phase	1	2	3	4
%	9	73	0	18
Direction	0	SB	0	WB
Phase	5	6	7	8
%	0	82	0	18

**Pattern 2**

Time: 10:00  
 Cycle Length: 120  
 Offset (%): 0%

Direction	SBL	NB	0	0
Phase	1	2	3	4
%	15	45	0	40
Direction	0	SB	0	WB
Phase	5	6	7	8
%	0	60	0	40

**Pattern 3**

Time: 15:00  
 Cycle Length: 140  
 Offset (%): 59%

Direction	SBL	NB	0	0
Phase	1	2	3	4
%	9	66	0	25
Direction	0	SB	0	WB
Phase	5	6	7	8
%	0	75	0	25

**Pattern 4**

Time: 19:00  
 Cycle Length: 120  
 Offset (%): 0%

Direction	SBL	NB	0	0
Phase	1	2	3	4
%	10	50	0	40
Direction	0	SB	0	WB
Phase	5	6	7	8
%	0	60	0	40

**Pattern 5**

Time: 22:00  
 Cycle Length: Local  
 Offset (%):

Direction	SBL	NB	0	0
Phase	1	2	3	4
%				
Direction	0	SB	0	WB
Phase	5	6	7	8
%				

**Pattern 6**

Time:  
 Cycle Length:  
 Offset (%):

Direction	SBL	NB	0	0
Phase	1	2	3	4
%				
Direction	0	SB	0	WB
Phase	5	6	7	8
%				



Date: 14-Sep-15

Intersection: Hospital Gate @ William Halton Parkway

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use	X	X				X		X	X		X	X
Direction	WBL	EB				WB		NB				
Min Green	7	20				20		20				
Veh Ext.	3.0	3.0				3.0		3.0				
Yellow	3	3.7				3.7		3.7				
Red	1	2.7				2.7		2.3				
Walk		7				7		7				
Don't Walk		21				21		18				
Max 1	15	45				45		45				
Max 2	20	55				55		55				
Max 3												
Veh Recall		X				X						
Ped Recall												
<b>Notes:</b>	Coordinate E/W.  Max 1 Pattern 3 Max 2 Pattern 1 Check timings in controller											

<p><b>Pattern 1</b> Time: 6:00 Cycle Length: 120 Offset (%): 0%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>WBL</td> <td>EB</td> <td>0</td> <td>0</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>15</td> <td>55</td> <td>0</td> <td>30</td> </tr> <tr> <td>Direction</td> <td>0</td> <td>WB</td> <td>0</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>0</td> <td>70</td> <td>0</td> <td>30</td> </tr> </tbody> </table>	Direction	WBL	EB	0	0	Phase	1	2	3	4	%	15	55	0	30	Direction	0	WB	0	NB	Phase	5	6	7	8	%	0	70	0	30	<p><b>Pattern 2</b> Time: 10:00 Cycle Length: 120 Offset (%): 0%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>WBL</td> <td>EB</td> <td>0</td> <td>0</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>10</td> <td>50</td> <td>0</td> <td>40</td> </tr> <tr> <td>Direction</td> <td>0</td> <td>WB</td> <td>0</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>0</td> <td>60</td> <td>0</td> <td>40</td> </tr> </tbody> </table>	Direction	WBL	EB	0	0	Phase	1	2	3	4	%	10	50	0	40	Direction	0	WB	0	NB	Phase	5	6	7	8	%	0	60	0	40
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Date: 14-Sep-15

Intersection: Third Line @ William Halton Parkway

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use		X	X	X		X		X	X	X	X	X
Direction		EB	NBL	SB		WB		NB				
Min Green		20		20		20		20				
Veh Ext.		3.0		3.0		3.0		3.0				
Yellow		3.7		3.7		3.7		3.7				
Red		2.7		2.2		2.7		2.2				
Walk		7		7		7		7				
Don't Walk		16		14		16		14				
Max 1		45		45		45		45				
Max 2		55		55		55		55				
Max 3												
Veh Recall		X				X						
Ped Recall												
<b>Notes:</b>												

<p><b>Pattern 1</b>  <b>Time:</b> 6:00  <b>Cycle Length:</b> 120  <b>Offset (%):</b> 0%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>0</td> <td>EB</td> <td>NBL</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>0</td> <td>65</td> <td>0</td> <td>35</td> </tr> <tr> <td>Direction</td> <td>0</td> <td>WB</td> <td>0</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>0</td> <td>65</td> <td>0</td> <td>35</td> </tr> </tbody> </table>	Direction	0	EB	NBL	SB	Phase	1	2	3	4	%	0	65	0	35	Direction	0	WB	0	NB	Phase	5	6	7	8	%	0	65	0	35	<p><b>Pattern 2</b>  <b>Time:</b> 10:00  <b>Cycle Length:</b> 120  <b>Offset (%):</b> 0%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>0</td> <td>EB</td> <td>NBL</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>0</td> <td>50</td> <td>0</td> <td>50</td> </tr> <tr> <td>Direction</td> <td>0</td> <td>WB</td> <td>0</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>0</td> <td>50</td> <td>0</td> <td>50</td> </tr> </tbody> </table>	Direction	0	EB	NBL	SB	Phase	1	2	3	4	%	0	50	0	50	Direction	0	WB	0	NB	Phase	5	6	7	8	%	0	50	0	50
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## Appendix 4: Site Plan



## Summary of Space Needs

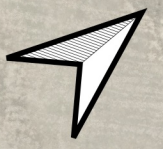
	Net Area (NSF)	Net Area (NSM)	Component Gross Area (CGSF)	Component Gross Area (CGSM)	Building Gross Area (BGSF)	Building Gross Area (BGSM)
<b>Laboratory</b>						
A1. Laboratory - Clean up	1,571	146	2,199	204		
A2. Laboratory - Clean up: Autoclaves	267	25	374	35		
A3. Laboratory - Sample Reception and Acceptance	924	86	1,294	120		
A4. Laboratory - Sample Processing	4,922	457	6,890	640		
A5. Laboratory - Sample Preparation	15,919	1,479	22,287	2,071		
A6. Laboratory - Sample Preparation: Standards and Reagents	2,411	224	3,375	314		
A7. Laboratory - Microbiology	4,454	414	6,236	580		
A8. Laboratory - Aquatic Toxicology	5,503	511	7,704	716		
A9. Laboratory - Analysis - Instrumentation	15,346	1,426	21,484	1,997		
A10. Laboratory - Automated Storage	1,452	135	2,033	189		
A11. Laboratory - MLITSD	2,942	273	4,119	383		
<b>TOTAL Laboratory</b>	<b>55,709</b>	<b>5,177</b>	<b>77,993</b>	<b>7,248</b>	<b>101,390</b>	<b>9,423</b>
<b>Science Workshop</b>						
B1. Science Workshop - Shipping and Receiving	6,128	570	8,579	797		
B2. Science Workshop - Workshop / Garage	12,892	1,198	18,048	1,677		
B3. Science Workshop - Equipment /Specialized Storage	2,359	219	3,302	307		
B4. Workshop - Automated Storage	4,312	401	6,036	561		
B5. Science Workshop - MLITSD Field Equipment and Workshop	240	22	336	31		
<b>TOTAL Garage</b>	<b>25,930</b>	<b>2,410</b>	<b>36,302</b>	<b>3,374</b>	<b>47,192</b>	<b>4,386</b>
<b>Office</b>						
D. Office Accommodation Space*	11,190	1,040	15,665	1,456		
E. Office Related Shared Spaces*	18,528	1,722	25,939	2,411		
F. Public and Support Spaces*	8,875	825	11,406	1,060		
<b>TOTAL Office</b>	<b>38,592</b>	<b>3,587</b>	<b>53,009</b>	<b>4,927</b>	<b>68,912</b>	<b>6,404</b>
<b>Outside Storage</b>						
C1. Outside Storage - Winter Equipment Storage	2,635	245	3,161	294		
<b>TOTAL Outside Storage</b>	<b>2,635</b>	<b>245</b>	<b>3,161</b>	<b>294</b>	<b>4,110</b>	<b>382</b>
<b>TOTAL ENCLOSED BUILDING PROGRAM</b>	<b>122,866</b>	<b>11,419</b>	<b>170,465</b>	<b>15,842</b>	<b>221,605</b>	<b>20,595</b>
<b>Secure Compound</b>						
C2. Outside Storage - Large Boat Truck Unit Storage (secure compound)	468	43				
C3. Outside Storage - Exterior Monitoring Stations and Preparation Area	6,049	562				
<b>TOTAL Secure Compound</b>	<b>6,517</b>	<b>606</b>				

\* for the breakdown of component areas please refer to detailed space list

\*\*Note: The details presented in this Summary of Space Needs is subject to change based on functional program requirements of ministry (MECP-MLITSD).

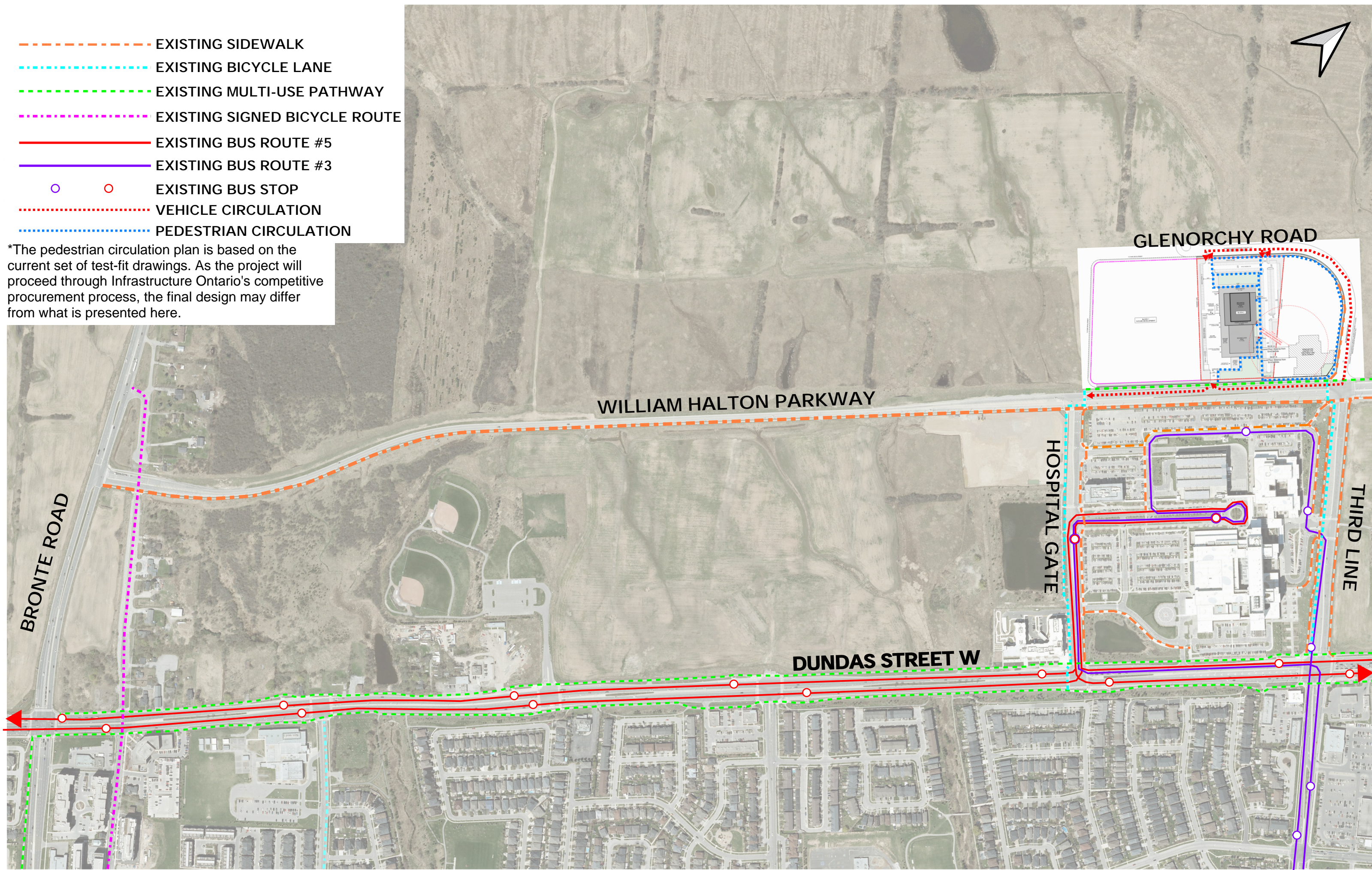


## Appendix 5: Pedestrian Circulation Plan



- - - EXISTING SIDEWALK
- - - EXISTING BICYCLE LANE
- - - EXISTING MULTI-USE PATHWAY
- - - EXISTING SIGNED BICYCLE ROUTE
- EXISTING BUS ROUTE #5
- EXISTING BUS ROUTE #3
- ○ EXISTING BUS STOP
- - - VEHICLE CIRCULATION
- - - PEDESTRIAN CIRCULATION

\*The pedestrian circulation plan is based on the current set of test-fit drawings. As the project will proceed through Infrastructure Ontario's competitive procurement process, the final design may differ from what is presented here.



**GLENORCHY ROAD**

**WILLIAM HALTON PARKWAY**

**BRONTE ROAD**

**HOSPITAL GATE**

**DUNDAS STREET W**















**THIRD LINE**



## Appendix 6: Synchro Outputs







Lanes, Volumes, Timings

Existing Conditions - AM Peak Hour  
1: Bronte Road & William Halton Parkway

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		 			 
Traffic Volume (vph)	393	140	1132	27	366	1430
Future Volume (vph)	393	140	1132	27	366	1430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	85.0	
Storage Lanes	2	1		0	2	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor	0.99	0.98	1.00			
Frt		0.850	0.997			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3506	1617	3462	0	1807	3411
Flt Permitted	0.950				0.087	
Satd. Flow (perm)	3477	1589	3462	0	165	3411
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		156	2			
Link Speed (k/h)	60		50			50
Link Distance (m)	194.3		435.0			273.6
Travel Time (s)	11.7		31.3			19.7
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	5%	8%	1%	7%
Adj. Flow (vph)	437	156	1258	30	407	1589
Shared Lane Traffic (%)						
Lane Group Flow (vph)	437	156	1288	0	407	1589
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.4		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

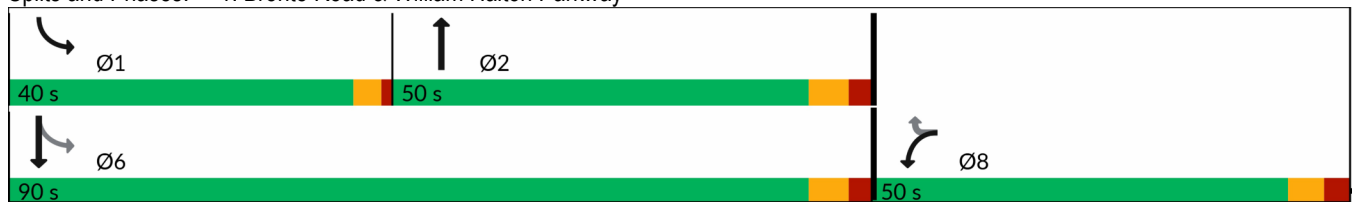
Lanes, Volumes, Timings

Existing Conditions - AM Peak Hour  
1: Bronte Road & William Halton Parkway

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0		7.0	20.0
Minimum Split (s)	24.5	24.5	40.5		11.5	26.5
Total Split (s)	50.0	50.0	50.0		40.0	90.0
Total Split (%)	35.7%	35.7%	35.7%		28.6%	64.3%
Maximum Green (s)	43.5	43.5	43.5		36.0	83.5
Yellow Time (s)	3.7	3.7	4.2		3.0	4.2
All-Red Time (s)	2.8	2.8	2.3		1.0	2.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		4.0	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)			7.0			
Flash Don't Walk (s)			27.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)	19.7	19.7	54.6		86.1	83.6
Actuated g/C Ratio	0.17	0.17	0.47		0.74	0.72
v/c Ratio	0.74	0.39	0.79		0.86	0.65
Control Delay (s/veh)	53.7	9.3	32.6		46.0	10.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	53.7	9.3	32.6		46.0	10.7
LOS	D	A	C		D	B
Approach Delay (s/veh)	42.0		32.6			17.9
Approach LOS	D		C			B






Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	116.3
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.86
Intersection Signal Delay (s/veh):	26.4
Intersection LOS:	C
Intersection Capacity Utilization:	77.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



Queues

Existing Conditions - AM Peak Hour  
1: Bronte Road & William Halton Parkway

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	437	156	1288	407	1589
v/c Ratio	0.74	0.39	0.79	0.86	0.65
Control Delay (s/veh)	53.7	9.3	32.6	46.0	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.7	9.3	32.6	46.0	10.7
Queue Length 50th (m)	49.5	0.0	130.9	67.6	92.5
Queue Length 95th (m)	66.4	17.1	#228.0	102.6	138.6
Internal Link Dist (m)	170.3		411.0		249.6
Turn Bay Length (m)				85.0	
Base Capacity (vph)	1312	692	1625	630	2451
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.23	0.79	0.65	0.65

Intersection Summary

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

2: Hospital Gate & William Halton Parkway/William Halton Parkway

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘↘	↗
Traffic Volume (vph)	213	179	16	110	57	15
Future Volume (vph)	213	179	16	110	57	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	0.99		1.00		0.99	0.98
Frt	0.932				0.995	0.850
Flt Protected			0.950		0.954	
Satd. Flow (prot)	3355	0	1825	3510	3523	1351
Flt Permitted			0.468		0.954	
Satd. Flow (perm)	3355	0	896	3510	3482	1324
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	199				2	15
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		5	5		5	5
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	4%	0%	10%
Adj. Flow (vph)	237	199	18	122	63	17
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	436	0	18	122	65	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

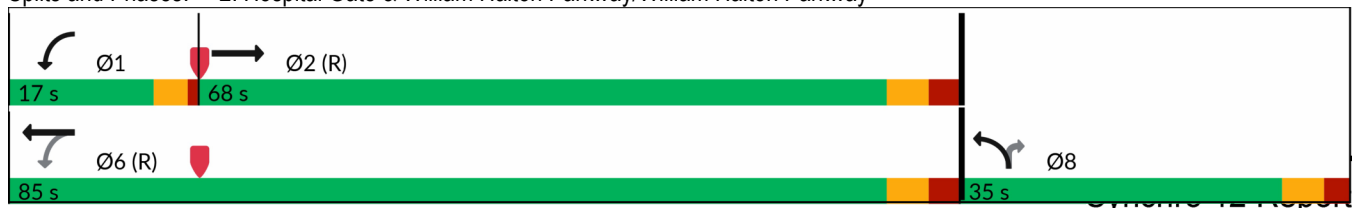


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	68.0		17.0	85.0	35.0	35.0
Total Split (%)	56.7%		14.2%	70.8%	29.2%	29.2%
Maximum Green (s)	61.6		13.0	78.6	29.0	29.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	74.2		81.0	78.6	29.0	29.0
Actuated g/C Ratio	0.62		0.68	0.66	0.24	0.24
v/c Ratio	0.20		0.03	0.05	0.08	0.05
Control Delay (s/veh)	6.0		6.8	8.9	34.4	15.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.0		6.8	8.9	34.4	15.6
LOS	A		A	A	C	B
Approach Delay (s/veh)	6.0			8.6	30.9	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.20  
 Intersection Signal Delay (s/veh): 9.6  
 Intersection LOS: A  
 Intersection Capacity Utilization 54.5%  
 ICU Level of Service A  
 Analysis Period (min) 15

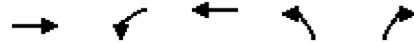
Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway



Queues

Existing Conditions - AM Peak Hour

2: Hospital Gate & William Halton Parkway/William Halton Parkway
























Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	436	18	122	65	15
v/c Ratio	0.20	0.03	0.05	0.08	0.05
Control Delay (s/veh)	6.0	6.8	8.9	34.4	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.0	6.8	8.9	34.4	15.6
Queue Length 50th (m)	10.1	0.9	3.5	5.9	0.0
Queue Length 95th (m)	21.1	3.8	11.6	11.7	6.5
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2150	705	2299	852	331
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.20	0.03	0.05	0.08	0.05
Intersection Summary					

Lanes, Volumes, Timings

Existing Conditions - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	15	197	16	46	0	80	21	33	0	2	0
Future Volume (vph)	17	15	197	16	46	0	80	21	33	0	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	0.99			0.99	0.99				
Fr <sub>t</sub>			0.850					0.907				
Fl <sub>t</sub> Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	3650	1633	1825	3510	0	1772	3023	0	1921	3650	0
Fl <sub>t</sub> Permitted	0.722			0.746			0.756					
Satd. Flow (perm)	1377	3650	1600	1422	3510	0	1398	3023	0	1921	3650	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			219					37				
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%	3%	5%	10%	0%	0%	0%
Adj. Flow (vph)	19	17	219	18	51	0	89	23	37	0	2	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	17	219	18	51	0	89	60	0	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Existing Conditions - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

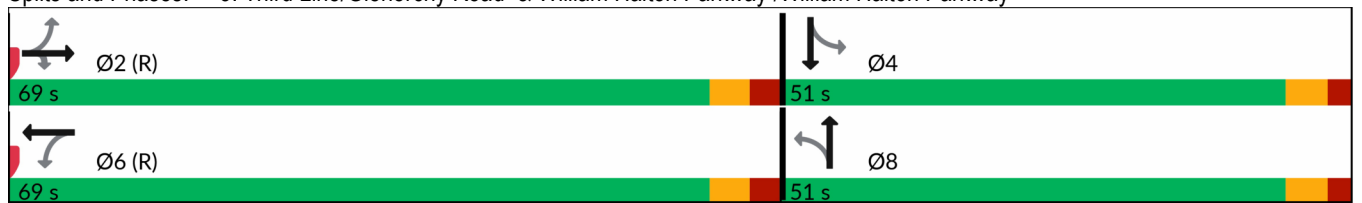


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	69.0	69.0	69.0	69.0	69.0		51.0	51.0		51.0	51.0	
Total Split (%)	57.5%	57.5%	57.5%	57.5%	57.5%		42.5%	42.5%		42.5%	42.5%	
Maximum Green (s)	62.6	62.6	62.6	62.6	62.6		45.1	45.1		45.1	45.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	87.7	87.7	87.7	87.7	87.7		20.0	20.0		20.0	20.0	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17		0.17	0.17	
v/c Ratio	0.02	0.01	0.18	0.02	0.02		0.38	0.11		0.00	0.00	
Control Delay (s/veh)	10.2	10.0	5.3	4.5	4.4		50.0	21.1		42.0	42.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	10.2	10.0	5.3	4.5	4.4		50.0	21.1		42.0	42.0	
LOS	B	A	A	A	A		D	C		D	D	
Approach Delay (s/veh)		6.0			4.5			38.4			42.0	
Approach LOS		A			A			D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.38
Intersection Signal Delay (s/veh):	16.1
Intersection LOS:	B
Intersection Capacity Utilization:	68.2%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



Queues

Existing Conditions - AM Peak Hour































3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	19	17	219	18	51	89	60	2
v/c Ratio	0.02	0.01	0.18	0.02	0.02	0.38	0.11	0.00
Control Delay (s/veh)	10.2	10.0	5.3	4.5	4.4	50.0	21.1	42.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.2	10.0	5.3	4.5	4.4	50.0	21.1	42.0
Queue Length 50th (m)	1.1	0.5	0.1	1.0	1.5	19.3	2.5	0.2
Queue Length 95th (m)	6.4	3.2	28.9	2.9	3.2	36.0	8.9	1.4
Internal Link Dist (m)		433.7			393.8		460.7	164.4
Turn Bay Length (m)	150.0		120.0			120.0		
Base Capacity (vph)	1006	2667	1228	1039	2565	525	1159	1371
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	0.02	0.01	0.18	0.02	0.02	0.17	0.05	0.00
<b>Intersection Summary</b>								

Lanes, Volumes, Timings

Existing Conditions - AM Peak Hour  
4: Bronte Road & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 			 	
Traffic Volume (vph)	250	1100	402	155	596	189	152	720	145	268	1042	147
Future Volume (vph)	250	1100	402	155	596	189	152	720	145	268	1042	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.98	1.00	1.00		1.00		0.98	1.00		0.98
Frt			0.850		0.964				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5092	1585	1659	4669	0	3340	3444	1570	1706	3380	1484
Flt Permitted	0.950			0.950			0.950			0.145		
Satd. Flow (perm)	1769	5092	1556	1657	4669	0	3337	3444	1542	260	3380	1458
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			201		56				161			154
Link Speed (k/h)		70			70			50				50
Link Distance (m)		275.6			1271.2			364.1				435.0
Travel Time (s)		14.2			65.4			26.2				31.3
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	10%	9%	4%	6%	6%	4%	7%	8%	10%
Adj. Flow (vph)	278	1222	447	172	662	210	169	800	161	298	1158	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	278	1222	447	172	872	0	169	800	161	298	1158	163
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

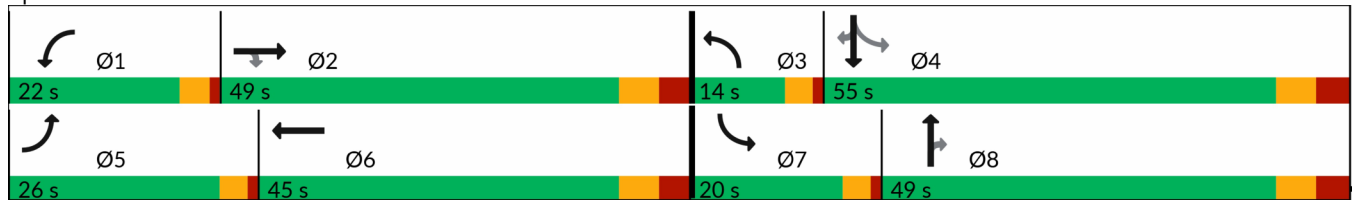
Existing Conditions - AM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	26.0	49.0	49.0	22.0	45.0		14.0	49.0	49.0	20.0	55.0	55.0
Total Split (%)	18.6%	35.0%	35.0%	15.7%	32.1%		10.0%	35.0%	35.0%	14.3%	39.3%	39.3%
Maximum Green (s)	22.0	41.8	41.8	18.0	37.8		10.0	41.3	41.3	16.0	47.3	47.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	22.0	42.7	42.7	17.1	37.8		10.0	41.3	41.3	65.0	47.3	47.3
Actuated g/C Ratio	0.16	0.31	0.31	0.12	0.27		0.07	0.30	0.30	0.46	0.34	0.34
v/c Ratio	1.00	0.79	0.73	0.85	0.67		0.71	0.79	0.28	1.05	1.01	0.27
Control Delay (s/veh)	112.3	49.1	31.3	93.7	45.4		80.2	51.9	6.5	95.0	76.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	112.3	49.1	31.3	93.7	45.4		80.2	51.9	6.5	95.0	76.0	6.9
LOS	F	D	C	F	D		F	D	A	F	E	A
Approach Delay (s/veh)		54.0			53.4			49.7			72.5	
Approach LOS		D			D			D			E	

Intersection Summary












Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	135
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.05
Intersection Signal Delay (s/veh):	58.3
Intersection LOS:	E
Intersection Capacity Utilization:	101.3%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



Queues

Existing Conditions - AM Peak Hour  
4: Bronte Road & Dundas Street West

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	278	1222	447	172	872	169	800	161	298	1158	163
v/c Ratio	1.00	0.79	0.73	0.85	0.67	0.71	0.79	0.28	1.05	1.01	0.27
Control Delay (s/veh)	112.3	49.1	31.3	93.7	45.4	80.2	51.9	6.5	95.0	76.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	112.3	49.1	31.3	93.7	45.4	80.2	51.9	6.5	95.0	76.0	6.9
Queue Length 50th (m)	79.9	117.4	65.1	50.8	79.6	25.2	112.5	0.0	~65.8	~184.5	1.8
Queue Length 95th (m)	#138.7	135.8	108.3	#90.8	96.3	#40.2	138.0	16.8	#127.3	#233.8	18.5
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	278	1553	614	213	1301	238	1015	568	285	1141	594
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.79	0.73	0.81	0.67	0.71	0.79	0.28	1.05	1.01	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.


















Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

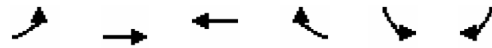
Lanes, Volumes, Timings

Existing Conditions - AM Peak Hour  
5: Dundas Street West & Hospital Gate

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  		 	
Traffic Volume (vph)	291	1222	891	228	106	48
Future Volume (vph)	291	1222	891	228	106	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor	1.00			0.98	1.00	0.98
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1789	5043	4902	1570	3404	1484
Fl <sub>t</sub> Permitted	0.247				0.950	
Satd. Flow (perm)	465	5043	4902	1539	3387	1458
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				253		53
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				1		1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	7%	4%	4%	10%
Adj. Flow (vph)	323	1358	990	253	118	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	323	1358	990	253	118	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings

Existing Conditions - AM Peak Hour  
5: Dundas Street West & Hospital Gate

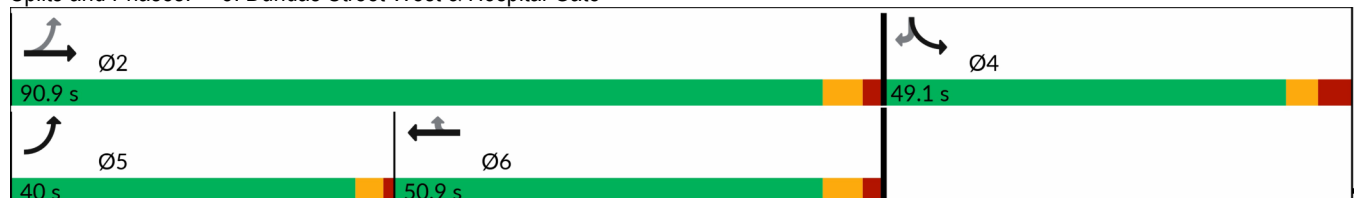


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	40.0	90.9	50.9	50.9	49.1	49.1
Total Split (%)	28.6%	64.9%	36.4%	36.4%	35.1%	35.1%
Maximum Green (s)	36.0	84.8	44.8	44.8	42.3	42.3
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	86.9	84.8	68.2	68.2	10.3	10.3
Actuated g/C Ratio	0.80	0.79	0.63	0.63	0.10	0.10
v/c Ratio	0.61	0.34	0.32	0.24	0.37	0.28
Control Delay (s/veh)	7.8	3.7	10.1	1.9	49.2	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.8	3.7	10.1	1.9	49.2	16.8
LOS	A	A	B	A	D	B
Approach Delay (s/veh)		4.5	8.4		39.2	
Approach LOS		A	A		D	

Intersection Summary

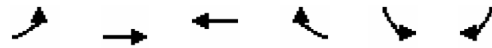
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	108
Natural Cycle:	95
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.61
Intersection Signal Delay (s/veh):	8.0
Intersection LOS:	A
Intersection Capacity Utilization:	66.0%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



Queues

Existing Conditions - AM Peak Hour  
5: Dundas Street West & Hospital Gate



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	323	1358	990	253	118	53
v/c Ratio	0.61	0.34	0.32	0.24	0.37	0.28
Control Delay (s/veh)	7.8	3.7	10.1	1.9	49.2	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.8	3.7	10.1	1.9	49.2	16.8
Queue Length 50th (m)	12.5	25.0	33.0	0.0	12.5	0.0
Queue Length 95th (m)	20.4	32.0	51.6	10.8	21.7	12.4
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	815	3961	3093	1064	1333	603
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.34	0.32	0.24	0.09	0.09
Intersection Summary						

Lanes, Volumes, Timings

Existing Conditions - AM Peak Hour  
6: Third Line & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	1072	242	482	740	184	296	193	438	135	198	12
Future Volume (vph)	9	1072	242	482	740	184	296	193	438	135	198	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4995	1585	3404	4902	1617	1755	3614	1585	1772	3544	1633
Fl <sub>t</sub> Permitted	0.330			0.950			0.485			0.618		
Satd. Flow (perm)	633	4995	1556	3398	4902	1587	892	3614	1557	1148	3544	1603
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			269			204			388			150
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	3%	4%	7%	1%	4%	1%	3%	3%	3%	0%
Adj. Flow (vph)	10	1191	269	536	822	204	329	214	487	150	220	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1191	269	536	822	204	329	214	487	150	220	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

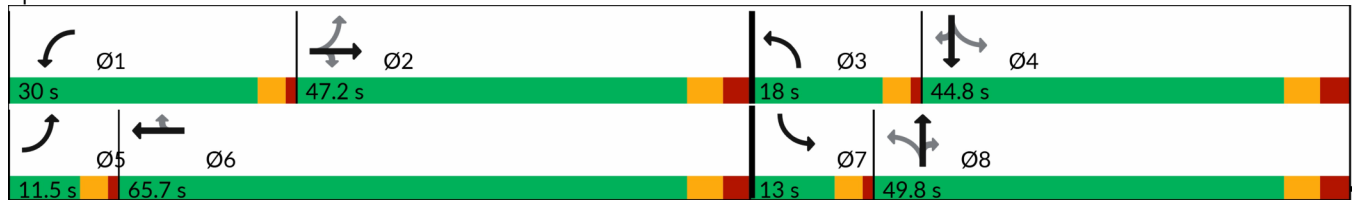
Existing Conditions - AM Peak Hour  
6: Third Line & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	47.2	47.2	30.0	65.7	65.7	18.0	49.8	49.8	13.0	44.8	44.8
Total Split (%)	8.2%	33.7%	33.7%	21.4%	46.9%	46.9%	12.9%	35.6%	35.6%	9.3%	32.0%	32.0%
Maximum Green (s)	7.5	40.9	40.9	26.0	59.4	59.4	14.0	43.0	43.0	9.0	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.6	41.2	41.2	22.5	65.9	65.9	37.0	21.2	21.2	27.9	16.1	16.1
Actuated g/C Ratio	0.44	0.36	0.36	0.20	0.57	0.57	0.32	0.18	0.18	0.24	0.14	0.14
v/c Ratio	0.03	0.67	0.37	0.81	0.29	0.21	0.84	0.32	0.81	0.46	0.45	0.04
Control Delay (s/veh)	13.6	34.8	5.3	55.2	14.5	2.9	53.6	41.8	21.1	34.9	48.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.6	34.8	5.3	55.2	14.5	2.9	53.6	41.8	21.1	34.9	48.0	0.2
LOS	B	C	A	E	B	A	D	D	C	C	D	A
Approach Delay (s/veh)		29.2			26.9			35.8			41.3	
Approach LOS		C			C			D			D	

Intersection Summary













Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	115.2
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay (s/veh):	31.0
Intersection LOS:	C
Intersection Capacity Utilization:	89.6%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Existing Conditions - AM Peak Hour  
6: Third Line & Dundas Street West















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	1191	269	536	822	204	329	214	487	150	220	13
v/c Ratio	0.03	0.67	0.37	0.81	0.29	0.21	0.84	0.32	0.81	0.46	0.45	0.04
Control Delay (s/veh)	13.6	34.8	5.3	55.2	14.5	2.9	53.6	41.8	21.1	34.9	48.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.6	34.8	5.3	55.2	14.5	2.9	53.6	41.8	21.1	34.9	48.0	0.2
Queue Length 50th (m)	0.8	81.2	0.0	58.9	30.2	0.0	63.8	22.4	20.2	25.7	24.8	0.0
Queue Length 95th (m)	3.8	125.6	19.8	92.6	64.9	13.5	#95.7	34.0	62.8	43.0	37.3	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	359	1787	729	774	2803	994	392	1359	827	327	1178	633
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.67	0.37	0.69	0.29	0.21	0.84	0.16	0.59	0.46	0.19	0.02

Intersection Summary

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

Lanes, Volumes, Timings

Existing Conditions - PM Peak Hour  
1: Bronte Road & William Halton Parkway

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		 			 
Traffic Volume (vph)	41	361	1590	14	117	932
Future Volume (vph)	41	361	1590	14	117	932
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	85.0	
Storage Lanes	2	1		0	2	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor	0.99	0.98	1.00			
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3541	1617	3507	0	1825	3476
Flt Permitted	0.950				0.066	
Satd. Flow (perm)	3512	1589	3507	0	127	3476
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		401	1			
Link Speed (k/h)	60		50			50
Link Distance (m)	194.3		435.0			273.6
Travel Time (s)	11.7		31.3			19.7
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	4%	0%	0%	5%
Adj. Flow (vph)	46	401	1767	16	130	1036
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	401	1783	0	130	1036
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.4		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

Lanes, Volumes, Timings

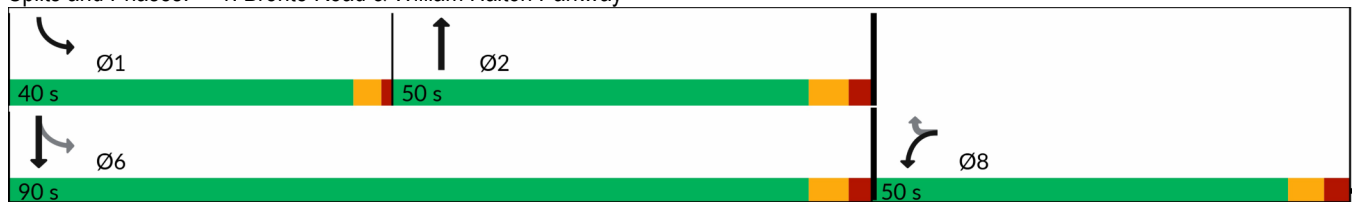
Existing Conditions - PM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0		7.0	20.0
Minimum Split (s)	24.5	24.5	40.5		11.5	26.5
Total Split (s)	50.0	50.0	50.0		40.0	90.0
Total Split (%)	35.7%	35.7%	35.7%		28.6%	64.3%
Maximum Green (s)	43.5	43.5	43.5		36.0	83.5
Yellow Time (s)	3.7	3.7	4.2		3.0	4.2
All-Red Time (s)	2.8	2.8	2.3		1.0	2.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		4.0	6.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)			7.0			
Flash Don't Walk (s)			27.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)	11.5	11.5	71.7		86.0	83.5
Actuated g/C Ratio	0.11	0.11	0.66		0.80	0.77
v/c Ratio	0.12	0.76	0.77		0.58	0.39
Control Delay (s/veh)	44.0	14.7	16.0		22.3	4.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	44.0	14.7	16.0		22.3	4.6
LOS	D	B	B		C	A
Approach Delay (s/veh)	17.7		16.0			6.6
Approach LOS	B		B			A

Intersection Summary






Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	108
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay (s/veh):	13.0
Intersection LOS:	B
Intersection Capacity Utilization:	78.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway














Queues

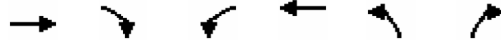
Existing Conditions - PM Peak Hour  
1: Bronte Road & William Halton Parkway

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	46	401	1783	130	1036
v/c Ratio	0.12	0.76	0.77	0.58	0.39
Control Delay (s/veh)	44.0	14.7	16.0	22.3	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	44.0	14.7	16.0	22.3	4.6
Queue Length 50th (m)	4.5	0.0	116.4	4.8	29.0
Queue Length 95th (m)	9.9	28.7	200.8	26.4	52.2
Internal Link Dist (m)	170.3		411.0		249.6
Turn Bay Length (m)				85.0	
Base Capacity (vph)	1426	879	2328	667	2688
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.46	0.77	0.19	0.39
<b>Intersection Summary</b>					

2: Hospital Gate & William Halton Parkway/William Halton Parkway

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	107	24	4	230	172	20
Future Volume (vph)	107	24	4	230	172	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	1.00		1.00		0.99	0.98
Frt	0.972				0.998	0.850
Flt Protected			0.950		0.953	
Satd. Flow (prot)	3479	0	1825	3579	3473	1415
Flt Permitted			0.625		0.953	
Satd. Flow (perm)	3479	0	1195	3579	3432	1387
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	27				1	20
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		5	5		5	5
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	0%	2%	2%	5%
Adj. Flow (vph)	119	27	4	256	191	22
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	146	0	4	256	193	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

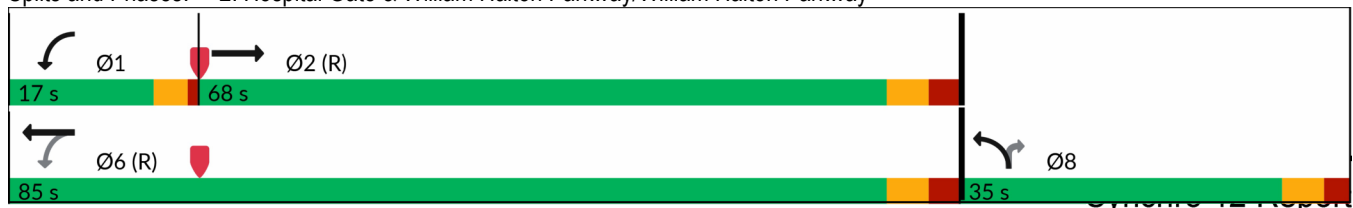


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	68.0		17.0	85.0	35.0	35.0
Total Split (%)	56.7%		14.2%	70.8%	29.2%	29.2%
Maximum Green (s)	61.6		13.0	78.6	29.0	29.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	76.4		81.0	78.6	29.0	29.0
Actuated g/C Ratio	0.64		0.68	0.66	0.24	0.24
v/c Ratio	0.07		0.00	0.11	0.23	0.06
Control Delay (s/veh)	7.4		17.5	19.5	37.2	14.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.4		17.5	19.5	37.2	14.2
LOS	A		B	B	D	B
Approach Delay (s/veh)	7.4			19.5	35.1	
Approach LOS	A			B	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.23  
 Intersection Signal Delay (s/veh): 22.0      Intersection LOS: C  
 Intersection Capacity Utilization 54.5%      ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway



Queues

Existing Conditions - PM Peak Hour

2: Hospital Gate & William Halton Parkway/William Halton Parkway



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	146	4	256	193	20
v/c Ratio	0.07	0.00	0.11	0.23	0.06
Control Delay (s/veh)	7.4	17.5	19.5	37.2	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.4	17.5	19.5	37.2	14.2
Queue Length 50th (m)	4.9	0.4	19.5	19.1	0.0
Queue Length 95th (m)	11.3	m1.7	33.1	29.2	7.1
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2225	874	2344	840	350
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.00	0.11	0.23	0.06






















Intersection Summary

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

Lanes, Volumes, Timings

Existing Conditions - PM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	21	102	24	22	0	196	12	42	0	43	16
Future Volume (vph)	4	21	102	24	22	0	196	12	42	0	43	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	0.99			0.99	0.98			0.99	
Frt			0.850					0.882			0.959	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	3650	1633	1825	3444	0	1789	3118	0	1921	3480	0
Flt Permitted	0.741			0.742			0.712					
Satd. Flow (perm)	1413	3650	1600	1415	3444	0	1331	3118	0	1921	3480	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113					47			18	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	4	23	113	27	24	0	218	13	47	0	48	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	23	113	27	24	0	218	60	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Existing Conditions - PM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	69.0	69.0	69.0	69.0	69.0		51.0	51.0		51.0	51.0	
Total Split (%)	57.5%	57.5%	57.5%	57.5%	57.5%		42.5%	42.5%		42.5%	42.5%	
Maximum Green (s)	62.6	62.6	62.6	62.6	62.6		45.1	45.1		45.1	45.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	81.6	81.6	81.6	81.6	81.6		26.1	26.1			26.1	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68		0.22	0.22			0.22	
v/c Ratio	0.00	0.01	0.10	0.03	0.01		0.75	0.08			0.09	
Control Delay (s/veh)	16.3	13.8	6.6	8.0	7.8		59.7	12.8			26.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	16.3	13.8	6.6	8.0	7.8		59.7	12.8			26.2	
LOS	B	B	A	A	A		E	B			C	
Approach Delay (s/veh)		8.1			7.9			49.6			26.2	
Approach LOS		A			A			D			C	

**Intersection Summary**

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

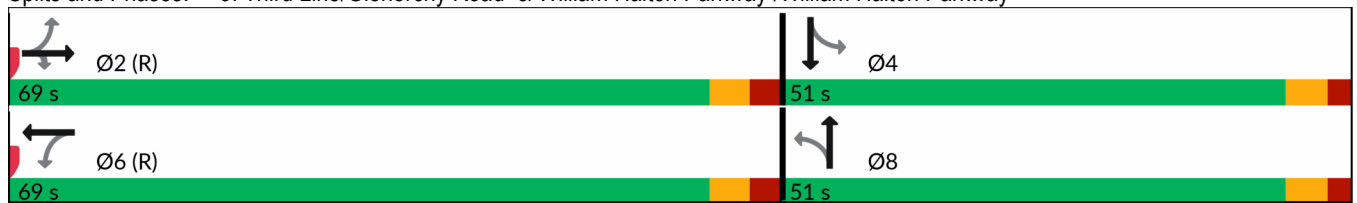
Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 31.9      Intersection LOS: C

Intersection Capacity Utilization 68.2%      ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



## Queues

Existing Conditions - PM Peak Hour

## 3: Third Line/Glenorchy Road &amp; William Halton Parkway /William Halton Parkway


























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	4	23	113	27	24	218	60	66
v/c Ratio	0.00	0.01	0.10	0.03	0.01	0.75	0.08	0.09
Control Delay (s/veh)	16.3	13.8	6.6	8.0	7.8	59.7	12.8	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.3	13.8	6.6	8.0	7.8	59.7	12.8	26.2
Queue Length 50th (m)	0.3	0.8	0.0	1.8	0.8	49.6	1.3	4.7
Queue Length 95th (m)	m3.2	4.9	21.3	6.1	3.0	70.3	6.3	9.7
Internal Link Dist (m)		433.7			393.8		460.7	164.4
Turn Bay Length (m)	150.0		120.0			120.0		
Base Capacity (vph)	960	2480	1123	961	2340	500	1201	1319
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	0.00	0.01	0.10	0.03	0.01	0.44	0.05	0.05

## Intersection Summary

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

Lanes, Volumes, Timings

Existing Conditions - PM Peak Hour  
4: Bronte Road & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	714	174	161	1186	216	312	1207	83	179	561	234
Future Volume (vph)	181	714	174	161	1186	216	312	1207	83	179	561	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.98	1.00	1.00		1.00		0.98			0.98
Frt			0.850		0.977				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	5092	1570	1772	4968	0	3471	3510	1570	1807	3510	1601
Flt Permitted	0.950			0.950			0.950			0.088		
Satd. Flow (perm)	1806	5092	1541	1769	4968	0	3463	3510	1542	167	3510	1572
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193		26				126			260
Link Speed (k/h)		70			70			50				50
Link Distance (m)		275.6			1271.2			364.1				435.0
Travel Time (s)		14.2			65.4			26.2				31.3
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	4%	3%	3%	2%	2%	4%	4%	1%	4%	2%
Adj. Flow (vph)	201	793	193	179	1318	240	347	1341	92	199	623	260
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	793	193	179	1558	0	347	1341	92	199	623	260
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

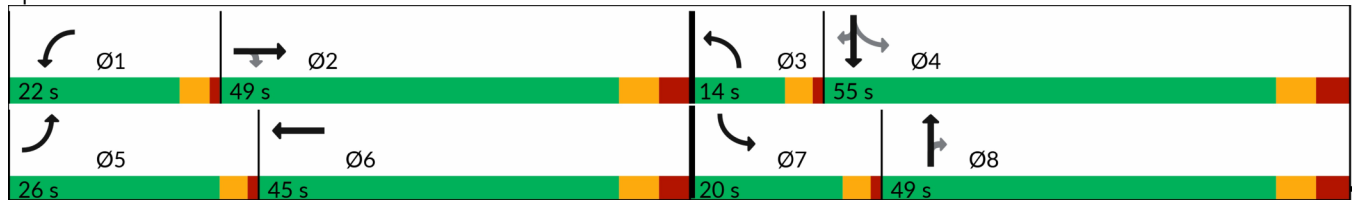
Existing Conditions - PM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	26.0	49.0	49.0	22.0	45.0		14.0	49.0	49.0	20.0	55.0	55.0
Total Split (%)	18.6%	35.0%	35.0%	15.7%	32.1%		10.0%	35.0%	35.0%	14.3%	39.3%	39.3%
Maximum Green (s)	22.0	41.8	41.8	18.0	37.8		10.0	41.3	41.3	16.0	47.3	47.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	19.1	41.8	41.8	16.7	39.4		10.0	41.3	41.3	63.3	46.2	46.2
Actuated g/C Ratio	0.14	0.30	0.30	0.12	0.29		0.07	0.30	0.30	0.46	0.34	0.34
v/c Ratio	0.80	0.51	0.32	0.83	1.08		1.38	1.27	0.17	0.79	0.53	0.37
Control Delay (s/veh)	81.0	41.2	6.2	89.4	94.0		239.0	170.0	2.8	52.9	39.1	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	81.0	41.2	6.2	89.4	94.0		239.0	170.0	2.8	52.9	39.1	5.3
LOS	F	D	A	F	F		F	F	A	D	D	A
Approach Delay (s/veh)		42.3			93.5			174.8			33.5	
Approach LOS		D			F			F			C	

Intersection Summary












Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	137.6
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.38
Intersection Signal Delay (s/veh):	96.8
Intersection LOS:	F
Intersection Capacity Utilization:	103.2%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



Queues

Existing Conditions - PM Peak Hour  
4: Bronte Road & Dundas Street West

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	201	793	193	179	1558	347	1341	92	199	623	260
v/c Ratio	0.80	0.51	0.32	0.83	1.08	1.38	1.27	0.17	0.79	0.53	0.37
Control Delay (s/veh)	81.0	41.2	6.2	89.4	94.0	239.0	170.0	2.8	52.9	39.1	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	81.0	41.2	6.2	89.4	94.0	239.0	170.0	2.8	52.9	39.1	5.3
Queue Length 50th (m)	54.5	68.6	0.0	49.9	~183.4	~67.1	~256.8	0.0	36.6	75.3	0.0
Queue Length 95th (m)	#82.4	82.5	18.1	#87.1	#218.2	#98.7	#300.5	6.0	#71.1	94.5	19.0
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	288	1547	602	231	1442	252	1054	551	267	1206	711
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.51	0.32	0.77	1.08	1.38	1.27	0.17	0.75	0.52	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.


















Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

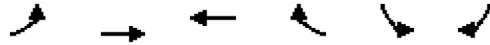
Lanes, Volumes, Timings

Existing Conditions - PM Peak Hour  
5: Dundas Street West & Hospital Gate

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  		 	
Traffic Volume (vph)	61	914	1368	122	296	195
Future Volume (vph)	61	914	1368	122	296	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor				0.98	1.00	0.98
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1706	5043	5043	1526	3372	1585
Fl <sub>t</sub> Permitted	0.128				0.950	
Satd. Flow (perm)	230	5043	5043	1496	3355	1557
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				131		217
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				1		1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	4%	4%	7%	5%	3%
Adj. Flow (vph)	68	1016	1520	136	329	217
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	1016	1520	136	329	217
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings

Existing Conditions - PM Peak Hour  
5: Dundas Street West & Hospital Gate



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	40.0	90.9	50.9	50.9	49.1	49.1
Total Split (%)	28.6%	64.9%	36.4%	36.4%	35.1%	35.1%
Maximum Green (s)	36.0	84.8	44.8	44.8	42.3	42.3
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	87.0	84.9	76.0	76.0	16.5	16.5
Actuated g/C Ratio	0.76	0.74	0.66	0.66	0.14	0.14
v/c Ratio	0.25	0.27	0.45	0.13	0.68	0.53
Control Delay (s/veh)	6.2	5.2	10.6	2.0	53.6	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.2	5.2	10.6	2.0	53.6	10.7
LOS	A	A	B	A	D	B
Approach Delay (s/veh)		5.2	9.9		36.6	
Approach LOS		A	A		D	

Intersection Summary

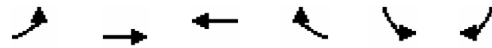
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	114.3
Natural Cycle:	95
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay (s/veh):	12.8
Intersection LOS:	B
Intersection Capacity Utilization:	58.9%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



Queues


































Existing Conditions - PM Peak Hour  
5: Dundas Street West & Hospital Gate



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	68	1016	1520	136	329	217
v/c Ratio	0.25	0.27	0.45	0.13	0.68	0.53
Control Delay (s/veh)	6.2	5.2	10.6	2.0	53.6	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.2	5.2	10.6	2.0	53.6	10.7
Queue Length 50th (m)	3.4	23.5	59.5	0.4	37.8	0.0
Queue Length 95th (m)	8.2	35.0	82.2	8.3	53.0	20.9
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	640	3745	3351	1038	1249	713
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.27	0.45	0.13	0.26	0.30
Intersection Summary						

Lanes, Volumes, Timings

Existing Conditions - PM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		  	  			 		 	 	
Traffic Volume (vph)	12	952	263	496	1189	118	336	184	444	191	137	19
Future Volume (vph)	12	952	263	496	1189	118	336	184	444	191	137	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5043	1601	3437	5043	1617	1755	3476	1585	1789	3476	1633
Fl <sub>t</sub> Permitted	0.196			0.950			0.530			0.624		
Satd. Flow (perm)	342	5043	1571	3430	5043	1587	975	3476	1557	1170	3476	1603
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			292			131			376			150
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	4%	2%	3%	4%	1%	4%	5%	3%	2%	5%	0%
Adj. Flow (vph)	13	1058	292	551	1321	131	373	204	493	212	152	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	1058	292	551	1321	131	373	204	493	212	152	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

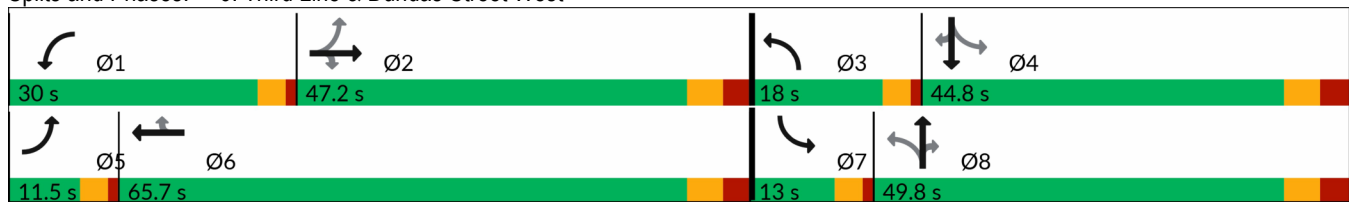
Lanes, Volumes, Timings

Existing Conditions - PM Peak Hour  
6: Third Line & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	47.2	47.2	30.0	65.7	65.7	18.0	49.8	49.8	13.0	44.8	44.8
Total Split (%)	8.2%	33.7%	33.7%	21.4%	46.9%	46.9%	12.9%	35.6%	35.6%	9.3%	32.0%	32.0%
Maximum Green (s)	7.5	40.9	40.9	26.0	59.4	59.4	14.0	43.0	43.0	9.0	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.7	41.3	41.3	22.8	64.2	64.2	37.8	21.8	21.8	28.7	16.8	16.8
Actuated g/C Ratio	0.44	0.36	0.36	0.20	0.55	0.55	0.33	0.19	0.19	0.25	0.14	0.14
v/c Ratio	0.06	0.59	0.39	0.82	0.47	0.14	0.91	0.31	0.83	0.63	0.30	0.06
Control Delay (s/veh)	14.4	33.8	5.3	56.3	18.5	3.8	62.3	41.6	23.5	41.4	45.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.4	33.8	5.3	56.3	18.5	3.8	62.3	41.6	23.5	41.4	45.5	0.3
LOS	B	C	A	E	B	A	E	D	C	D	D	A
Approach Delay (s/veh)		27.5			28.0			40.5			40.8	
Approach LOS		C			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	116.3
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.91
Intersection Signal Delay (s/veh):	31.6
Intersection LOS:	C
Intersection Capacity Utilization:	92.3%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Existing Conditions - PM Peak Hour  
6: Third Line & Dundas Street West

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	13	1058	292	551	1321	131	373	204	493	212	152	21
v/c Ratio	0.06	0.59	0.39	0.82	0.47	0.14	0.91	0.31	0.83	0.63	0.30	0.06
Control Delay (s/veh)	14.4	33.8	5.3	56.3	18.5	3.8	62.3	41.6	23.5	41.4	45.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.4	33.8	5.3	56.3	18.5	3.8	62.3	41.6	23.5	41.4	45.5	0.3
Queue Length 50th (m)	1.1	70.8	0.0	61.0	54.9	0.0	75.4	22.2	25.7	37.7	17.2	0.0
Queue Length 95th (m)	5.2	110.5	20.4	#100.3	113.6	11.4	#114.7	33.6	69.4	58.6	27.4	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	236	1789	745	775	2782	934	411	1296	816	336	1145	628
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	0.06	0.59	0.39	0.71	0.47	0.14	0.91	0.16	0.60	0.63	0.13	0.03

Intersection Summary

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

Lanes, Volumes, Timings

Background 2030 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	225	110	240	30	532	70	1252	479	585	1590	5
Future Volume (vph)	5	225	110	240	30	532	70	1252	479	585	1590	5
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	150.0		0.0	285.0		0.0
Storage Lanes	1		1	2		2	2		1	2		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.97		0.95	0.96			0.98		0.97	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1601	3506	1883	2846	3471	3476	1512	3506	3411	1601
Flt Permitted	0.736			0.950			0.950			0.950		
Satd. Flow (perm)	1340	3579	1514	3361	1883	2846	3409	3476	1462	3490	3411	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144			540			345			113
Link Speed (k/h)		60			60			50				50
Link Distance (m)		168.1			194.3			435.0				273.6
Travel Time (s)		10.1			11.7			31.3				19.7
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	2%	1%	2%	5%	8%	1%	7%	2%
Adj. Flow (vph)	6	250	122	267	33	591	78	1391	532	650	1767	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	250	122	267	33	591	78	1391	532	650	1767	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

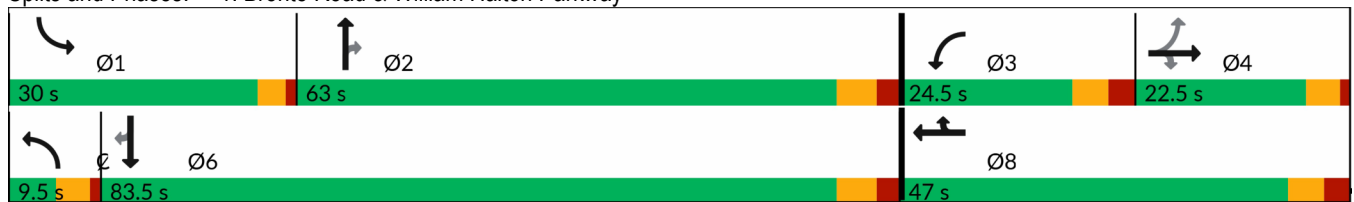
Lanes, Volumes, Timings

Background 2030 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Prot	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8	8	5	2		1	6	
Permitted Phases	4		4						2			6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	22.5	22.5	22.5	24.5	24.5	24.5	9.5	40.5	40.5	11.5	26.5	26.5
Total Split (s)	22.5	22.5	22.5	24.5	47.0	47.0	9.5	63.0	63.0	30.0	83.5	83.5
Total Split (%)	16.1%	16.1%	16.1%	17.5%	33.6%	33.6%	6.8%	45.0%	45.0%	21.4%	59.6%	59.6%
Maximum Green (s)	18.0	18.0	18.0	18.0	40.5	40.5	5.0	56.5	56.5	26.0	77.0	77.0
Yellow Time (s)	3.5	3.5	3.5	3.7	3.7	3.7	3.5	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	2.8	2.8	2.8	1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	6.5	6.5	6.5	4.5	6.5	6.5	4.0	6.5	6.5
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	Min	Min	Min	None	Min	Min	None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Don't Walk (s)	11.0	11.0	11.0					27.0	27.0			
Pedestrian Calls (#/hr)	3	3	3					3	3			
Act Effct Green (s)	14.4	14.4	14.4	15.0	33.9	33.9	5.0	56.6	56.6	26.0	77.1	77.1
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.25	0.25	0.04	0.42	0.42	0.19	0.58	0.58
v/c Ratio	0.04	0.65	0.42	0.68	0.07	0.52	0.60	0.94	0.65	0.95	0.90	0.01
Control Delay (s/veh)	54.4	65.6	9.6	66.4	37.4	6.7	83.8	51.3	14.6	77.8	33.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.4	65.6	9.6	66.4	37.4	6.7	83.8	51.3	14.6	77.8	33.0	0.0
LOS	D	E	A	E	D	A	F	D	B	E	C	A
Approach Delay (s/veh)		47.4			25.7			42.8			44.9	
Approach LOS		D			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	133.6
Natural Cycle:	140
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.95
Intersection Signal Delay (s/veh):	41.3
Intersection LOS:	D
Intersection Capacity Utilization:	87.2%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



Queues














Background 2030 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	250	122	267	33	591	78	1391	532	650	1767	6
v/c Ratio	0.04	0.65	0.42	0.68	0.07	0.52	0.60	0.94	0.65	0.95	0.90	0.01
Control Delay (s/veh)	54.4	65.6	9.6	66.4	37.4	6.7	83.8	51.3	14.6	77.8	33.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.4	65.6	9.6	66.4	37.4	6.7	83.8	51.3	14.6	77.8	33.0	0.0
Queue Length 50th (m)	1.5	34.4	0.0	35.6	6.8	5.9	10.8	191.6	39.9	89.2	219.4	0.0
Queue Length 95th (m)	5.8	49.8	12.6	51.4	15.3	21.1	#22.5	#261.2	88.2	#134.7	#309.1	0.0
Internal Link Dist (m)		144.1			170.3			411.0				249.6
Turn Bay Length (m)							150.0			285.0		
Base Capacity (vph)	180	482	328	472	571	1240	129	1472	817	683	1969	951
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.52	0.37	0.57	0.06	0.48	0.60	0.94	0.65	0.95	0.90	0.01

Intersection Summary

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

2: Hospital Gate & William Halton Parkway/William Halton Parkway

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					  	
Traffic Volume (vph)	991	298	20	745	57	15
Future Volume (vph)	991	298	20	745	57	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	0.99				0.96	0.96
Frt	0.965				0.995	0.850
Flt Protected			0.950		0.954	
Satd. Flow (prot)	3469	0	1825	3510	3520	1351
Flt Permitted			0.103		0.954	
Satd. Flow (perm)	3469	0	198	3510	3397	1300
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	53				2	15
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		15	15		15	15
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	4%	0%	10%
Adj. Flow (vph)	1101	331	22	828	63	17
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	1432	0	22	828	65	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

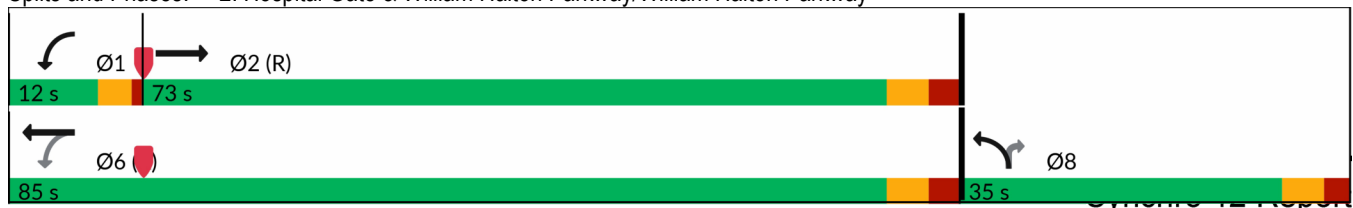


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	73.0		12.0	85.0	35.0	35.0
Total Split (%)	60.8%		10.0%	70.8%	29.2%	29.2%
Maximum Green (s)	66.6		8.0	78.6	29.0	29.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	3			3	3	3
Act Effct Green (s)	72.0		81.0	78.6	29.0	29.0
Actuated g/C Ratio	0.60		0.68	0.66	0.24	0.24
v/c Ratio	0.68		0.10	0.36	0.08	0.05
Control Delay (s/veh)	18.4		8.8	12.8	34.4	15.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	18.4		8.8	12.8	34.4	15.6
LOS	B		A	B	C	B
Approach Delay (s/veh)	18.4			12.7	30.9	
Approach LOS	B			B	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay (s/veh): 16.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 68.4%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway

























## 2: Hospital Gate &amp; William Halton Parkway/William Halton Parkway

	→	↙	←	↘	↗
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1432	22	828	65	15
v/c Ratio	0.68	0.10	0.36	0.08	0.05
Control Delay (s/veh)	18.4	8.8	12.8	34.4	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	18.4	8.8	12.8	34.4	15.6
Queue Length 50th (m)	121.5	2.3	59.2	5.9	0.0
Queue Length 95th (m)	147.8	6.0	74.7	11.7	6.5
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2102	242	2299	852	325
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	0.09	0.36	0.08	0.05
<b>Intersection Summary</b>					

Lanes, Volumes, Timings

Background 2030 - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	648	333	16	681	0	84	22	35	0	2	0
Future Volume (vph)	25	648	333	16	681	0	84	22	35	0	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.96	0.99			0.97	0.97				
Frt			0.850					0.907				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	3650	1633	1825	3510	0	1772	2985	0	1921	3650	0
Flt Permitted	0.353			0.368			0.756					
Satd. Flow (perm)	673	3650	1573	702	3510	0	1374	2985	0	1921	3650	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			370					39				
Link Speed (k/h)		60			60			50				50
Link Distance (m)		457.7			417.8			484.7				188.4
Travel Time (s)		27.5			25.1			34.9				13.6
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%	3%	5%	10%	0%	0%	0%
Adj. Flow (vph)	28	720	370	18	757	0	93	24	39	0	2	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	720	370	18	757	0	93	63	0	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

Background 2030 - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

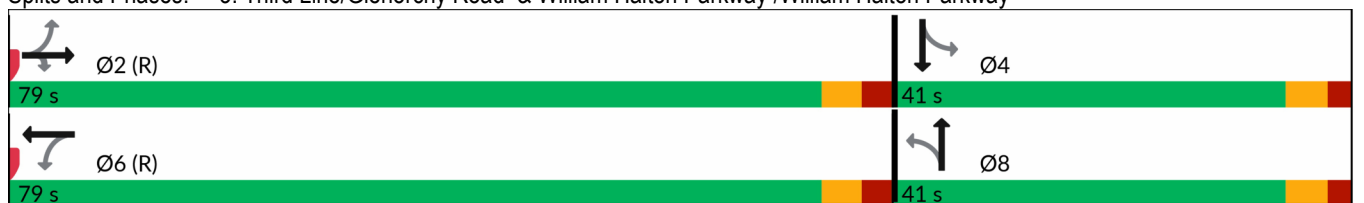


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	79.0	79.0	79.0	79.0	79.0		41.0	41.0		41.0	41.0	
Total Split (%)	65.8%	65.8%	65.8%	65.8%	65.8%		34.2%	34.2%		34.2%	34.2%	
Maximum Green (s)	72.6	72.6	72.6	72.6	72.6		35.1	35.1		35.1	35.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effct Green (s)	87.5	87.5	87.5	87.5	87.5		20.2	20.2			20.2	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17			0.17	
v/c Ratio	0.06	0.27	0.30	0.04	0.30		0.40	0.12			0.00	
Control Delay (s/veh)	9.9	14.3	8.1	4.8	6.0		50.4	20.8			41.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	9.9	14.3	8.1	4.8	6.0		50.4	20.8			41.5	
LOS	A	B	A	A	A		D	C			D	
Approach Delay (s/veh)		12.2			6.0			38.4			41.5	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.40
Intersection Signal Delay (s/veh):	11.8
Intersection LOS:	B
Intersection Capacity Utilization:	71.4%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



## 3: Third Line/Glenorchy Road &amp; William Halton Parkway /William Halton Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	720	370	18	757	93	63	2
v/c Ratio	0.06	0.27	0.30	0.04	0.30	0.40	0.12	0.00
Control Delay (s/veh)	9.9	14.3	8.1	4.8	6.0	50.4	20.8	41.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.9	14.3	8.1	4.8	6.0	50.4	20.8	41.5
Queue Length 50th (m)	3.1	69.6	39.5	1.0	29.1	20.3	2.6	0.2
Queue Length 95th (m)	m0.0	96.9	77.6	3.1	38.2	36.9	9.2	1.4
Internal Link Dist (m)		433.7			393.8		460.7	164.4
Turn Bay Length (m)	150.0		120.0			120.0		
Base Capacity (vph)	490	2661	1247	512	2559	401	900	1067
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	0.06	0.27	0.30	0.04	0.30	0.23	0.07	0.00

## Intersection Summary

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

Lanes, Volumes, Timings

Background 2030 - AM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	1275	402	155	626	329	152	1283	145	298	1404	254
Future Volume (vph)	250	1275	402	155	626	329	152	1283	145	298	1404	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	2		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.97	1.00	0.99		1.00		0.97	1.00		0.97
Fr <sub>t</sub>			0.850		0.948				0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5092	1585	1659	4580	0	3340	3444	1570	3309	3380	1484
Fl <sub>t</sub> Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1765	5092	1532	1655	4580	0	3333	3444	1520	3301	3380	1437
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148		84				118			202
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		275.6			1271.2			364.1			435.0	
Travel Time (s)		14.2			65.4			26.2			31.3	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	10%	9%	4%	6%	6%	4%	7%	8%	10%
Adj. Flow (vph)	278	1417	447	172	696	366	169	1426	161	331	1560	282
Shared Lane Traffic (%)												
Lane Group Flow (vph)	278	1417	447	172	1062	0	169	1426	161	331	1560	282
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

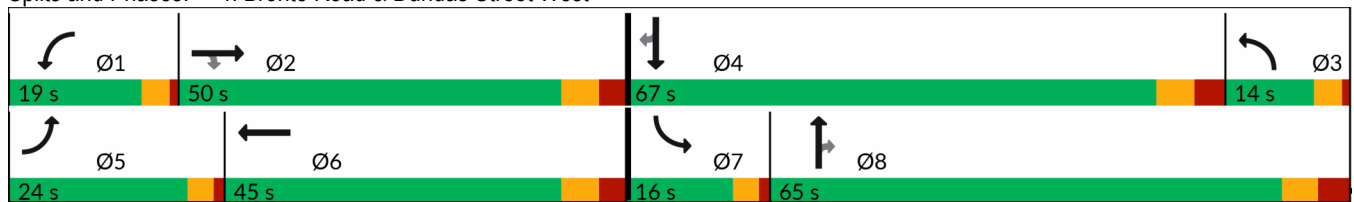
Lanes, Volumes, Timings

Background 2030 - AM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	24.0	50.0	50.0	19.0	45.0		14.0	65.0	65.0	16.0	67.0	67.0
Total Split (%)	16.0%	33.3%	33.3%	12.7%	30.0%		9.3%	43.3%	43.3%	10.7%	44.7%	44.7%
Maximum Green (s)	20.0	42.8	42.8	15.0	37.8		10.0	57.3	57.3	12.0	59.3	59.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3			3	3		3	3
Act Effct Green (s)	20.0	42.8	42.8	15.0	37.8		10.0	57.3	57.3	12.0	59.3	59.3
Actuated g/C Ratio	0.13	0.29	0.29	0.10	0.25		0.07	0.38	0.38	0.08	0.40	0.40
v/c Ratio	1.18	0.98	0.82	1.04	0.87		0.76	1.08	0.25	1.25	1.17	0.41
Control Delay (s/veh)	169.2	71.3	46.8	144.8	58.4		90.2	94.6	10.5	194.6	124.5	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	169.2	71.3	46.8	144.8	58.4		90.2	94.6	10.5	194.6	124.5	11.1
LOS	F	E	D	F	E		F	F	B	F	F	B
Approach Delay (s/veh)		78.9			70.4			86.5			120.4	
Approach LOS		E			E			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.25
Intersection Signal Delay (s/veh):	91.6
Intersection LOS:	F
Intersection Capacity Utilization:	110.9%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



Queues

Background 2030 - AM Peak Hour  
4: Bronte Road & Dundas Street West



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	278	1417	447	172	1062	169	1426	161	331	1560	282
v/c Ratio	1.18	0.98	0.82	1.04	0.87	0.76	1.08	0.25	1.25	1.17	0.41
Control Delay (s/veh)	169.2	71.3	46.8	144.8	58.4	90.2	94.6	10.5	194.6	124.5	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	169.2	71.3	46.8	144.8	58.4	90.2	94.6	10.5	194.6	124.5	11.1
Queue Length 50th (m)	~101.0	157.3	89.7	~59.3	111.5	27.2	~261.3	8.4	~66.7	~308.0	16.4
Queue Length 95th (m)	#159.7	#190.0	#144.9	#111.3	131.5	#45.2	#305.8	24.8	#99.9	#352.9	41.5
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	236	1452	542	165	1216	222	1315	653	264	1336	690
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.98	0.82	1.04	0.87	0.76	1.08	0.25	1.25	1.17	0.41

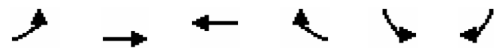
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

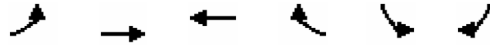
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	330	1388	1061	228	106	48
Future Volume (vph)	330	1388	1061	228	106	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor	1.00			0.96	0.99	0.97
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1789	5043	4902	1570	3404	1484
Fl <sub>t</sub> Permitted	0.177				0.950	
Satd. Flow (perm)	333	5043	4902	1511	3353	1439
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				253		53
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	15			15	15	15
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	7%	4%	4%	10%
Adj. Flow (vph)	367	1542	1179	253	118	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	367	1542	1179	253	118	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	40.0	91.2	51.2	51.2	48.8	48.8
Total Split (%)	28.6%	65.1%	36.6%	36.6%	34.9%	34.9%
Maximum Green (s)	36.0	85.1	45.1	45.1	42.0	42.0
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		3	3	3	3	3
Act Effct Green (s)	88.1	86.0	61.6	61.6	15.3	15.3
Actuated g/C Ratio	0.77	0.75	0.54	0.54	0.13	0.13
v/c Ratio	0.71	0.41	0.45	0.27	0.26	0.22
Control Delay (s/veh)	19.5	6.9	20.5	4.0	44.2	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.5	6.9	20.5	4.0	44.2	12.4
LOS	B	A	C	A	D	B
Approach Delay (s/veh)		9.3	17.6		34.4	
Approach LOS		A	B		C	

Intersection Summary

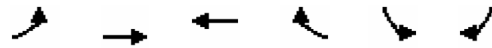
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	114.4
Natural Cycle:	95
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay (s/veh):	13.9
Intersection LOS:	B
Intersection Capacity Utilization:	74.5%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



Queues

Background 2030 - AM Peak Hour  
5: Dundas Street West & Hospital Gate



























Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	367	1542	1179	253	118	53
v/c Ratio	0.71	0.41	0.45	0.27	0.26	0.22
Control Delay (s/veh)	19.5	6.9	20.5	4.0	44.2	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.5	6.9	20.5	4.0	44.2	12.4
Queue Length 50th (m)	20.9	29.9	50.6	0.0	12.6	0.0
Queue Length 95th (m)	85.8	98.5	131.0	19.4	20.5	10.9
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	719	3791	2639	930	1263	567
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.41	0.45	0.27	0.09	0.09

Intersection Summary

Lanes, Volumes, Timings

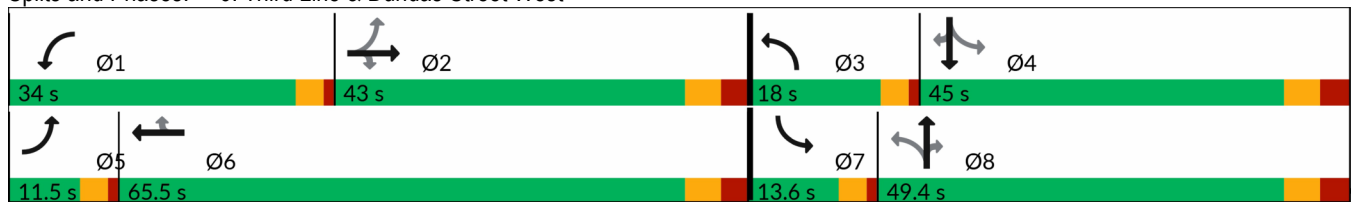
Background 2030 - AM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1205	272	502	910	192	296	193	438	135	198	12
Future Volume (vph)	10	1205	272	502	910	192	296	193	438	135	198	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.97	1.00		0.97	0.99		0.97	0.99		0.97
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4995	1585	3404	4902	1617	1755	3614	1585	1772	3544	1633
Fl <sub>t</sub> Permitted	0.271			0.950			0.494			0.618		
Satd. Flow (perm)	518	4995	1533	3389	4902	1566	902	3614	1535	1138	3544	1580
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			302			213			431			150
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	3%	4%	7%	1%	4%	1%	3%	3%	3%	0%
Adj. Flow (vph)	11	1339	302	558	1011	213	329	214	487	150	220	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	1339	302	558	1011	213	329	214	487	150	220	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	43.0	43.0	34.0	65.5	65.5	18.0	49.4	49.4	13.6	45.0	45.0
Total Split (%)	8.2%	30.7%	30.7%	24.3%	46.8%	46.8%	12.9%	35.3%	35.3%	9.7%	32.1%	32.1%
Maximum Green (s)	7.5	36.7	36.7	30.0	59.2	59.2	14.0	42.6	42.6	9.6	38.2	38.2
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3	3		3	3		3	3
Act Effct Green (s)	47.0	37.6	37.6	22.8	62.7	62.7	37.5	21.2	21.2	28.7	16.4	16.4
Actuated g/C Ratio	0.42	0.33	0.33	0.20	0.56	0.56	0.33	0.19	0.19	0.26	0.15	0.15
v/c Ratio	0.04	0.80	0.42	0.81	0.37	0.22	0.81	0.31	0.76	0.44	0.43	0.04
Control Delay (s/veh)	15.1	39.9	5.9	53.6	16.2	3.2	47.8	40.2	14.9	32.1	45.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.1	39.9	5.9	53.6	16.2	3.2	47.8	40.2	14.9	32.1	45.6	0.2
LOS	B	D	A	D	B	A	D	D	B	C	D	A
Approach Delay (s/veh)		33.5			26.4			30.7			38.8	
Approach LOS		C			C			C			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	112.4
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay (s/veh):	30.7
Intersection LOS:	C
Intersection Capacity Utilization:	95.8%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Background 2030 - AM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	1339	302	558	1011	213	329	214	487	150	220	13
v/c Ratio	0.04	0.80	0.42	0.81	0.37	0.22	0.81	0.31	0.76	0.44	0.43	0.04
Control Delay (s/veh)	15.1	39.9	5.9	53.6	16.2	3.2	47.8	40.2	14.9	32.1	45.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.1	39.9	5.9	53.6	16.2	3.2	47.8	40.2	14.9	32.1	45.6	0.2
Queue Length 50th (m)	0.8	93.7	0.0	58.4	38.8	0.0	59.5	21.3	10.5	23.9	23.5	0.0
Queue Length 95th (m)	4.6	#180.1	23.2	99.1	90.7	14.9	93.7	33.7	47.2	42.2	37.0	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	307	1671	713	921	2733	967	408	1389	855	348	1221	642
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	0.04	0.80	0.42	0.61	0.37	0.22	0.81	0.15	0.57	0.43	0.18	0.02

Intersection Summary

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

Lanes, Volumes, Timings

Background 2030 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	190	100	423	80	1080	190	1880	559	393	1097	0
Future Volume (vph)	10	190	100	423	80	1080	190	1880	559	393	1097	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	150.0		0.0	285.0		0.0
Storage Lanes	1		1	2		2	2		1	2		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.97		0.95	0.96			0.99		0.97	1.00		
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1601	3541	1883	2846	3471	3510	1633	3541	3476	1883
Flt Permitted	0.699			0.950			0.950			0.950		
Satd. Flow (perm)	1276	3579	1514	3387	1883	2846	3437	3510	1580	3535	3476	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			27			289			
Link Speed (k/h)		48			60			50			50	
Link Distance (m)		166.2			194.3			435.0			273.6	
Travel Time (s)		12.5			11.7			31.3			19.7	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	0%	2%	1%	2%	4%	0%	0%	5%	2%
Adj. Flow (vph)	11	211	111	470	89	1200	211	2089	621	437	1219	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	211	111	470	89	1200	211	2089	621	437	1219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

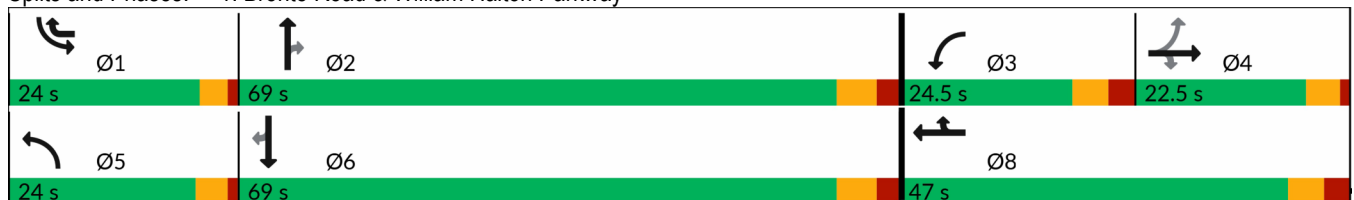
Lanes, Volumes, Timings

Background 2030 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4						2			6
Detector Phase	4	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	22.5	22.5	22.5	24.5	24.5		9.5	40.5	40.5	11.5	26.5	26.5
Total Split (s)	22.5	22.5	22.5	24.5	47.0		24.0	69.0	69.0	24.0	69.0	69.0
Total Split (%)	16.1%	16.1%	16.1%	17.5%	33.6%		17.1%	49.3%	49.3%	17.1%	49.3%	49.3%
Maximum Green (s)	18.0	18.0	18.0	18.0	40.5		19.5	62.5	62.5	20.0	62.5	62.5
Yellow Time (s)	3.5	3.5	3.5	3.7	3.7		3.5	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	2.8	2.8		1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	6.5	6.5		4.5	6.5	6.5	4.0	6.5	6.5
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
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0				7.0	7.0				
Flash Don't Walk (s)	11.0	11.0	11.0				27.0	27.0				
Pedestrian Calls (#/hr)	3	3	3				3	3				
Act Effct Green (s)	18.0	18.0	18.0	18.0	40.5	64.5	13.8	62.5	62.5	20.0	68.2	
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.29	0.46	0.10	0.45	0.45	0.14	0.49	
v/c Ratio	0.07	0.46	0.38	1.03	0.16	0.91	0.62	1.33	0.72	0.87	0.72	
Control Delay (s/veh)	55.0	60.1	12.9	109.4	38.2	45.0	68.3	187.8	21.3	76.4	31.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	55.0	60.1	12.9	109.4	38.2	45.0	68.3	187.8	21.3	76.4	31.8	
LOS	D	E	B	F	D	D	E	F	C	E	C	
Approach Delay (s/veh)		44.2			61.9			143.8			43.6	
Approach LOS		D			E			F			D	












Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.33
Intersection Signal Delay (s/veh):	92.3
Intersection LOS:	F
Intersection Capacity Utilization:	110.0%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



## Queues

Background 2030 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	211	111	470	89	1200	211	2089	621	437	1219
v/c Ratio	0.07	0.46	0.38	1.03	0.16	0.91	0.62	1.33	0.72	0.87	0.72
Control Delay (s/veh)	55.0	60.1	12.9	109.4	38.2	45.0	68.3	187.8	21.3	76.4	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.0	60.1	12.9	109.4	38.2	45.0	68.3	187.8	21.3	76.4	31.8
Queue Length 50th (m)	2.8	29.3	0.0	~71.7	18.7	170.1	29.8	~407.3	76.6	61.8	142.7
Queue Length 95th (m)	9.0	42.7	17.2	#106.1	32.9	#212.9	42.1	#449.2	123.8	#87.9	179.2
Internal Link Dist (m)		142.2			170.3			411.0			249.6
Turn Bay Length (m)							150.0			285.0	
Base Capacity (vph)	164	460	293	455	544	1325	483	1566	865	505	1693
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.46	0.38	1.03	0.16	0.91	0.44	1.33	0.72	0.87	0.72

## Intersection Summary
















~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

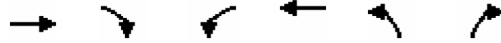
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

2: Hospital Gate & William Halton Parkway/William Halton Parkway

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	 			 	  	
Traffic Volume (vph)	1072	70	19	1411	172	20
Future Volume (vph)	1072	70	19	1411	172	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	1.00				0.96	0.96
Frt	0.991				0.998	0.850
Flt Protected			0.950		0.953	
Satd. Flow (prot)	3543	0	1825	3579	3472	1415
Flt Permitted			0.120		0.953	
Satd. Flow (perm)	3543	0	231	3579	3348	1363
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	8				1	20
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		15	15		15	15
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	0%	2%	2%	5%
Adj. Flow (vph)	1191	78	21	1568	191	22
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	1269	0	21	1568	193	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

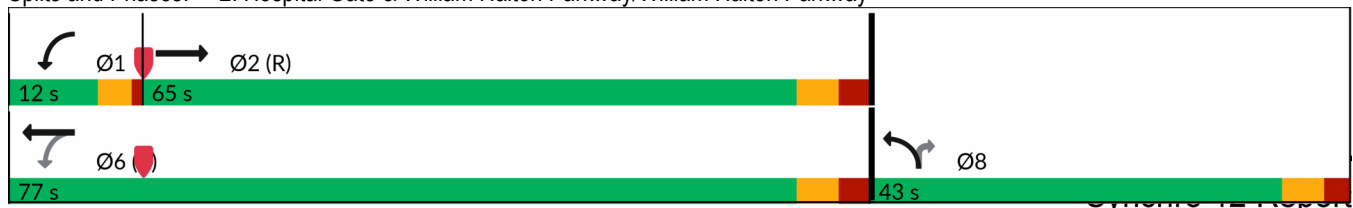


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	65.0		12.0	77.0	43.0	43.0
Total Split (%)	54.2%		10.0%	64.2%	35.8%	35.8%
Maximum Green (s)	58.6		8.0	70.6	37.0	37.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	3			3	3	3
Act Effct Green (s)	66.2		73.0	70.6	37.0	37.0
Actuated g/C Ratio	0.55		0.61	0.59	0.31	0.31
v/c Ratio	0.65		0.09	0.74	0.18	0.05
Control Delay (s/veh)	21.5		7.2	16.6	30.8	11.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.5		7.2	16.6	30.8	11.8
LOS	C		A	B	C	B
Approach Delay (s/veh)	21.5			16.5	29.0	
Approach LOS	C			B	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay (s/veh): 19.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 70.2%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway



## 2: Hospital Gate &amp; William Halton Parkway/William Halton Parkway



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1269	21	1568	193	20
v/c Ratio	0.65	0.09	0.74	0.18	0.05
Control Delay (s/veh)	21.5	7.2	16.6	30.8	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.5	7.2	16.6	30.8	11.8
Queue Length 50th (m)	96.2	0.9	155.6	17.3	0.0
Queue Length 95th (m)	146.5	m2.2	81.4	26.4	6.4
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	1957	246	2105	1071	434
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.09	0.74	0.18	0.05























## Intersection Summary

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

Lanes, Volumes, Timings

Background 2030 - PM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	807	275	24	1203	0	211	13	45	0	43	16
Future Volume (vph)	11	807	275	24	1203	0	211	13	45	0	43	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.96	0.99			0.98	0.97			0.99	
Frt			0.850					0.883			0.959	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	3650	1633	1825	3444	0	1789	3073	0	1921	3462	0
Flt Permitted	0.156			0.287			0.712					
Satd. Flow (perm)	300	3650	1573	549	3444	0	1310	3073	0	1921	3462	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			306					50			18	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	12	897	306	27	1337	0	234	14	50	0	48	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	897	306	27	1337	0	234	64	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Background 2030 - PM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

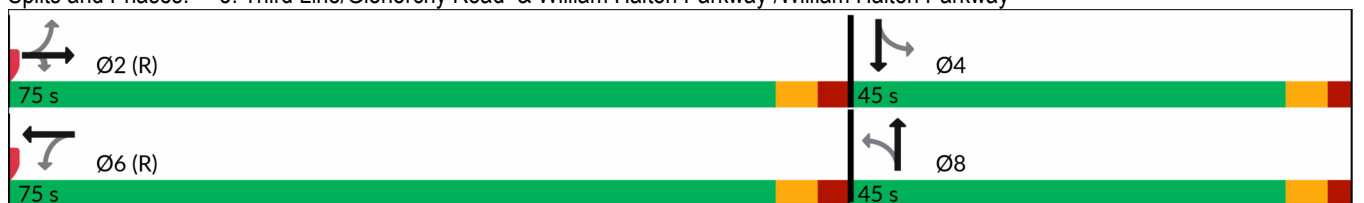


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	75.0	75.0	75.0	75.0	75.0		45.0	45.0		45.0	45.0	
Total Split (%)	62.5%	62.5%	62.5%	62.5%	62.5%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	68.6	68.6	68.6	68.6	68.6		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effct Green (s)	80.3	80.3	80.3	80.3	80.3		27.4	27.4			27.4	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.23	0.23			0.23	
v/c Ratio	0.06	0.37	0.27	0.07	0.58		0.78	0.09			0.08	
Control Delay (s/veh)	15.5	15.8	6.2	9.4	12.9		61.1	12.2			25.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	15.5	15.8	6.2	9.4	12.9		61.1	12.2			25.4	
LOS	B	B	A	A	B		E	B			C	
Approach Delay (s/veh)		13.3			12.9			50.6			25.4	
Approach LOS		B			B			D			C	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay (s/veh):	17.2
Intersection LOS:	B
Intersection Capacity Utilization:	68.4%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



## Queues

Background 2030 - PM Peak Hour

## 3: Third Line/Glenorchy Road &amp; William Halton Parkway /William Halton Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	12	897	306	27	1337	234	64	66
v/c Ratio	0.06	0.37	0.27	0.07	0.58	0.78	0.09	0.08
Control Delay (s/veh)	15.5	15.8	6.2	9.4	12.9	61.1	12.2	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.5	15.8	6.2	9.4	12.9	61.1	12.2	25.4
Queue Length 50th (m)	1.2	58.1	6.8	2.0	84.7	53.2	1.3	4.6
Queue Length 95th (m)	m1.7	48.8	18.9	6.9	131.7	75.1	6.3	9.5
Internal Link Dist (m)		433.7			393.8		460.7	164.4
Turn Bay Length (m)	150.0		120.0			120.0		
Base Capacity (vph)	200	2442	1153	367	2304	426	1034	1140
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	0.06	0.37	0.27	0.07	0.58	0.55	0.06	0.06

## Intersection Summary

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

Lanes, Volumes, Timings

Background 2030 - PM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	864	174	176	1293	558	312	2017	83	209	984	418
Future Volume (vph)	181	864	174	176	1293	558	312	2017	83	209	984	418
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	2		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.97	1.00	0.99		1.00		0.97	1.00		0.97
Frt			0.850		0.955				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	5092	1570	1772	4830	0	3471	3510	1570	3506	3510	1601
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	5092	1520	1764	4830	0	3459	3510	1521	3503	3510	1551
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193		81				95			168
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		275.6			1271.2			364.1			435.0	
Travel Time (s)		14.2			65.4			26.2			31.3	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	4%	3%	3%	2%	2%	4%	4%	1%	4%	2%
Adj. Flow (vph)	201	960	193	196	1437	620	347	2241	92	232	1093	464
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	960	193	196	2057	0	347	2241	92	232	1093	464
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

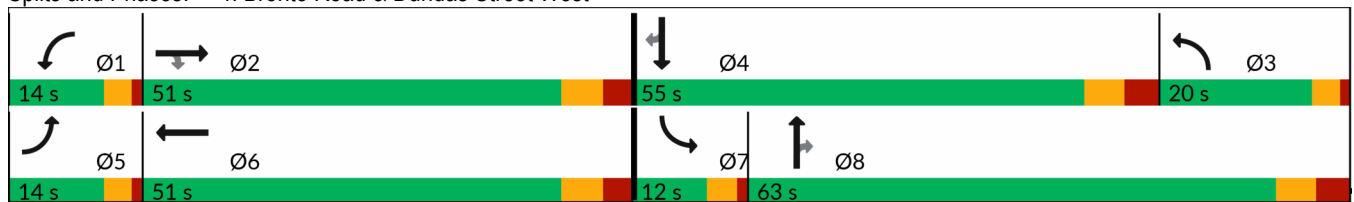
Lanes, Volumes, Timings

Background 2030 - PM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	14.0	51.0	51.0	14.0	51.0		20.0	63.0	63.0	12.0	55.0	55.0
Total Split (%)	10.0%	36.4%	36.4%	10.0%	36.4%		14.3%	45.0%	45.0%	8.6%	39.3%	39.3%
Maximum Green (s)	10.0	43.8	43.8	10.0	43.8		16.0	55.3	55.3	8.0	47.3	47.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3			3	3		3	3
Act Effct Green (s)	10.0	43.8	43.8	10.0	43.8		16.0	55.3	55.3	8.0	47.3	47.3
Actuated g/C Ratio	0.07	0.31	0.31	0.07	0.31		0.11	0.40	0.40	0.06	0.34	0.34
v/c Ratio	1.56	0.60	0.32	1.56	1.31		0.88	1.62	0.14	1.16	0.92	0.73
Control Delay (s/veh)	325.9	42.7	6.0	325.6	183.1		83.8	311.3	5.2	169.1	57.9	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	325.9	42.7	6.0	325.6	183.1		83.8	311.3	5.2	169.1	57.9	33.1
LOS	F	D	A	F	F		F	F	A	F	E	C
Approach Delay (s/veh)		79.5			195.5			271.3			65.9	
Approach LOS		E			F			F			E	












Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.62
Intersection Signal Delay (s/veh):	172.5
Intersection LOS:	F
Intersection Capacity Utilization:	128.7%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



## Queues

Background 2030 - PM Peak Hour  
4: Bronte Road & Dundas Street West

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	201	960	193	196	2057	347	2241	92	232	1093	464
v/c Ratio	1.56	0.60	0.32	1.56	1.31	0.88	1.62	0.14	1.16	0.92	0.73
Control Delay (s/veh)	325.9	42.7	6.0	325.6	183.1	83.8	311.3	5.2	169.1	57.9	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	325.9	42.7	6.0	325.6	183.1	83.8	311.3	5.2	169.1	57.9	33.1
Queue Length 50th (m)	~79.0	84.5	0.0	~78.1	~269.8	50.3	~483.0	0.0	~39.3	157.8	75.5
Queue Length 95th (m)	#128.8	99.7	17.7	#128.7	#299.3	#76.3	#523.8	10.7	#66.4	#199.4	119.1
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	129	1593	608	126	1566	396	1386	658	200	1185	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.56	0.60	0.32	1.56	1.31	0.88	1.62	0.14	1.16	0.92	0.73

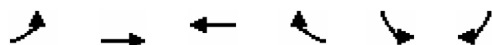
## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

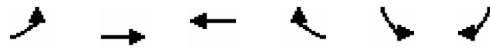
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	71	1084	1832	122	296	195
Future Volume (vph)	71	1084	1832	122	296	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor				0.96	0.99	0.97
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1706	5043	5043	1526	3372	1585
Flt Permitted	0.059				0.950	
Satd. Flow (perm)	106	5043	5043	1471	3321	1537
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				134		141
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	15			15	15	15
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	4%	4%	7%	5%	3%
Adj. Flow (vph)	79	1204	2036	136	329	217
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	1204	2036	136	329	217
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	14.2	91.0	76.8	76.8	49.0	49.0
Total Split (%)	10.1%	65.0%	54.9%	54.9%	35.0%	35.0%
Maximum Green (s)	10.2	84.9	70.7	70.7	42.2	42.2
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		3	3	3	3	3
Act Effct Green (s)	87.6	85.5	76.2	76.2	19.9	19.9
Actuated g/C Ratio	0.74	0.72	0.64	0.64	0.17	0.17
v/c Ratio	0.43	0.33	0.63	0.14	0.58	0.58
Control Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.1
LOS	B	A	B	A	D	C
Approach Delay (s/veh)		8.0	15.4		38.2	
Approach LOS		A	B		D	

Intersection Summary

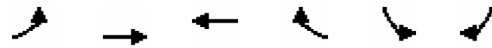
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.4
Natural Cycle:	105
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay (s/veh):	16.1
Intersection LOS:	B
Intersection Capacity Utilization:	74.2%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



Queues

























Background 2030 - PM Peak Hour  
5: Dundas Street West & Hospital Gate



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	79	1204	2036	136	329	217
v/c Ratio	0.43	0.33	0.63	0.14	0.58	0.58
Control Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.1
Queue Length 50th (m)	3.9	29.2	93.3	0.2	37.8	15.9
Queue Length 95th (m)	21.7	71.6	192.1	11.3	51.4	38.6
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	217	3642	3243	993	1210	642
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.33	0.63	0.14	0.27	0.34
<b>Intersection Summary</b>						

Lanes, Volumes, Timings

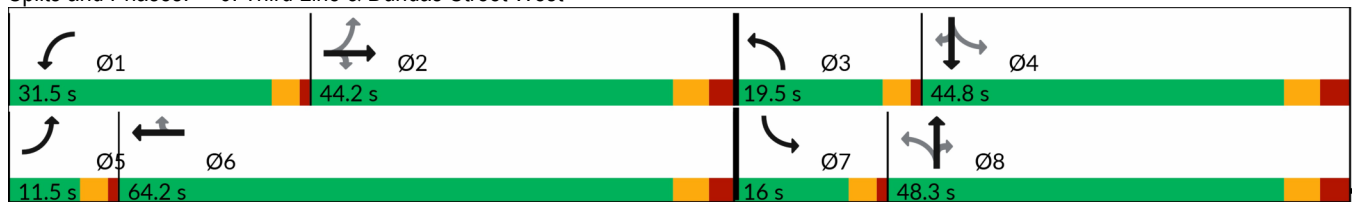
Background 2030 - PM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1083	299	521	1644	136	336	184	444	286	205	28
Future Volume (vph)	14	1083	299	521	1644	136	336	184	444	286	205	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.97	0.99		0.97	0.99		0.97	0.99		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5043	1601	3437	5043	1617	1755	3476	1585	1789	3476	1633
Flt Permitted	0.098			0.950			0.498			0.624		
Satd. Flow (perm)	171	5043	1548	3419	5043	1565	909	3476	1535	1161	3476	1580
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			332			140			375			119
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	4%	2%	3%	4%	1%	4%	5%	3%	2%	5%	0%
Adj. Flow (vph)	16	1203	332	579	1827	151	373	204	493	318	228	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1203	332	579	1827	151	373	204	493	318	228	31
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	44.2	44.2	31.5	64.2	64.2	19.5	48.3	48.3	16.0	44.8	44.8
Total Split (%)	8.2%	31.6%	31.6%	22.5%	45.9%	45.9%	13.9%	34.5%	34.5%	11.4%	32.0%	32.0%
Maximum Green (s)	7.5	37.9	37.9	27.5	57.9	57.9	15.5	41.5	41.5	12.0	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3	3		3	3		3	3
Act Effct Green (s)	47.8	38.4	38.4	23.9	62.4	62.4	40.8	22.3	22.3	33.7	18.7	18.7
Actuated g/C Ratio	0.40	0.33	0.33	0.20	0.53	0.53	0.35	0.19	0.19	0.29	0.16	0.16
v/c Ratio	0.10	0.73	0.46	0.83	0.69	0.17	0.88	0.31	0.83	0.80	0.41	0.09
Control Delay (s/veh)	17.5	40.3	6.0	57.3	24.9	4.8	55.3	41.8	24.0	49.4	46.2	0.5
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 (s/veh)	17.5	40.3	6.0	57.3	24.9	4.8	55.3	41.8	24.0	49.4	46.2	0.5
LOS	B	D	A	E	C	A	E	D	C	D	D	A
Approach Delay (s/veh)		32.7			31.1			38.3			45.5	
Approach LOS		C			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.1
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay (s/veh):	34.3
Intersection LOS:	C
Intersection Capacity Utilization:	98.6%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Background 2030 - PM Peak Hour  
6: Third Line & Dundas Street West

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	1203	332	579	1827	151	373	204	493	318	228	31
v/c Ratio	0.10	0.73	0.46	0.83	0.69	0.17	0.88	0.31	0.83	0.80	0.41	0.09
Control Delay (s/veh)	17.5	40.3	6.0	57.3	24.9	4.8	55.3	41.8	24.0	49.4	46.2	0.5
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 (s/veh)	17.5	40.3	6.0	57.3	24.9	4.8	55.3	41.8	24.0	49.4	46.2	0.5
Queue Length 50th (m)	1.5	89.3	0.0	65.1	96.0	1.0	73.4	22.5	26.7	59.0	26.3	0.0
Queue Length 95th (m)	6.4	140.4	24.0	#110.5	194.9	15.2	106.4	33.9	70.0	86.8	39.0	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	165	1638	727	810	2664	893	426	1236	787	396	1132	594
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	0.10	0.73	0.46	0.71	0.69	0.17	0.88	0.17	0.63	0.80	0.20	0.05

Intersection Summary

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

Lanes, Volumes, Timings

Total 2030 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	225	110	248	30	539	70	1252	496	627	1590	5
Future Volume (vph)	5	225	110	248	30	539	70	1252	496	627	1590	5
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	150.0		0.0	285.0		0.0
Storage Lanes	1		1	2		2	2		1	2		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.97		0.95	0.96			0.98		0.97	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1601	3506	1883	2846	3471	3476	1512	3506	3411	1601
Flt Permitted	0.736			0.950			0.950			0.950		
Satd. Flow (perm)	1340	3579	1514	3361	1883	2846	3409	3476	1462	3490	3411	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144			573			351			113
Link Speed (k/h)		60			60			50				50
Link Distance (m)		168.1			194.3			435.0				273.6
Travel Time (s)		10.1			11.7			31.3				19.7
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	2%	1%	2%	5%	8%	1%	7%	2%
Adj. Flow (vph)	6	250	122	276	33	599	78	1391	551	697	1767	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	250	122	276	33	599	78	1391	551	697	1767	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

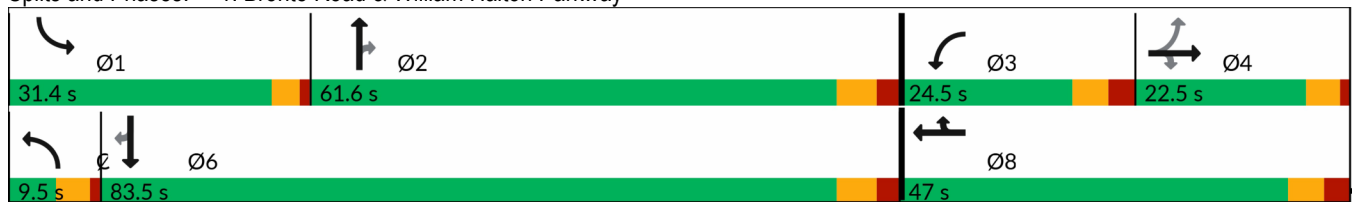
Total 2030 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Prot	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8	8	5	2		1	6	
Permitted Phases	4		4						2			6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	22.5	22.5	22.5	24.5	24.5	24.5	9.5	40.5	40.5	11.5	26.5	26.5
Total Split (s)	22.5	22.5	22.5	24.5	47.0	47.0	9.5	61.6	61.6	31.4	83.5	83.5
Total Split (%)	16.1%	16.1%	16.1%	17.5%	33.6%	33.6%	6.8%	44.0%	44.0%	22.4%	59.6%	59.6%
Maximum Green (s)	18.0	18.0	18.0	18.0	40.5	40.5	5.0	55.1	55.1	27.4	77.0	77.0
Yellow Time (s)	3.5	3.5	3.5	3.7	3.7	3.7	3.5	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	2.8	2.8	2.8	1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	6.5	6.5	6.5	4.5	6.5	6.5	4.0	6.5	6.5
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	Min	Min	Min	None	Min	Min	None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Don't Walk (s)	11.0	11.0	11.0					27.0	27.0			
Pedestrian Calls (#/hr)	3	3	3					3	3			
Act Effct Green (s)	14.4	14.4	14.4	15.3	34.3	34.3	5.0	55.2	55.2	27.4	77.1	77.1
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.26	0.26	0.04	0.41	0.41	0.20	0.58	0.58
v/c Ratio	0.04	0.65	0.42	0.69	0.07	0.52	0.60	0.97	0.68	0.97	0.90	0.01
Control Delay (s/veh)	54.6	65.8	9.6	66.8	37.3	5.5	84.0	56.9	16.2	80.0	33.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.6	65.8	9.6	66.8	37.3	5.5	84.0	56.9	16.2	80.0	33.3	0.0
LOS	D	E	A	E	D	A	F	E	B	F	C	A
Approach Delay (s/veh)		47.5			25.3			46.8			46.4	
Approach LOS		D			C			D			D	

Intersection Summary













Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	133.9
Natural Cycle:	140
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.97
Intersection Signal Delay (s/veh):	43.3
Intersection LOS:	D
Intersection Capacity Utilization:	88.4%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



Queues

Total 2030 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	250	122	276	33	599	78	1391	551	697	1767	6
v/c Ratio	0.04	0.65	0.42	0.69	0.07	0.52	0.60	0.97	0.68	0.97	0.90	0.01
Control Delay (s/veh)	54.6	65.8	9.6	66.8	37.3	5.5	84.0	56.9	16.2	80.0	33.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.6	65.8	9.6	66.8	37.3	5.5	84.0	56.9	16.2	80.0	33.3	0.0
Queue Length 50th (m)	1.5	34.5	0.0	37.0	6.8	2.9	10.8	196.6	45.4	96.4	221.7	0.0
Queue Length 95th (m)	5.8	49.8	12.6	53.2	15.3	17.8	#22.5	#266.6	96.5	#143.8	#309.1	0.0
Internal Link Dist (m)		144.1			170.3			411.0				249.6
Turn Bay Length (m)							150.0			285.0		
Base Capacity (vph)	180	481	328	472	570	1261	129	1432	809	718	1964	949
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.52	0.37	0.58	0.06	0.48	0.60	0.97	0.68	0.97	0.90	0.01

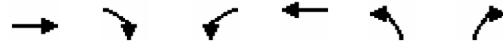
Intersection Summary

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

2: Hospital Gate & William Halton Parkway/William Halton Parkway

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘↘	↗
Traffic Volume (vph)	1050	298	20	760	57	15
Future Volume (vph)	1050	298	20	760	57	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	0.99				0.96	0.96
Frt	0.967				0.995	0.850
Flt Protected			0.950		0.954	
Satd. Flow (prot)	3477	0	1825	3510	3520	1351
Flt Permitted			0.100		0.954	
Satd. Flow (perm)	3477	0	192	3510	3397	1299
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	53				2	15
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		15	15		15	15
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	4%	0%	10%
Adj. Flow (vph)	1167	331	22	844	63	17
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	1498	0	22	844	65	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

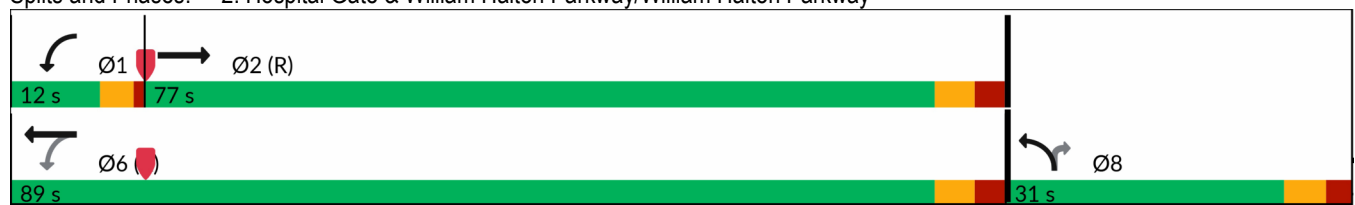


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	77.0		12.0	89.0	31.0	31.0
Total Split (%)	64.2%		10.0%	74.2%	25.8%	25.8%
Maximum Green (s)	70.6		8.0	82.6	25.0	25.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	3			3	3	3
Act Effct Green (s)	76.0		85.0	82.6	25.0	25.0
Actuated g/C Ratio	0.63		0.71	0.69	0.21	0.21
v/c Ratio	0.67		0.10	0.35	0.09	0.05
Control Delay (s/veh)	16.2		7.5	11.4	37.6	17.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.2		7.5	11.4	37.6	17.1
LOS	B		A	B	D	B
Approach Delay (s/veh)	16.2			11.3	33.7	
Approach LOS	B			B	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.67  
 Intersection Signal Delay (s/veh): 15.1      Intersection LOS: B  
 Intersection Capacity Utilization 70.0%      ICU Level of Service C  
 Analysis Period (min) 15

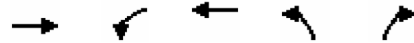
Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway



Queues

Total 2030 - AM Peak Hour

2: Hospital Gate & William Halton Parkway/William Halton Parkway
























Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1498	22	844	65	15
v/c Ratio	0.67	0.10	0.35	0.09	0.05
Control Delay (s/veh)	16.2	7.5	11.4	37.6	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.2	7.5	11.4	37.6	17.1
Queue Length 50th (m)	120.0	2.2	56.4	6.2	0.0
Queue Length 95th (m)	145.7	4.9	74.5	12.2	6.8
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2221	244	2416	734	282
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	0.09	0.35	0.09	0.05

Intersection Summary

Lanes, Volumes, Timings

Total 2030 - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	648	333	16	681	1	126	40	35	4	8	0
Future Volume (vph)	84	648	333	16	681	1	126	40	35	4	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.96	0.99	1.00		0.97	0.98		0.98		
Frt			0.850					0.930				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3650	1633	1825	3510	0	1772	3102	0	1825	3650	0
Flt Permitted	0.351			0.367			0.751			0.700		
Satd. Flow (perm)	670	3650	1573	700	3510	0	1365	3102	0	1314	3650	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			370					39				
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%	3%	5%	10%	0%	0%	0%
Adj. Flow (vph)	93	720	370	18	757	1	140	44	39	4	9	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	720	370	18	758	0	140	83	0	4	9	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Total 2030 - AM Peak Hour

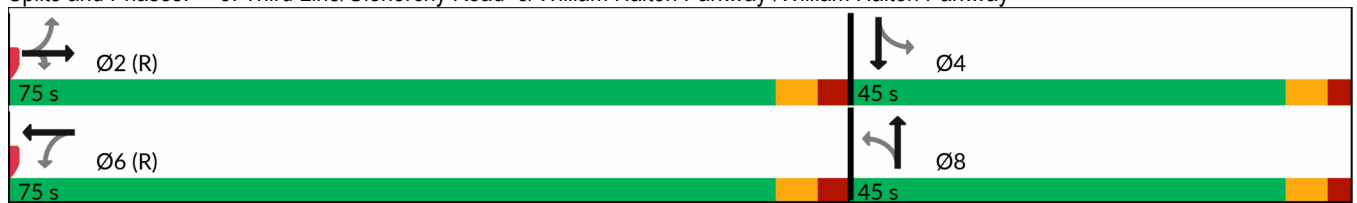
3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	75.0	75.0	75.0	75.0	75.0		45.0	45.0		45.0	45.0	
Total Split (%)	62.5%	62.5%	62.5%	62.5%	62.5%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	68.6	68.6	68.6	68.6	68.6		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effct Green (s)	86.6	86.6	86.6	86.6	86.6		21.1	21.1		21.1	21.1	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72		0.18	0.18		0.18	0.18	
v/c Ratio	0.19	0.27	0.30	0.04	0.30		0.58	0.14		0.02	0.01	
Control Delay (s/veh)	14.7	14.6	8.0	5.5	6.4		55.7	24.1		39.8	39.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	14.7	14.6	8.0	5.5	6.4		55.7	24.1		39.8	39.6	
LOS	B	B	A	A	A		E	C		D	D	
Approach Delay (s/veh)		12.5			6.4			44.0			39.7	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay (s/veh): 13.7      Intersection LOS: B  
 Intersection Capacity Utilization 71.4%      ICU Level of Service C  
 Analysis Period (min) 15

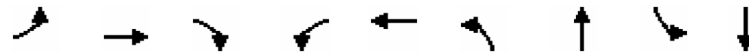
Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



## Queues

Total 2030 - AM Peak Hour

## 3: Third Line/Glenorchy Road &amp; William Halton Parkway /William Halton Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	93	720	370	18	758	140	83	4	9
v/c Ratio	0.19	0.27	0.30	0.04	0.30	0.58	0.14	0.02	0.01
Control Delay (s/veh)	14.7	14.6	8.0	5.5	6.4	55.7	24.1	39.8	39.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.7	14.6	8.0	5.5	6.4	55.7	24.1	39.8	39.6
Queue Length 50th (m)	13.3	65.8	34.0	1.0	29.1	31.7	4.8	0.8	0.9
Queue Length 95th (m)	m27.6	95.0	70.6	3.6	43.9	51.0	11.7	3.8	3.2
Internal Link Dist (m)		433.7			393.8		460.7		164.4
Turn Bay Length (m)	150.0		120.0			120.0		60.0	
Base Capacity (vph)	483	2634	1238	505	2533	444	1037	428	1189
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	0.19	0.27	0.30	0.04	0.30	0.32	0.08	0.01	0.01

## Intersection Summary

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

Lanes, Volumes, Timings

Total 2030 - AM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	1275	402	155	626	329	152	1288	167	298	1406	257
Future Volume (vph)	261	1275	402	155	626	329	152	1288	167	298	1406	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	2		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.97	1.00	0.99		1.00		0.97	1.00		0.97
Frt			0.850		0.948				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5092	1585	1659	4583	0	3340	3444	1570	3309	3380	1484
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1765	5092	1534	1655	4583	0	3334	3444	1521	3301	3380	1438
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159		94				142			212
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		275.6			1271.2			364.1			435.0	
Travel Time (s)		14.2			65.4			26.2			31.3	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	10%	9%	4%	6%	6%	4%	7%	8%	10%
Adj. Flow (vph)	290	1417	447	172	696	366	169	1431	186	331	1562	286
Shared Lane Traffic (%)												
Lane Group Flow (vph)	290	1417	447	172	1062	0	169	1431	186	331	1562	286
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Total 2030 - AM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	20.0	48.0	48.0	18.0	46.0		14.0	59.0	59.0	15.0	60.0	60.0
Total Split (%)	14.3%	34.3%	34.3%	12.9%	32.9%		10.0%	42.1%	42.1%	10.7%	42.9%	42.9%
Maximum Green (s)	16.0	40.8	40.8	14.0	38.8		10.0	51.3	51.3	11.0	52.3	52.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3			3	3		3	3
Act Effct Green (s)	16.0	40.8	40.8	14.0	38.8		10.0	51.3	51.3	11.0	52.3	52.3
Actuated g/C Ratio	0.11	0.29	0.29	0.10	0.28		0.07	0.37	0.37	0.08	0.37	0.37
v/c Ratio	1.44	0.96	0.80	1.04	0.79		0.71	1.13	0.29	1.28	1.24	0.43
Control Delay (s/veh)	264.6	63.6	40.9	141.2	47.7		80.2	111.6	9.7	201.0	151.9	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	264.6	63.6	40.9	141.2	47.7		80.2	111.6	9.7	201.0	151.9	10.8
LOS	F	E	D	F	D		F	F	A	F	F	B
Approach Delay (s/veh)		85.9			60.8			98.0			140.8	
Approach LOS		F			E			F			F	

Intersection Summary












Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.44
Intersection Signal Delay (s/veh):	100.9
Intersection LOS:	F
Intersection Capacity Utilization:	111.6%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



Queues

Total 2030 - AM Peak Hour  
4: Bronte Road & Dundas Street West

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	290	1417	447	172	1062	169	1431	186	331	1562	286
v/c Ratio	1.44	0.96	0.80	1.04	0.79	0.71	1.13	0.29	1.28	1.24	0.43
Control Delay (s/veh)	264.6	63.6	40.9	141.2	47.7	80.2	111.6	9.7	201.0	151.9	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	264.6	63.6	40.9	141.2	47.7	80.2	111.6	9.7	201.0	151.9	10.8
Queue Length 50th (m)	~111.0	144.9	79.0	~55.3	98.8	25.2	~253.5	8.2	~62.8	~299.4	14.5
Queue Length 95th (m)	#169.3	#175.8	#125.1	#105.5	117.8	#40.2	#298.2	25.8	#95.4	#344.7	39.8
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	202	1483	559	165	1338	238	1261	647	259	1262	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.44	0.96	0.80	1.04	0.79	0.71	1.13	0.29	1.28	1.24	0.43

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.


















Queue shown is maximum after two cycles.

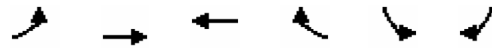
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

Total 2030 - AM Peak Hour  
5: Dundas Street West & Hospital Gate

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  		 	
Traffic Volume (vph)	330	1413	1061	228	106	48
Future Volume (vph)	330	1413	1061	228	106	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor	1.00			0.96	0.99	0.97
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1789	5043	4902	1570	3404	1484
Fl <sub>t</sub> Permitted	0.177				0.950	
Satd. Flow (perm)	333	5043	4902	1511	3353	1439
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				253		53
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	15			15	15	15
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	7%	4%	4%	10%
Adj. Flow (vph)	367	1570	1179	253	118	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	367	1570	1179	253	118	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	40.0	91.2	51.2	51.2	48.8	48.8
Total Split (%)	28.6%	65.1%	36.6%	36.6%	34.9%	34.9%
Maximum Green (s)	36.0	85.1	45.1	45.1	42.0	42.0
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		3	3	3	3	3
Act Effct Green (s)	88.1	86.0	61.6	61.6	15.3	15.3
Actuated g/C Ratio	0.77	0.75	0.54	0.54	0.13	0.13
v/c Ratio	0.71	0.41	0.45	0.27	0.26	0.22
Control Delay (s/veh)	19.5	6.9	20.5	4.0	44.2	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.5	6.9	20.5	4.0	44.2	12.4
LOS	B	A	C	A	D	B
Approach Delay (s/veh)		9.3	17.6		34.4	
Approach LOS		A	B		C	

Intersection Summary

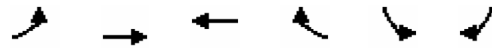
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	114.4
Natural Cycle:	95
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay (s/veh):	13.9
Intersection LOS:	B
Intersection Capacity Utilization:	74.5%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



Queues






































Total 2030 - AM Peak Hour  
5: Dundas Street West & Hospital Gate



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	367	1570	1179	253	118	53
v/c Ratio	0.71	0.41	0.45	0.27	0.26	0.22
Control Delay (s/veh)	19.5	6.9	20.5	4.0	44.2	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.5	6.9	20.5	4.0	44.2	12.4
Queue Length 50th (m)	20.9	30.7	50.6	0.0	12.6	0.0
Queue Length 95th (m)	85.8	101.1	131.0	19.4	20.5	10.9
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	719	3791	2639	930	1263	567
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.41	0.45	0.27	0.09	0.09
Intersection Summary						

Lanes, Volumes, Timings

Total 2030 - AM Peak Hour  
6: Third Line & Dundas Street West

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  		  	  			  		  		  	
Traffic Volume (vph)	35	1205	272	502	910	213	296	207	438	139	201	12	
Future Volume (vph)	35	1205	272	502	910	213	296	207	438	139	201	12	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0	
Storage Lanes	1		1	2		1	1		1	1		1	
Taper Length (m)	2.5			2.5			2.5			2.5			
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Ped Bike Factor	1.00		0.97	1.00		0.97	0.99		0.97	0.99		0.97	
Frt			0.850			0.850			0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1825	4995	1585	3404	4902	1617	1755	3614	1585	1772	3544	1633	
Flt Permitted	0.271			0.950			0.495			0.608			
Satd. Flow (perm)	518	4995	1533	3389	4902	1566	904	3614	1535	1120	3544	1580	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			302			237			366			150	
Link Speed (k/h)		70			70			50				50	
Link Distance (m)		410.7			471.0			306.6				484.7	
Travel Time (s)		21.1			24.2			22.1				34.9	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15	
Confl. Bikes (#/hr)			5			5			5			5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	5%	3%	4%	7%	1%	4%	1%	3%	3%	3%	0%	
Adj. Flow (vph)	39	1339	302	558	1011	237	329	230	487	154	223	13	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	39	1339	302	558	1011	237	329	230	487	154	223	13	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		7.4			7.4			3.7				3.7	
Link Offset(m)		0.0			0.0			0.0				0.0	
Crosswalk Width(m)		1.6			1.6			1.6				1.6	
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14	24		14	24		14	24		14	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7				28.7	
Detector 2 Size(m)		1.8			1.8			1.8				1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex	
Detector 2 Channel													

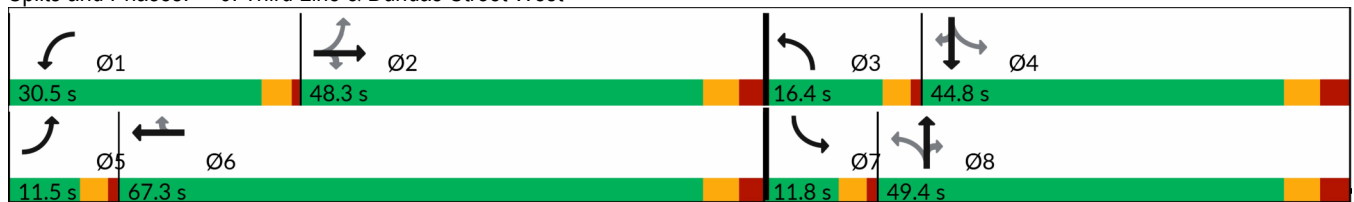
Lanes, Volumes, Timings

Total 2030 - AM Peak Hour  
6: Third Line & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	48.3	48.3	30.5	67.3	67.3	16.4	49.4	49.4	11.8	44.8	44.8
Total Split (%)	8.2%	34.5%	34.5%	21.8%	48.1%	48.1%	11.7%	35.3%	35.3%	8.4%	32.0%	32.0%
Maximum Green (s)	7.5	42.0	42.0	26.5	61.0	61.0	12.4	42.6	42.6	7.8	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3	3		3	3		3	3
Act Effct Green (s)	52.3	42.8	42.8	23.3	63.9	63.9	37.7	22.9	22.9	29.0	18.3	18.3
Actuated g/C Ratio	0.44	0.36	0.36	0.20	0.54	0.54	0.32	0.19	0.19	0.25	0.15	0.15
v/c Ratio	0.13	0.74	0.40	0.83	0.38	0.25	0.87	0.33	0.82	0.48	0.41	0.04
Control Delay (s/veh)	14.7	37.7	5.4	58.2	18.5	3.3	59.0	41.6	23.7	36.8	46.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.7	37.7	5.4	58.2	18.5	3.3	59.0	41.6	23.7	36.8	46.6	0.2
LOS	B	D	A	E	B	A	E	D	C	D	D	A
Approach Delay (s/veh)		31.3			28.7			38.7			41.2	
Approach LOS		C			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.3
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay (s/veh):	32.7
Intersection LOS:	C
Intersection Capacity Utilization:	95.8%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Total 2030 - AM Peak Hour  
6: Third Line & Dundas Street West

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	39	1339	302	558	1011	237	329	230	487	154	223	13
v/c Ratio	0.13	0.74	0.40	0.83	0.38	0.25	0.87	0.33	0.82	0.48	0.41	0.04
Control Delay (s/veh)	14.7	37.7	5.4	58.2	18.5	3.3	59.0	41.6	23.7	36.8	46.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.7	37.7	5.4	58.2	18.5	3.3	59.0	41.6	23.7	36.8	46.6	0.2
Queue Length 50th (m)	3.0	97.5	0.0	64.0	50.9	0.0	67.3	25.0	27.8	27.9	25.8	0.0
Queue Length 95th (m)	10.7	155.6	21.7	#109.3	89.4	15.2	96.0	36.0	69.8	44.3	37.4	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	314	1807	747	771	2647	955	378	1316	791	318	1151	614
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	0.12	0.74	0.40	0.72	0.38	0.25	0.87	0.17	0.62	0.48	0.19	0.02

Intersection Summary

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

Lanes, Volumes, Timings

Total 2030 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	190	100	465	80	1121	190	1880	562	398	1097	0
Future Volume (vph)	10	190	100	465	80	1121	190	1880	562	398	1097	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	150.0		0.0	285.0		0.0
Storage Lanes	1		1	2		2	2		1	2		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.97		0.95	0.96			0.99		0.97	1.00		
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1601	3541	1883	2846	3471	3510	1633	3541	3476	1883
Flt Permitted	0.699			0.950			0.950			0.950		
Satd. Flow (perm)	1276	3579	1514	3387	1883	2846	3424	3510	1580	3535	3476	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111			27			312			
Link Speed (k/h)		48			60			50				50
Link Distance (m)		166.2			194.3			435.0				273.6
Travel Time (s)		12.5			11.7			31.3				19.7
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	0%	2%	1%	2%	4%	0%	0%	5%	2%
Adj. Flow (vph)	11	211	111	517	89	1246	211	2089	624	442	1219	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	211	111	517	89	1246	211	2089	624	442	1219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

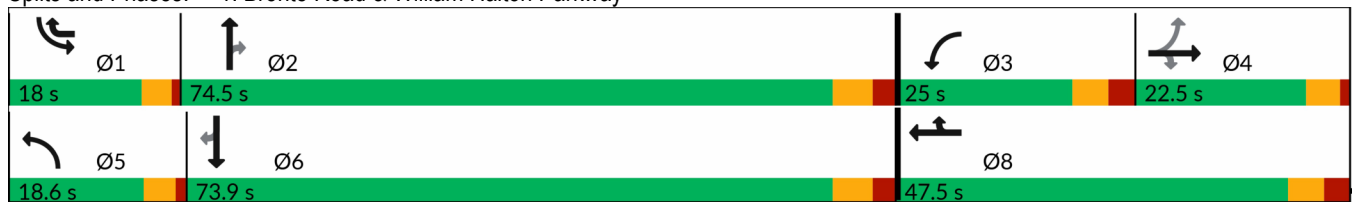
Total 2030 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4						2			6
Detector Phase	4	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	22.5	22.5	22.5	24.5	24.5		9.5	40.5	40.5	11.5	26.5	26.5
Total Split (s)	22.5	22.5	22.5	25.0	47.5		18.6	74.5	74.5	18.0	73.9	73.9
Total Split (%)	16.1%	16.1%	16.1%	17.9%	33.9%		13.3%	53.2%	53.2%	12.9%	52.8%	52.8%
Maximum Green (s)	18.0	18.0	18.0	18.5	41.0		14.1	68.0	68.0	14.0	67.4	67.4
Yellow Time (s)	3.5	3.5	3.5	3.7	3.7		3.5	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	2.8	2.8		1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	6.5	6.5		4.5	6.5	6.5	4.0	6.5	6.5
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
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0				7.0	7.0				
Flash Don't Walk (s)	11.0	11.0	11.0				27.0	27.0				
Pedestrian Calls (#/hr)	3	3	3				3	3				
Act Effct Green (s)	18.0	18.0	18.0	18.5	41.0	59.0	12.9	68.0	68.0	14.0	68.6	
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.29	0.42	0.09	0.49	0.49	0.10	0.49	
v/c Ratio	0.07	0.46	0.38	1.11	0.16	1.03	0.66	1.23	0.67	1.25	0.72	
Control Delay (s/veh)	55.0	60.1	13.3	128.6	37.8	71.4	71.8	140.1	16.9	183.1	31.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	55.0	60.1	13.3	128.6	37.8	71.4	71.8	140.1	16.9	183.1	31.2	
LOS	D	E	B	F	D	E	E	F	B	F	C	
Approach Delay (s/veh)		44.3			85.8			108.8			71.6	
Approach LOS		D			F			F			E	

Intersection Summary













Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.25
Intersection Signal Delay (s/veh):	90.2
Intersection LOS:	F
Intersection Capacity Utilization:	111.4%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



Queues

Total 2030 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	11	211	111	517	89	1246	211	2089	624	442	1219	
v/c Ratio	0.07	0.46	0.38	1.11	0.16	1.03	0.66	1.23	0.67	1.25	0.72	
Control Delay (s/veh)	55.0	60.1	13.3	128.6	37.8	71.4	71.8	140.1	16.9	183.1	31.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	55.0	60.1	13.3	128.6	37.8	71.4	71.8	140.1	16.9	183.1	31.2	
Queue Length 50th (m)	2.8	29.3	0.0	~83.8	18.7	~207.5	29.8	~385.8	65.3	~78.4	143.8	
Queue Length 95th (m)	9.0	42.7	17.7	#119.0	32.8	#254.3	43.3	#427.6	108.4	#111.9	171.8	
Internal Link Dist (m)		142.2			170.3			411.0			249.6	
Turn Bay Length (m)							150.0			285.0		
Base Capacity (vph)	164	460	291	467	551	1215	349	1704	927	354	1704	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.46	0.38	1.11	0.16	1.03	0.60	1.23	0.67	1.25	0.72	

Intersection Summary
















~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

2: Hospital Gate & William Halton Parkway/William Halton Parkway

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	 			 	  	
Traffic Volume (vph)	1080	70	19	1494	172	20
Future Volume (vph)	1080	70	19	1494	172	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	1.00		1.00		0.96	0.96
Frt	0.991				0.998	0.850
Flt Protected			0.950		0.953	
Satd. Flow (prot)	3543	0	1825	3579	3472	1415
Flt Permitted			0.149		0.953	
Satd. Flow (perm)	3543	0	286	3579	3348	1361
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	9				1	20
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		15	15		15	15
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	0%	2%	2%	5%
Adj. Flow (vph)	1200	78	21	1660	191	22
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	1278	0	21	1660	193	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

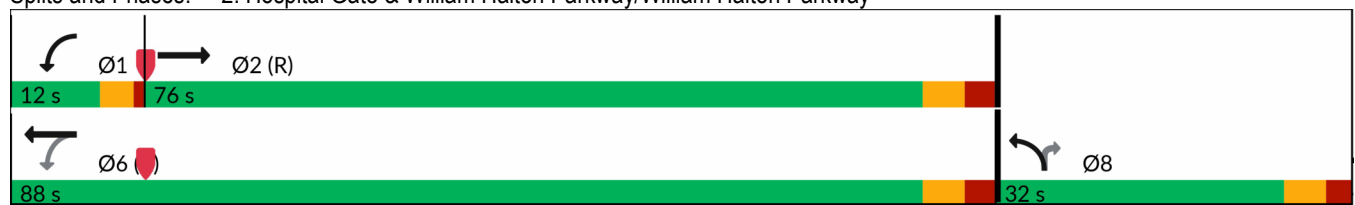


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	76.0		12.0	88.0	32.0	32.0
Total Split (%)	63.3%		10.0%	73.3%	26.7%	26.7%
Maximum Green (s)	69.6		8.0	81.6	26.0	26.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	3			3	3	3
Act Effct Green (s)	77.2		84.0	81.6	26.0	26.0
Actuated g/C Ratio	0.64		0.70	0.68	0.22	0.22
v/c Ratio	0.56		0.07	0.68	0.26	0.06
Control Delay (s/veh)	13.8		4.2	10.5	39.9	15.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.8		4.2	10.5	39.9	15.3
LOS	B		A	B	D	B
Approach Delay (s/veh)	13.8			10.5	37.6	
Approach LOS	B			B	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay (s/veh): 13.6      Intersection LOS: B  
 Intersection Capacity Utilization 72.5%      ICU Level of Service C  
 Analysis Period (min) 15

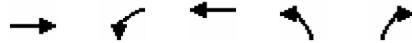
Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway



Queues

Total 2030 - PM Peak Hour

2: Hospital Gate & William Halton Parkway/William Halton Parkway



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1278	21	1660	193	20
v/c Ratio	0.56	0.07	0.68	0.26	0.06
Control Delay (s/veh)	13.8	4.2	10.5	39.9	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.8	4.2	10.5	39.9	15.3
Queue Length 50th (m)	72.6	0.9	152.1	19.7	0.0
Queue Length 95th (m)	118.1	m1.5	63.1	30.2	7.4
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2282	302	2433	753	310
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.07	0.68	0.26	0.06






















Intersection Summary

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

Lanes, Volumes, Timings

Total 2030 - PM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	807	275	24	1203	3	217	15	45	21	78	16
Future Volume (vph)	18	807	275	24	1203	3	217	15	45	21	78	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.96	1.00	1.00		0.98	0.97		0.98	0.99	
Frt			0.850					0.888			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3650	1633	1825	3444	0	1789	3097	0	1825	3531	0
Flt Permitted	0.152			0.285			0.686			0.711		
Satd. Flow (perm)	292	3650	1573	545	3444	0	1263	3097	0	1334	3531	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			306					50			18	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	20	897	306	27	1337	3	241	17	50	23	87	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	897	306	27	1340	0	241	67	0	23	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Total 2030 - PM Peak Hour

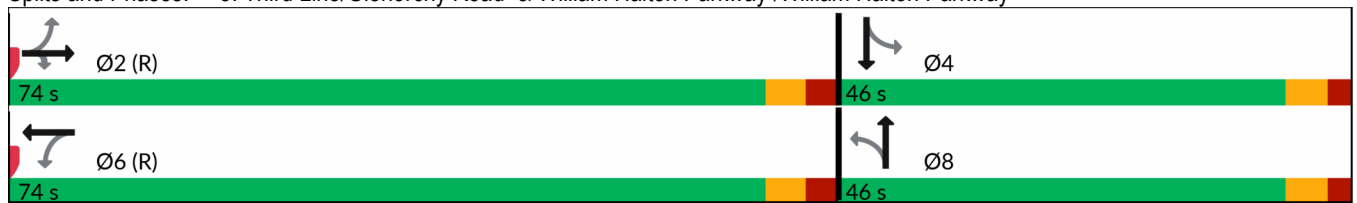
3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	74.0	74.0	74.0	74.0	74.0		46.0	46.0		46.0	46.0	
Total Split (%)	61.7%	61.7%	61.7%	61.7%	61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	67.6	67.6	67.6	67.6	67.6		40.1	40.1		40.1	40.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effct Green (s)	79.0	79.0	79.0	79.0	79.0		28.7	28.7		28.7	28.7	
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.66		0.24	0.24		0.24	0.24	
v/c Ratio	0.10	0.37	0.27	0.08	0.59		0.80	0.09		0.07	0.12	
Control Delay (s/veh)	13.1	12.6	3.3	10.2	13.9		61.5	12.3		32.4	27.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	13.1	12.6	3.3	10.2	13.9		61.5	12.3		32.4	27.8	
LOS	B	B	A	B	B		E	B		C	C	
Approach Delay (s/veh)		10.3			13.8			50.8			28.6	
Approach LOS		B			B			D			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay (s/veh): 16.8      Intersection LOS: B  
 Intersection Capacity Utilization 68.4%      ICU Level of Service C  
 Analysis Period (min) 15

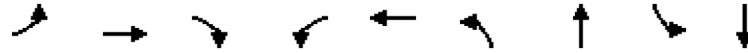
Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



## Queues

Total 2030 - PM Peak Hour

## 3: Third Line/Glenorchy Road &amp; William Halton Parkway /William Halton Parkway


































Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	897	306	27	1340	241	67	23	105
v/c Ratio	0.10	0.37	0.27	0.08	0.59	0.80	0.09	0.07	0.12
Control Delay (s/veh)	13.1	12.6	3.3	10.2	13.9	61.5	12.3	32.4	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.1	12.6	3.3	10.2	13.9	61.5	12.3	32.4	27.8
Queue Length 50th (m)	1.6	46.1	0.0	2.1	88.8	54.6	1.6	4.2	8.4
Queue Length 95th (m)	m2.8	44.3	9.0	7.2	138.3	76.6	6.6	9.9	14.0
Internal Link Dist (m)		433.7			393.8		460.7		164.4
Turn Bay Length (m)	150.0		120.0			120.0		60.0	
Base Capacity (vph)	192	2402	1139	358	2267	422	1068	445	1191
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	0.10	0.37	0.27	0.08	0.59	0.57	0.06	0.05	0.09

## Intersection Summary

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

Lanes, Volumes, Timings

Total 2030 - PM Peak Hour  
4: Bronte Road & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Traffic Volume (vph)	183	864	174	176	1293	558	312	2018	86	209	1012	431
Future Volume (vph)	183	864	174	176	1293	558	312	2018	86	209	1012	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	2		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.97	1.00	0.99		1.00		0.97	1.00		0.97
Frt			0.850		0.955				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	5092	1570	1772	4830	0	3471	3510	1570	3506	3510	1601
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	5092	1520	1764	4830	0	3459	3510	1521	3503	3510	1551
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193		81				95			170
Link Speed (k/h)		70			70			50				50
Link Distance (m)		275.6			1271.2			364.1				435.0
Travel Time (s)		14.2			65.4			26.2				31.3
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	4%	3%	3%	2%	2%	4%	4%	1%	4%	2%
Adj. Flow (vph)	203	960	193	196	1437	620	347	2242	96	232	1124	479
Shared Lane Traffic (%)												
Lane Group Flow (vph)	203	960	193	196	2057	0	347	2242	96	232	1124	479
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

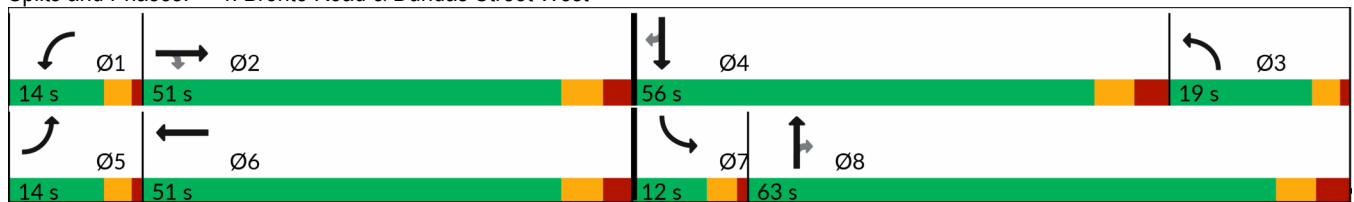
Lanes, Volumes, Timings

Total 2030 - PM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	14.0	51.0	51.0	14.0	51.0		19.0	63.0	63.0	12.0	56.0	56.0
Total Split (%)	10.0%	36.4%	36.4%	10.0%	36.4%		13.6%	45.0%	45.0%	8.6%	40.0%	40.0%
Maximum Green (s)	10.0	43.8	43.8	10.0	43.8		15.0	55.3	55.3	8.0	48.3	48.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3			3	3		3	3
Act Effct Green (s)	10.0	43.8	43.8	10.0	43.8		15.0	55.3	55.3	8.0	48.3	48.3
Actuated g/C Ratio	0.07	0.31	0.31	0.07	0.31		0.11	0.40	0.40	0.06	0.35	0.35
v/c Ratio	1.57	0.60	0.32	1.56	1.31		0.94	1.62	0.15	1.16	0.93	0.74
Control Delay (s/veh)	332.0	42.7	6.0	325.6	183.1		94.5	311.6	5.6	169.1	58.0	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	332.0	42.7	6.0	325.6	183.1		94.5	311.6	5.6	169.1	58.0	33.4
LOS	F	D	A	F	F		F	F	A	F	E	C
Approach Delay (s/veh)		80.7			195.5			272.6			65.6	
Approach LOS		F			F			F			E	












Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.62
Intersection Signal Delay (s/veh):	172.5
Intersection LOS:	F
Intersection Capacity Utilization:	128.9%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



Queues

Total 2030 - PM Peak Hour  
4: Bronte Road & Dundas Street West

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	203	960	193	196	2057	347	2242	96	232	1124	479
v/c Ratio	1.57	0.60	0.32	1.56	1.31	0.94	1.62	0.15	1.16	0.93	0.74
Control Delay (s/veh)	332.0	42.7	6.0	325.6	183.1	94.5	311.6	5.6	169.1	58.0	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	332.0	42.7	6.0	325.6	183.1	94.5	311.6	5.6	169.1	58.0	33.4
Queue Length 50th (m)	~80.2	84.5	0.0	~78.1	~269.8	50.7	~483.2	0.2	~39.3	162.4	79.1
Queue Length 95th (m)	#130.6	99.7	17.7	#128.7	#299.3	#80.0	#524.1	11.7	#66.4	#205.4	123.7
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	129	1593	608	126	1566	371	1386	658	200	1210	646
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.57	0.60	0.32	1.56	1.31	0.94	1.62	0.15	1.16	0.93	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.


















Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

Total 2030 - PM Peak Hour  
5: Dundas Street West & Hospital Gate

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  		 	
Traffic Volume (vph)	71	1088	1832	122	296	195
Future Volume (vph)	71	1088	1832	122	296	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor				0.96	0.99	0.97
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1706	5043	5043	1526	3372	1585
Fl <sub>t</sub> Permitted	0.059				0.950	
Satd. Flow (perm)	106	5043	5043	1471	3321	1537
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				134		141
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	15			15	15	15
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	4%	4%	7%	5%	3%
Adj. Flow (vph)	79	1209	2036	136	329	217
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	1209	2036	136	329	217
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

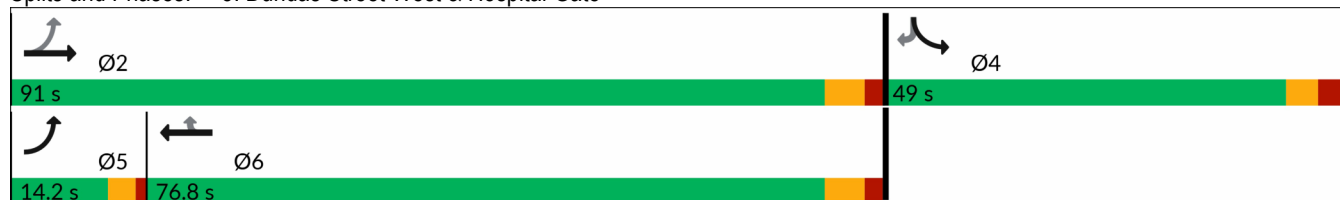


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	14.2	91.0	76.8	76.8	49.0	49.0
Total Split (%)	10.1%	65.0%	54.9%	54.9%	35.0%	35.0%
Maximum Green (s)	10.2	84.9	70.7	70.7	42.2	42.2
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		3	3	3	3	3
Act Effct Green (s)	87.6	85.5	76.2	76.2	19.9	19.9
Actuated g/C Ratio	0.74	0.72	0.64	0.64	0.17	0.17
v/c Ratio	0.43	0.33	0.63	0.14	0.58	0.58
Control Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.1
LOS	B	A	B	A	D	C
Approach Delay (s/veh)		8.0	15.4		38.2	
Approach LOS		A	B		D	

Intersection Summary

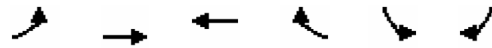
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.4
Natural Cycle:	105
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay (s/veh):	16.1
Intersection LOS:	B
Intersection Capacity Utilization:	74.2%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



Queues







































Total 2030 - PM Peak Hour  
5: Dundas Street West & Hospital Gate



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	79	1209	2036	136	329	217
v/c Ratio	0.43	0.33	0.63	0.14	0.58	0.58
Control Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.1
Queue Length 50th (m)	3.9	29.4	93.3	0.2	37.8	15.9
Queue Length 95th (m)	21.7	71.8	192.1	11.3	51.4	38.6
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	217	3642	3243	993	1210	642
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.33	0.63	0.14	0.27	0.34
Intersection Summary						

Lanes, Volumes, Timings

Total 2030 - PM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		  	  			  		  	  	  
Traffic Volume (vph)	17	1083	299	521	1644	139	336	186	444	307	219	28
Future Volume (vph)	17	1083	299	521	1644	139	336	186	444	307	219	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.97	0.99		0.97	0.99		0.97	0.99		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5043	1601	3437	5043	1617	1755	3476	1585	1789	3476	1633
Flt Permitted	0.098			0.950			0.493			0.622		
Satd. Flow (perm)	171	5043	1548	3419	5043	1565	900	3476	1535	1157	3476	1580
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			332			142			372			119
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	4%	2%	3%	4%	1%	4%	5%	3%	2%	5%	0%
Adj. Flow (vph)	19	1203	332	579	1827	154	373	207	493	341	243	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	1203	332	579	1827	154	373	207	493	341	243	31
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

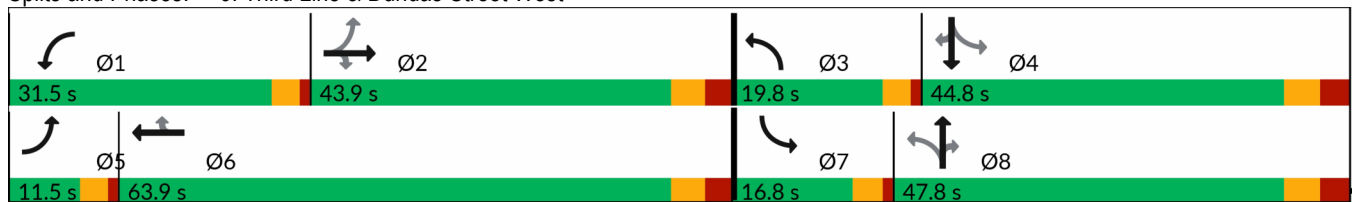
Lanes, Volumes, Timings

Total 2030 - PM Peak Hour  
6: Third Line & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	43.9	43.9	31.5	63.9	63.9	19.8	47.8	47.8	16.8	44.8	44.8
Total Split (%)	8.2%	31.4%	31.4%	22.5%	45.6%	45.6%	14.1%	34.1%	34.1%	12.0%	32.0%	32.0%
Maximum Green (s)	7.5	37.6	37.6	27.5	57.6	57.6	15.8	41.0	41.0	12.8	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3	3		3	3		3	3
Act Effct Green (s)	47.6	38.1	38.1	24.0	62.1	62.1	41.0	22.2	22.2	35.0	19.2	19.2
Actuated g/C Ratio	0.40	0.32	0.32	0.20	0.52	0.52	0.35	0.19	0.19	0.30	0.16	0.16
v/c Ratio	0.12	0.74	0.46	0.83	0.69	0.17	0.88	0.32	0.84	0.83	0.43	0.09
Control Delay (s/veh)	18.0	41.0	6.1	57.6	25.5	5.0	55.0	42.2	24.8	51.5	46.5	0.5
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 (s/veh)	18.0	41.0	6.1	57.6	25.5	5.0	55.0	42.2	24.8	51.5	46.5	0.5
LOS	B	D	A	E	C	A	D	D	C	D	D	A
Approach Delay (s/veh)		33.2			31.5			38.7			46.9	
Approach LOS		C			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.6
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay (s/veh):	34.9
Intersection LOS:	C
Intersection Capacity Utilization:	98.6%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Total 2030 - PM Peak Hour  
6: Third Line & Dundas Street West

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	19	1203	332	579	1827	154	373	207	493	341	243	31
v/c Ratio	0.12	0.74	0.46	0.83	0.69	0.17	0.88	0.32	0.84	0.83	0.43	0.09
Control Delay (s/veh)	18.0	41.0	6.1	57.6	25.5	5.0	55.0	42.2	24.8	51.5	46.5	0.5
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 (s/veh)	18.0	41.0	6.1	57.6	25.5	5.0	55.0	42.2	24.8	51.5	46.5	0.5
Queue Length 50th (m)	1.8	90.9	0.0	65.7	98.4	1.1	73.3	23.0	27.9	64.2	28.2	0.0
Queue Length 95th (m)	7.4	140.9	24.0	#110.5	196.5	15.5	#106.6	34.5	71.5	93.6	41.3	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	164	1618	722	807	2640	887	426	1216	779	410	1127	592
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	0.12	0.74	0.46	0.72	0.69	0.17	0.88	0.17	0.63	0.83	0.22	0.05

Intersection Summary

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

Lanes, Volumes, Timings

Background 2035 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	225	110	265	30	581	70	1252	550	620	1590	5
Future Volume (vph)	5	225	110	265	30	581	70	1252	550	620	1590	5
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	150.0		0.0	285.0		0.0
Storage Lanes	1		1	2		2	2		1	2		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.94		0.92	0.93			0.97		0.95	0.99		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1601	3506	1883	2846	3471	3476	1512	3506	3411	1601
Flt Permitted	0.736			0.950			0.950			0.950		
Satd. Flow (perm)	1309	3579	1465	3265	1883	2846	3367	3476	1440	3479	3411	1554
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144			565			363			113
Link Speed (k/h)		60			60			50				50
Link Distance (m)		168.1			194.3			435.0				273.6
Travel Time (s)		10.1			11.7			31.3				19.7
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	2%	1%	2%	5%	8%	1%	7%	2%
Adj. Flow (vph)	6	250	122	294	33	646	78	1391	611	689	1767	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	250	122	294	33	646	78	1391	611	689	1767	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

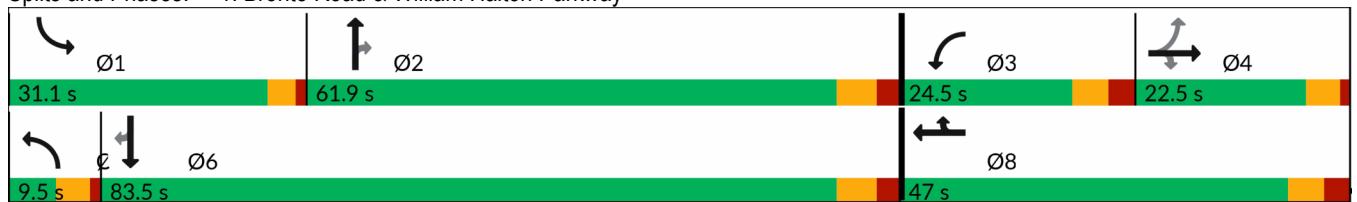
Background 2035 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Prot	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8	8	5	2		1	6	
Permitted Phases	4		4						2			6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	22.5	22.5	22.5	24.5	24.5	24.5	9.5	40.5	40.5	11.5	26.5	26.5
Total Split (s)	22.5	22.5	22.5	24.5	47.0	47.0	9.5	61.9	61.9	31.1	83.5	83.5
Total Split (%)	16.1%	16.1%	16.1%	17.5%	33.6%	33.6%	6.8%	44.2%	44.2%	22.2%	59.6%	59.6%
Maximum Green (s)	18.0	18.0	18.0	18.0	40.5	40.5	5.0	55.4	55.4	27.1	77.0	77.0
Yellow Time (s)	3.5	3.5	3.5	3.7	3.7	3.7	3.5	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	2.8	2.8	2.8	1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	6.5	6.5	6.5	4.5	6.5	6.5	4.0	6.5	6.5
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	Min	Min	Min	None	Min	Min	None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Don't Walk (s)	11.0	11.0	11.0					27.0	27.0			
Pedestrian Calls (#/hr)	3	3	3					3	3			
Act Effct Green (s)	14.4	14.4	14.4	15.8	34.7	34.7	5.0	55.5	55.5	27.1	77.1	77.1
Actuated g/C Ratio	0.11	0.11	0.11	0.12	0.26	0.26	0.04	0.41	0.41	0.20	0.57	0.57
v/c Ratio	0.04	0.65	0.43	0.72	0.07	0.56	0.60	0.97	0.76	0.97	0.90	0.01
Control Delay (s/veh)	54.6	66.1	9.9	67.8	37.2	7.8	84.4	56.5	20.3	81.2	33.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.6	66.1	9.9	67.8	37.2	7.8	84.4	56.5	20.3	81.2	33.8	0.0
LOS	D	E	A	E	D	A	F	E	C	F	C	A
Approach Delay (s/veh)		47.8			27.0			46.9			47.0	
Approach LOS		D			C			D			D	

Intersection Summary













Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	134.3
Natural Cycle:	140
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.97
Intersection Signal Delay (s/veh):	43.7
Intersection LOS:	D
Intersection Capacity Utilization:	89.7%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



Queues












Background 2035 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	250	122	294	33	646	78	1391	611	689	1767	6
v/c Ratio	0.04	0.65	0.43	0.72	0.07	0.56	0.60	0.97	0.76	0.97	0.90	0.01
Control Delay (s/veh)	54.6	66.1	9.9	67.8	37.2	7.8	84.4	56.5	20.3	81.2	33.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.6	66.1	9.9	67.8	37.2	7.8	84.4	56.5	20.3	81.2	33.8	0.0
Queue Length 50th (m)	1.5	34.7	0.0	39.6	6.8	9.4	10.9	198.1	63.1	96.0	225.1	0.0
Queue Length 95th (m)	5.8	49.8	12.6	56.3	15.3	26.5	#22.5	#265.4	124.3	#142.5	#309.1	0.0
Internal Link Dist (m)		144.1			170.3			411.0				249.6
Turn Bay Length (m)							150.0			285.0		
Base Capacity (vph)	175	480	321	470	568	1253	129	1435	807	708	1957	940
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.52	0.38	0.63	0.06	0.52	0.60	0.97	0.76	0.97	0.90	0.01

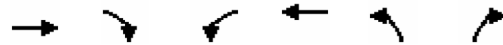
Intersection Summary

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

2: Hospital Gate & William Halton Parkway/William Halton Parkway

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1097	298	20	818	57	15
Future Volume (vph)	1097	298	20	818	57	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	0.99				0.94	0.94
Frt	0.968				0.995	0.850
Flt Protected			0.950		0.954	
Satd. Flow (prot)	3471	0	1825	3510	3517	1351
Flt Permitted			0.090		0.954	
Satd. Flow (perm)	3471	0	173	3510	3312	1273
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	50				2	15
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		25	25		25	25
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	4%	0%	10%
Adj. Flow (vph)	1219	331	22	909	63	17
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	1550	0	22	909	65	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
<b>Two way Left Turn Lane</b>						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

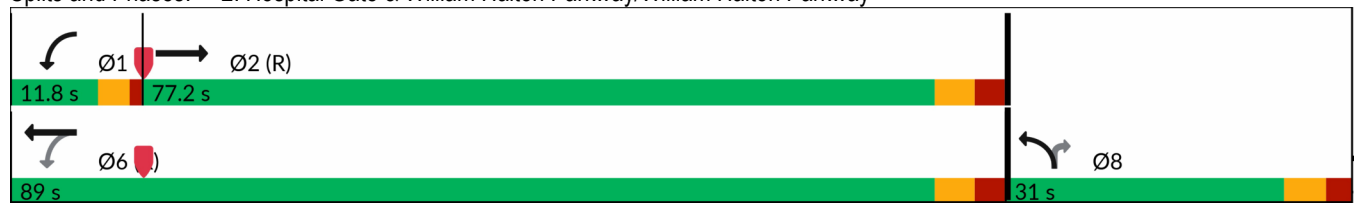


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	77.2		11.8	89.0	31.0	31.0
Total Split (%)	64.3%		9.8%	74.2%	25.8%	25.8%
Maximum Green (s)	70.8		7.8	82.6	25.0	25.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	3			3	3	3
Act Effct Green (s)	76.0		85.0	82.6	25.0	25.0
Actuated g/C Ratio	0.63		0.71	0.69	0.21	0.21
v/c Ratio	0.70		0.10	0.38	0.09	0.05
Control Delay (s/veh)	16.9		7.3	11.8	37.6	17.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9		7.3	11.8	37.6	17.1
LOS	B		A	B	D	B
Approach Delay (s/veh)	16.9			11.7	33.7	
Approach LOS	B			B	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay (s/veh): 15.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 71.5%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway
























## 2: Hospital Gate &amp; William Halton Parkway/William Halton Parkway

	→	↙	←	↘	↗
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1550	22	909	65	15
v/c Ratio	0.70	0.10	0.38	0.09	0.05
Control Delay (s/veh)	16.9	7.3	11.8	37.6	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9	7.3	11.8	37.6	17.1
Queue Length 50th (m)	128.1	2.2	65.3	6.2	0.0
Queue Length 95th (m)	155.6	5.1	77.7	12.2	6.9
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2216	229	2416	734	277
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.10	0.38	0.09	0.05
<b>Intersection Summary</b>					

Lanes, Volumes, Timings

Background 2035 - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	754	333	16	754	0	84	22	35	0	2	0
Future Volume (vph)	25	754	333	16	754	0	84	22	35	0	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.95	0.99			0.96	0.96				
Fr <sub>t</sub>			0.850					0.907				
Fl <sub>t</sub> Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	3650	1633	1825	3510	0	1772	2947	0	1921	3650	0
Fl <sub>t</sub> Permitted	0.321			0.321			0.756					
Satd. Flow (perm)	611	3650	1545	611	3510	0	1350	2947	0	1921	3650	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			370					39				
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%	3%	5%	10%	0%	0%	0%
Adj. Flow (vph)	28	838	370	18	838	0	93	24	39	0	2	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	838	370	18	838	0	93	63	0	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Background 2035 - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

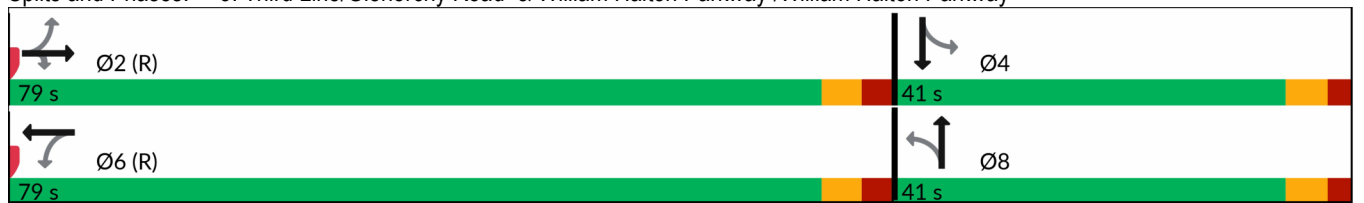


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	79.0	79.0	79.0	79.0	79.0		41.0	41.0		41.0	41.0	
Total Split (%)	65.8%	65.8%	65.8%	65.8%	65.8%		34.2%	34.2%		34.2%	34.2%	
Maximum Green (s)	72.6	72.6	72.6	72.6	72.6		35.1	35.1		35.1	35.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effct Green (s)	87.5	87.5	87.5	87.5	87.5		20.2	20.2			20.2	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17			0.17	
v/c Ratio	0.06	0.31	0.30	0.04	0.33		0.41	0.12			0.00	
Control Delay (s/veh)	10.3	15.2	7.5	4.9	6.2		50.7	20.8			41.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	10.3	15.2	7.5	4.9	6.2		50.7	20.8			41.5	
LOS	B	B	A	A	A		D	C			D	
Approach Delay (s/veh)		12.8			6.2			38.6			41.5	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.41
Intersection Signal Delay (s/veh):	12.1
Intersection LOS:	B
Intersection Capacity Utilization:	72.3%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



## 3: Third Line/Glenorchy Road &amp; William Halton Parkway /William Halton Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	838	370	18	838	93	63	2
v/c Ratio	0.06	0.31	0.30	0.04	0.33	0.41	0.12	0.00
Control Delay (s/veh)	10.3	15.2	7.5	4.9	6.2	50.7	20.8	41.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.3	15.2	7.5	4.9	6.2	50.7	20.8	41.5
Queue Length 50th (m)	3.1	81.8	34.0	1.0	33.3	20.3	2.6	0.2
Queue Length 95th (m)	m4.9	105.1	67.1	3.1	43.1	37.0	9.2	1.4
Internal Link Dist (m)		433.7			393.8		460.7	164.4
Turn Bay Length (m)	150.0		120.0			120.0		
Base Capacity (vph)	445	2661	1226	445	2559	394	889	1067
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	0.06	0.31	0.30	0.04	0.33	0.24	0.07	0.00

## Intersection Summary

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

Lanes, Volumes, Timings

Background 2035 - AM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	1275	402	155	626	329	152	1353	145	298	1416	266
Future Volume (vph)	250	1275	402	155	626	329	152	1353	145	298	1416	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	2		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00	0.98		1.00		0.96	1.00		0.96
Frt			0.850		0.948				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5092	1585	1659	4559	0	3340	3444	1570	3309	3380	1484
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1760	5092	1510	1653	4559	0	3330	3444	1500	3298	3380	1418
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159		93				118			220
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		275.6			1271.2			364.1			435.0	
Travel Time (s)		14.2			65.4			26.2			31.3	
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	10%	9%	4%	6%	6%	4%	7%	8%	10%
Adj. Flow (vph)	278	1417	447	172	696	366	169	1503	161	331	1573	296
Shared Lane Traffic (%)												
Lane Group Flow (vph)	278	1417	447	172	1062	0	169	1503	161	331	1573	296
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

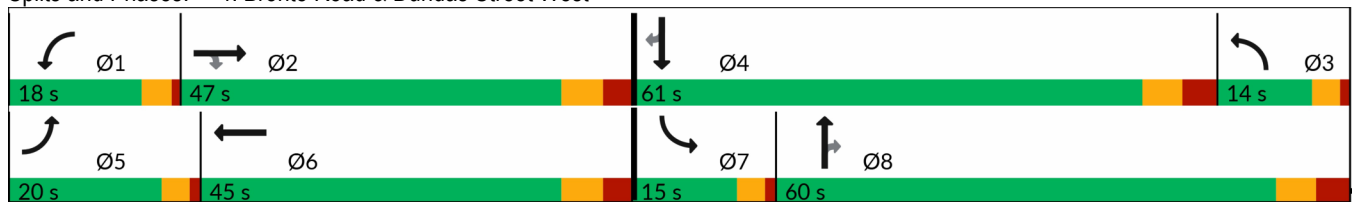
Lanes, Volumes, Timings

Background 2035 - AM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	20.0	47.0	47.0	18.0	45.0		14.0	60.0	60.0	15.0	61.0	61.0
Total Split (%)	14.3%	33.6%	33.6%	12.9%	32.1%		10.0%	42.9%	42.9%	10.7%	43.6%	43.6%
Maximum Green (s)	16.0	39.8	39.8	14.0	37.8		10.0	52.3	52.3	11.0	53.3	53.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3			3	3		3	3
Act Effct Green (s)	16.0	39.8	39.8	14.0	37.8		10.0	52.3	52.3	11.0	53.3	53.3
Actuated g/C Ratio	0.11	0.28	0.28	0.10	0.27		0.07	0.37	0.37	0.08	0.38	0.38
v/c Ratio	1.38	0.98	0.82	1.04	0.82		0.71	1.17	0.25	1.28	1.22	0.44
Control Delay (s/veh)	241.8	68.7	43.4	141.2	49.6		80.2	124.1	10.3	201.0	145.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	241.8	68.7	43.4	141.2	49.6		80.2	124.1	10.3	201.0	145.5	10.6
LOS	F	E	D	F	D		F	F	B	F	F	B
Approach Delay (s/veh)		85.9			62.4			110.0			135.7	
Approach LOS		F			E			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.38
Intersection Signal Delay (s/veh):	102.7
Intersection LOS:	F
Intersection Capacity Utilization:	111.2%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



Queues

Background 2035 - AM Peak Hour  
4: Bronte Road & Dundas Street West



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	278	1417	447	172	1062	169	1503	161	331	1573	296
v/c Ratio	1.38	0.98	0.82	1.04	0.82	0.71	1.17	0.25	1.28	1.22	0.44
Control Delay (s/veh)	241.8	68.7	43.4	141.2	49.6	80.2	124.1	10.3	201.0	145.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	241.8	68.7	43.4	141.2	49.6	80.2	124.1	10.3	201.0	145.5	10.6
Queue Length 50th (m)	~104.0	146.4	80.4	~55.3	100.2	25.2	~272.4	7.9	~62.8	~299.1	14.8
Queue Length 95th (m)	#161.0	#179.7	#136.0	#105.5	119.4	#40.2	#316.7	24.0	#95.4	#344.4	40.8
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	202	1447	543	165	1298	238	1286	634	259	1286	676
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.98	0.82	1.04	0.82	0.71	1.17	0.25	1.28	1.22	0.44

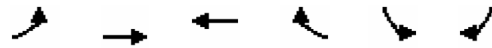
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

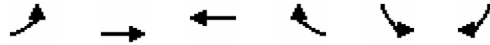
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	330	1388	1061	228	106	48
Future Volume (vph)	330	1388	1061	228	106	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor	1.00			0.94	0.98	0.96
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1789	5043	4902	1570	3404	1484
Fl <sub>t</sub> Permitted	0.177				0.950	
Satd. Flow (perm)	332	5043	4902	1483	3319	1420
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				253		53
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	25			25	25	25
Confl. Bikes (#/hr)				10		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	7%	4%	4%	10%
Adj. Flow (vph)	367	1542	1179	253	118	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	367	1542	1179	253	118	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	40.0	91.2	51.2	51.2	48.8	48.8
Total Split (%)	28.6%	65.1%	36.6%	36.6%	34.9%	34.9%
Maximum Green (s)	36.0	85.1	45.1	45.1	42.0	42.0
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		3	3	3	3	3
Act Effct Green (s)	88.1	86.0	61.6	61.6	15.3	15.3
Actuated g/C Ratio	0.77	0.75	0.54	0.54	0.13	0.13
v/c Ratio	0.71	0.41	0.45	0.28	0.26	0.22
Control Delay (s/veh)	19.6	6.9	20.5	4.1	44.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	6.9	20.5	4.1	44.2	12.5
LOS	B	A	C	A	D	B
Approach Delay (s/veh)		9.3	17.6		34.4	
Approach LOS		A	B		C	

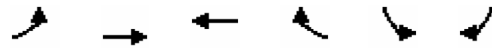
Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	114.4
Natural Cycle:	95
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay (s/veh):	13.9
Intersection LOS:	B
Intersection Capacity Utilization:	79.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



























Queues



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	367	1542	1179	253	118	53
v/c Ratio	0.71	0.41	0.45	0.28	0.26	0.22
Control Delay (s/veh)	19.6	6.9	20.5	4.1	44.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	6.9	20.5	4.1	44.2	12.5
Queue Length 50th (m)	21.1	29.9	50.6	0.0	12.6	0.0
Queue Length 95th (m)	86.0	98.5	131.0	19.5	20.5	10.9
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	719	3791	2639	915	1263	560
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.41	0.45	0.28	0.09	0.09
<b>Intersection Summary</b>						

Lanes, Volumes, Timings

Background 2035 - AM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1205	272	502	910	192	296	193	438	135	198	12
Future Volume (vph)	10	1205	272	502	910	192	296	193	438	135	198	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	0.99		0.95	0.98		0.95	0.98		0.95
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4995	1585	3404	4902	1617	1755	3614	1585	1772	3544	1633
Flt Permitted	0.271			0.950			0.499			0.618		
Satd. Flow (perm)	517	4995	1510	3379	4902	1543	904	3614	1512	1129	3544	1556
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			302			213			356			150
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	3%	4%	7%	1%	4%	1%	3%	3%	3%	0%
Adj. Flow (vph)	11	1339	302	558	1011	213	329	214	487	150	220	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	1339	302	558	1011	213	329	214	487	150	220	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	48.3	48.3	30.5	67.3	67.3	16.4	49.4	49.4	11.8	44.8	44.8
Total Split (%)	8.2%	34.5%	34.5%	21.8%	48.1%	48.1%	11.7%	35.3%	35.3%	8.4%	32.0%	32.0%
Maximum Green (s)	7.5	42.0	42.0	26.5	61.0	61.0	12.4	42.6	42.6	7.8	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3	3		3	3		3	3
Act Effct Green (s)	51.9	42.5	42.5	23.4	68.0	68.0	38.2	23.4	23.4	29.5	18.8	18.8
Actuated g/C Ratio	0.44	0.36	0.36	0.20	0.57	0.57	0.32	0.20	0.20	0.25	0.16	0.16
v/c Ratio	0.04	0.75	0.41	0.83	0.36	0.22	0.86	0.30	0.83	0.46	0.39	0.03
Control Delay (s/veh)	14.9	38.2	5.5	58.3	15.9	3.1	57.7	40.9	25.4	35.8	46.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.9	38.2	5.5	58.3	15.9	3.1	57.7	40.9	25.4	35.8	46.0	0.2
LOS	B	D	A	E	B	A	E	D	C	D	D	A
Approach Delay (s/veh)		32.1			27.7			38.9			40.4	
Approach LOS		C			C			D			D	

**Intersection Summary**

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 118.5

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

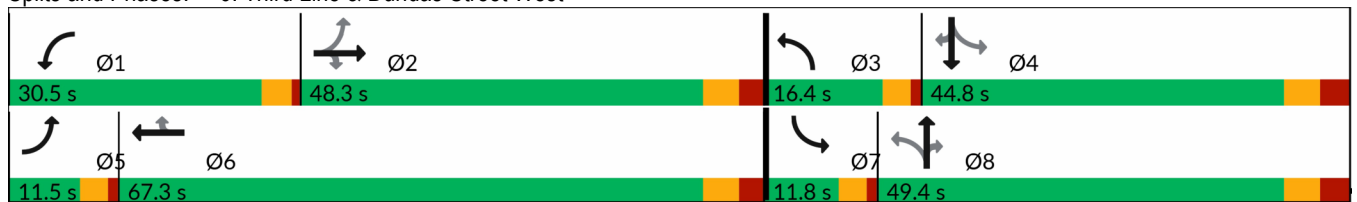
Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 32.6      Intersection LOS: C

Intersection Capacity Utilization 99.8%      ICU Level of Service F













Analysis Period (min) 15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Background 2035 - AM Peak Hour  
6: Third Line & Dundas Street West

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	1339	302	558	1011	213	329	214	487	150	220	13
v/c Ratio	0.04	0.75	0.41	0.83	0.36	0.22	0.86	0.30	0.83	0.46	0.39	0.03
Control Delay (s/veh)	14.9	38.2	5.5	58.3	15.9	3.1	57.7	40.9	25.4	35.8	46.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.9	38.2	5.5	58.3	15.9	3.1	57.7	40.9	25.4	35.8	46.0	0.2
Queue Length 50th (m)	0.9	99.5	0.0	63.7	40.7	0.0	66.1	22.8	30.7	26.6	25.1	0.0
Queue Length 95th (m)	4.5	155.6	21.9	#109.3	88.8	14.6	96.0	33.7	74.0	43.2	37.1	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	312	1790	735	769	2814	976	381	1313	776	323	1149	605
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	0.04	0.75	0.41	0.73	0.36	0.22	0.86	0.16	0.63	0.46	0.19	0.02

Intersection Summary

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

Lanes, Volumes, Timings

Background 2035 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	190	100	468	80	1168	190	1880	621	423	1097	0
Future Volume (vph)	10	190	100	468	80	1168	190	1880	621	423	1097	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	150.0		0.0	285.0		0.0
Storage Lanes	1		1	2		2	2		1	2		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.95		0.92	0.93			0.98		0.95	1.00		
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1601	3541	1883	2846	3471	3510	1633	3541	3476	1883
Flt Permitted	0.699			0.950			0.950			0.950		
Satd. Flow (perm)	1249	3579	1465	3284	1883	2846	3392	3510	1557	3531	3476	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			27			341			
Link Speed (k/h)		48			60			50				50
Link Distance (m)		166.2			194.3			435.0				273.6
Travel Time (s)		12.5			11.7			31.3				19.7
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	0%	2%	1%	2%	4%	0%	0%	5%	2%
Adj. Flow (vph)	11	211	111	520	89	1298	211	2089	690	470	1219	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	211	111	520	89	1298	211	2089	690	470	1219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

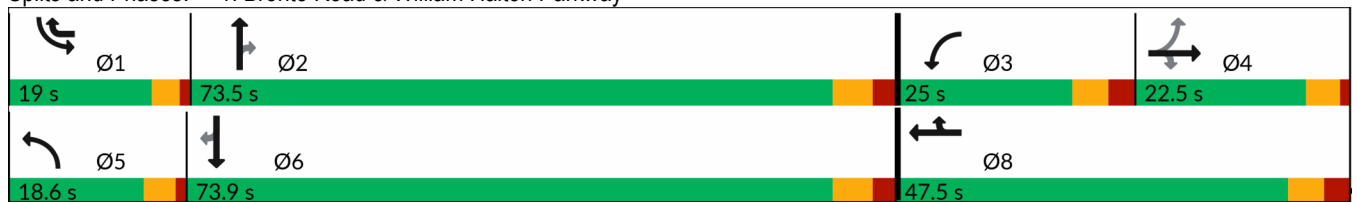
Background 2035 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4						2			6
Detector Phase	4	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	22.5	22.5	22.5	24.5	24.5		9.5	40.5	40.5	11.5	26.5	26.5
Total Split (s)	22.5	22.5	22.5	25.0	47.5		18.6	73.5	73.5	19.0	73.9	73.9
Total Split (%)	16.1%	16.1%	16.1%	17.9%	33.9%		13.3%	52.5%	52.5%	13.6%	52.8%	52.8%
Maximum Green (s)	18.0	18.0	18.0	18.5	41.0		14.1	67.0	67.0	15.0	67.4	67.4
Yellow Time (s)	3.5	3.5	3.5	3.7	3.7		3.5	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	2.8	2.8		1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	6.5	6.5		4.5	6.5	6.5	4.0	6.5	6.5
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
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Don't Walk (s)	11.0	11.0	11.0					27.0	27.0			
Pedestrian Calls (#/hr)	5	5	5					5	5			
Act Effct Green (s)	18.0	18.0	18.0	18.5	41.0	60.0	12.9	67.0	67.0	15.0	68.6	
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.29	0.43	0.09	0.48	0.48	0.11	0.49	
v/c Ratio	0.07	0.46	0.39	1.11	0.16	1.05	0.66	1.24	0.75	1.24	0.72	
Control Delay (s/veh)	55.0	60.1	13.1	130.5	37.8	78.2	71.8	148.1	19.9	178.5	31.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	55.0	60.1	13.1	130.5	37.8	78.2	71.8	148.1	19.9	178.5	31.2	
LOS	D	E	B	F	D	E	E	F	B	F	C	
Approach Delay (s/veh)		44.3			90.6			113.2			72.2	
Approach LOS		D			F			F			E	

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.24
Intersection Signal Delay (s/veh):	93.6
Intersection LOS:	F
Intersection Capacity Utilization:	113.9%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



Queues

Background 2035 - PM Peak Hour  
1: Bronte Road & William Halton Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	211	111	520	89	1298	211	2089	690	470	1219
v/c Ratio	0.07	0.46	0.39	1.11	0.16	1.05	0.66	1.24	0.75	1.24	0.72
Control Delay (s/veh)	55.0	60.1	13.1	130.5	37.8	78.2	71.8	148.1	19.9	178.5	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.0	60.1	13.1	130.5	37.8	78.2	71.8	148.1	19.9	178.5	31.2
Queue Length 50th (m)	2.8	29.3	0.0	~84.6	18.7	~221.5	29.8	~389.7	81.0	~82.9	143.8
Queue Length 95th (m)	9.0	42.7	17.2	#119.9	32.8	#268.6	43.3	#431.5	133.4	#117.3	171.8
Internal Link Dist (m)		142.2			170.3			411.0			249.6
Turn Bay Length (m)							150.0			285.0	
Base Capacity (vph)	160	460	286	467	551	1235	349	1679	922	379	1704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.46	0.39	1.11	0.16	1.05	0.60	1.24	0.75	1.24	0.72

Intersection Summary












~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

2: Hospital Gate & William Halton Parkway/William Halton Parkway

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1164	70	19	1544	172	20
Future Volume (vph)	1164	70	19	1544	172	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	1.00				0.94	0.94
Frt	0.991				0.998	0.850
Flt Protected			0.950		0.953	
Satd. Flow (prot)	3541	0	1825	3579	3471	1415
Flt Permitted			0.130		0.953	
Satd. Flow (perm)	3541	0	250	3579	3265	1334
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	9				1	20
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		25	25		25	25
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	0%	2%	2%	5%
Adj. Flow (vph)	1293	78	21	1716	191	22
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	1371	0	21	1716	193	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

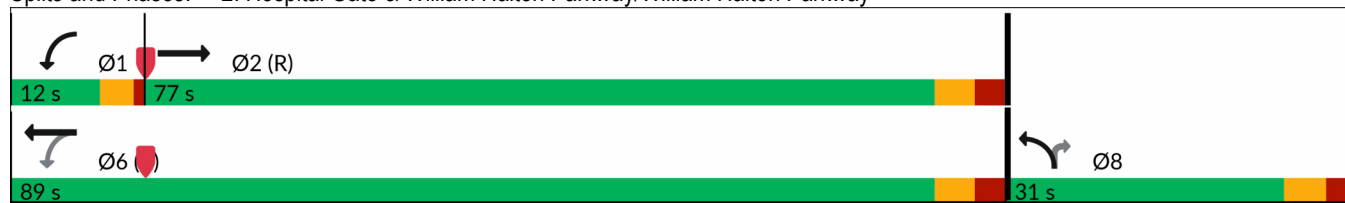


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	77.0		12.0	89.0	31.0	31.0
Total Split (%)	64.2%		10.0%	74.2%	25.8%	25.8%
Maximum Green (s)	70.6		8.0	82.6	25.0	25.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	5			5	5	5
Act Effct Green (s)	78.2		85.0	82.6	25.0	25.0
Actuated g/C Ratio	0.65		0.71	0.69	0.21	0.21
v/c Ratio	0.59		0.08	0.70	0.27	0.07
Control Delay (s/veh)	13.9		4.5	10.2	40.8	15.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.9		4.5	10.2	40.8	15.6
LOS	B		A	B	D	B
Approach Delay (s/veh)	13.9			10.1	38.4	
Approach LOS	B			B	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay (s/veh): 13.5      Intersection LOS: B  
 Intersection Capacity Utilization 73.8%      ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway



## 2: Hospital Gate &amp; William Halton Parkway/William Halton Parkway



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1371	21	1716	193	20
v/c Ratio	0.59	0.08	0.70	0.27	0.07
Control Delay (s/veh)	13.9	4.5	10.2	40.8	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.9	4.5	10.2	40.8	15.6
Queue Length 50th (m)	78.7	0.8	35.0	20.0	0.0
Queue Length 95th (m)	129.0	m1.8	84.0	30.5	7.4
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2310	282	2463	723	293
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.07	0.70	0.27	0.07






















## Intersection Summary

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

Lanes, Volumes, Timings

Background 2035 - PM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	898	275	24	1336	0	211	13	45	0	43	16
Future Volume (vph)	11	898	275	24	1336	0	211	13	45	0	43	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.95	0.99			0.96	0.95			0.98	
Frt			0.850					0.883			0.959	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	3650	1633	1825	3444	0	1789	3023	0	1921	3443	0
Flt Permitted	0.123			0.251			0.712					
Satd. Flow (perm)	236	3650	1545	479	3444	0	1289	3023	0	1921	3443	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			306					50			18	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	12	998	306	27	1484	0	234	14	50	0	48	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	998	306	27	1484	0	234	64	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Background 2035 - PM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

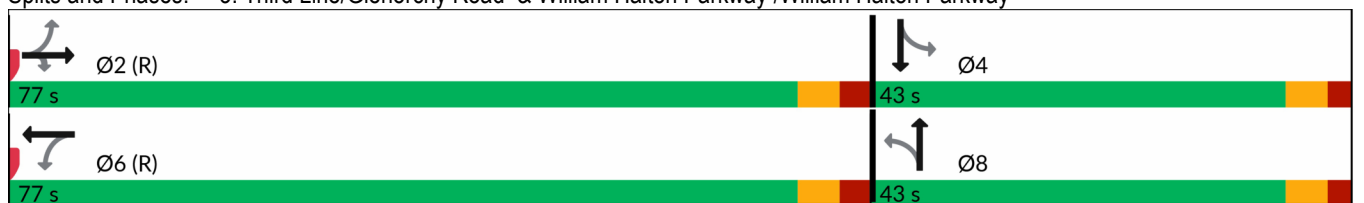


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	77.0	77.0	77.0	77.0	77.0		43.0	43.0		43.0	43.0	
Total Split (%)	64.2%	64.2%	64.2%	64.2%	64.2%		35.8%	35.8%		35.8%	35.8%	
Maximum Green (s)	70.6	70.6	70.6	70.6	70.6		37.1	37.1		37.1	37.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	80.1	80.1	80.1	80.1	80.1		27.6	27.6			27.6	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.23	0.23			0.23	
v/c Ratio	0.08	0.41	0.27	0.08	0.65		0.79	0.09			0.08	
Control Delay (s/veh)	10.4	10.0	1.9	9.8	14.3		61.7	12.2			25.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	10.4	10.0	1.9	9.8	14.3		61.7	12.2			25.2	
LOS	B	A	A	A	B		E	B			C	
Approach Delay (s/veh)		8.1			14.3			51.1			25.2	
Approach LOS		A			B			D			C	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay (s/veh):	15.4
Intersection LOS:	B
Intersection Capacity Utilization:	68.7%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



## 3: Third Line/Glenorchy Road &amp; William Halton Parkway /William Halton Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	12	998	306	27	1484	234	64	66
v/c Ratio	0.08	0.41	0.27	0.08	0.65	0.79	0.09	0.08
Control Delay (s/veh)	10.4	10.0	1.9	9.8	14.3	61.7	12.2	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.4	10.0	1.9	9.8	14.3	61.7	12.2	25.2
Queue Length 50th (m)	0.9	51.2	0.1	2.0	101.8	53.2	1.3	4.6
Queue Length 95th (m)	m1.3	36.7	5.3	7.0	157.4	75.3	6.3	9.5
Internal Link Dist (m)		433.7			393.8		460.7	164.4
Turn Bay Length (m)	150.0		120.0			120.0		
Base Capacity (vph)	157	2436	1133	319	2298	398	969	1076
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	0.08	0.41	0.27	0.08	0.65	0.59	0.07	0.06

## Intersection Summary

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

Lanes, Volumes, Timings

Background 2035 - PM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	864	174	176	1293	558	312	2078	83	209	1006	440
Future Volume (vph)	181	864	174	176	1293	558	312	2078	83	209	1006	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	2		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.95	0.99	0.99		0.99		0.96	1.00		0.95
Frt			0.850		0.955				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	5092	1570	1772	4809	0	3471	3510	1570	3506	3510	1601
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1804	5092	1497	1759	4809	0	3451	3510	1500	3502	3510	1529
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193		81				95			170
Link Speed (k/h)		70			70			50				50
Link Distance (m)		275.6			1271.2			364.1				435.0
Travel Time (s)		14.2			65.4			26.2				31.3
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	4%	3%	3%	2%	2%	4%	4%	1%	4%	2%
Adj. Flow (vph)	201	960	193	196	1437	620	347	2309	92	232	1118	489
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	960	193	196	2057	0	347	2309	92	232	1118	489
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

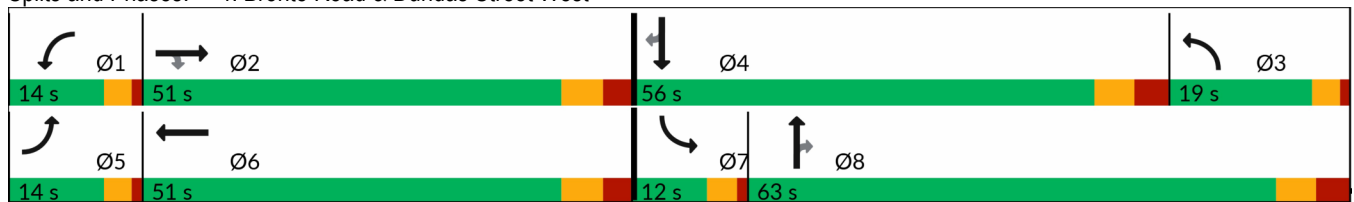
Lanes, Volumes, Timings

Background 2035 - PM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	14.0	51.0	51.0	14.0	51.0		19.0	63.0	63.0	12.0	56.0	56.0
Total Split (%)	10.0%	36.4%	36.4%	10.0%	36.4%		13.6%	45.0%	45.0%	8.6%	40.0%	40.0%
Maximum Green (s)	10.0	43.8	43.8	10.0	43.8		15.0	55.3	55.3	8.0	48.3	48.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		5	5		5			5	5		5	5
Act Effct Green (s)	10.0	43.8	43.8	10.0	43.8		15.0	55.3	55.3	8.0	48.3	48.3
Actuated g/C Ratio	0.07	0.31	0.31	0.07	0.31		0.11	0.40	0.40	0.06	0.35	0.35
v/c Ratio	1.56	0.60	0.32	1.56	1.32		0.94	1.67	0.14	1.16	0.92	0.77
Control Delay (s/veh)	325.9	42.7	6.0	325.6	185.2		94.5	332.5	5.2	169.1	57.4	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	325.9	42.7	6.0	325.6	185.2		94.5	332.5	5.2	169.1	57.4	35.1
LOS	F	D	A	F	F		F	F	A	F	E	D
Approach Delay (s/veh)		79.5			197.4			291.5			65.5	
Approach LOS		E			F			F			E	












Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.67
Intersection Signal Delay (s/veh):	179.9
Intersection LOS:	F
Intersection Capacity Utilization:	130.7%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



## Queues

Background 2035 - PM Peak Hour  
4: Bronte Road & Dundas Street West

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	201	960	193	196	2057	347	2309	92	232	1118	489
v/c Ratio	1.56	0.60	0.32	1.56	1.32	0.94	1.67	0.14	1.16	0.92	0.77
Control Delay (s/veh)	325.9	42.7	6.0	325.6	185.2	94.5	332.5	5.2	169.1	57.4	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	325.9	42.7	6.0	325.6	185.2	94.5	332.5	5.2	169.1	57.4	35.1
Queue Length 50th (m)	~79.0	84.5	0.0	~78.1	~270.5	50.7	~504.2	0.0	~39.3	161.2	83.1
Queue Length 95th (m)	#128.8	99.7	17.7	#128.7	#300.0	#80.0	#544.7	10.7	#66.4	#203.3	129.3
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	129	1593	600	126	1560	371	1386	649	200	1210	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.56	0.60	0.32	1.56	1.32	0.94	1.67	0.14	1.16	0.92	0.77

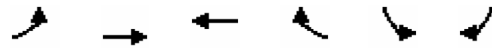
## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

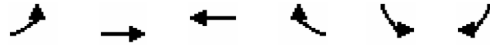
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	71	1084	1832	122	296	195
Future Volume (vph)	71	1084	1832	122	296	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor				0.95	0.98	0.96
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1706	5043	5043	1526	3372	1585
Fl <sub>t</sub> Permitted	0.059				0.950	
Satd. Flow (perm)	106	5043	5043	1445	3288	1516
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				134		141
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	25			25	25	25
Confl. Bikes (#/hr)				10		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	4%	4%	7%	5%	3%
Adj. Flow (vph)	79	1204	2036	136	329	217
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	1204	2036	136	329	217
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						



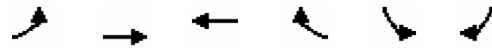
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	14.2	91.0	76.8	76.8	49.0	49.0
Total Split (%)	10.1%	65.0%	54.9%	54.9%	35.0%	35.0%
Maximum Green (s)	10.2	84.9	70.7	70.7	42.2	42.2
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		5	5	5	5	5
Act Effct Green (s)	87.6	85.5	76.2	76.2	19.9	19.9
Actuated g/C Ratio	0.74	0.72	0.64	0.64	0.17	0.17
v/c Ratio	0.43	0.33	0.63	0.14	0.58	0.58
Control Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.3
LOS	B	A	B	A	D	C
Approach Delay (s/veh)		8.0	15.4		38.3	
Approach LOS		A	B		D	

Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.4
Natural Cycle:	105
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay (s/veh):	16.2
Intersection LOS:	B
Intersection Capacity Utilization:	78.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



























Queues



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	79	1204	2036	136	329	217
v/c Ratio	0.43	0.33	0.63	0.14	0.58	0.58
Control Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.3
Queue Length 50th (m)	3.9	29.2	93.3	0.2	37.8	15.9
Queue Length 95th (m)	21.7	71.6	192.1	11.3	51.4	38.8
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	217	3642	3243	977	1210	634
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.33	0.63	0.14	0.27	0.34
<b>Intersection Summary</b>						

Lanes, Volumes, Timings

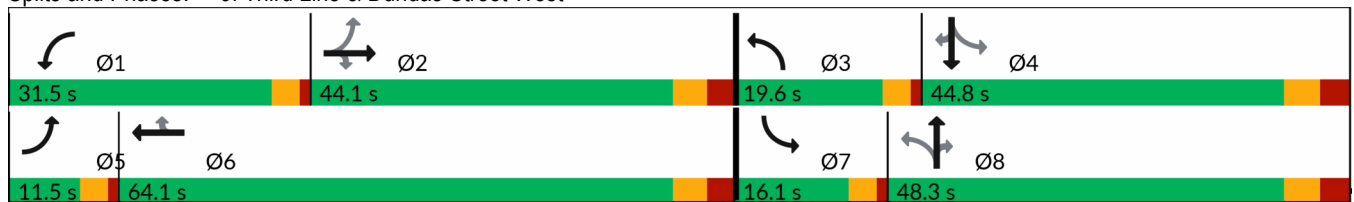
Background 2035 - PM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1083	299	521	1644	136	336	184	444	286	205	28
Future Volume (vph)	14	1083	299	521	1644	136	336	184	444	286	205	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.95	0.99		0.95	0.98		0.95	0.98		0.95
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5043	1601	3437	5043	1617	1755	3476	1585	1789	3476	1633
Flt Permitted	0.098			0.950			0.500			0.624		
Satd. Flow (perm)	171	5043	1523	3406	5043	1543	906	3476	1512	1151	3476	1556
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			332			140			368			119
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	4%	2%	3%	4%	1%	4%	5%	3%	2%	5%	0%
Adj. Flow (vph)	16	1203	332	579	1827	151	373	204	493	318	228	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1203	332	579	1827	151	373	204	493	318	228	31
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	44.1	44.1	31.5	64.1	64.1	19.6	48.3	48.3	16.1	44.8	44.8
Total Split (%)	8.2%	31.5%	31.5%	22.5%	45.8%	45.8%	14.0%	34.5%	34.5%	11.5%	32.0%	32.0%
Maximum Green (s)	7.5	37.8	37.8	27.5	57.8	57.8	15.6	41.5	41.5	12.1	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effct Green (s)	47.7	38.3	38.3	24.0	62.3	62.3	41.3	22.7	22.7	34.2	19.1	19.1
Actuated g/C Ratio	0.40	0.32	0.32	0.20	0.53	0.53	0.35	0.19	0.19	0.29	0.16	0.16
v/c Ratio	0.10	0.74	0.46	0.83	0.69	0.17	0.87	0.31	0.84	0.80	0.41	0.09
Control Delay (s/veh)	17.8	40.7	6.1	57.7	25.3	4.9	54.4	41.6	25.4	48.8	46.0	0.5
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 (s/veh)	17.8	40.7	6.1	57.7	25.3	4.9	54.4	41.6	25.4	48.8	46.0	0.5
LOS	B	D	A	E	C	A	D	D	C	D	D	A
Approach Delay (s/veh)		33.1			31.4			38.6			45.1	
Approach LOS		C			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.5
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay (s/veh):	34.6
Intersection LOS:	C
Intersection Capacity Utilization:	102.6%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Background 2035 - PM Peak Hour  
6: Third Line & Dundas Street West

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	1203	332	579	1827	151	373	204	493	318	228	31
v/c Ratio	0.10	0.74	0.46	0.83	0.69	0.17	0.87	0.31	0.84	0.80	0.41	0.09
Control Delay (s/veh)	17.8	40.7	6.1	57.7	25.3	4.9	54.4	41.6	25.4	48.8	46.0	0.5
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 (s/veh)	17.8	40.7	6.1	57.7	25.3	4.9	54.4	41.6	25.4	48.8	46.0	0.5
Queue Length 50th (m)	1.5	90.8	0.0	65.7	98.3	1.0	73.5	22.5	29.0	59.0	26.4	0.0
Queue Length 95th (m)	6.4	140.5	24.1	#110.5	195.2	15.3	106.3	33.9	73.2	86.7	39.0	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	164	1627	716	807	2651	877	428	1231	773	398	1127	585
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	0.10	0.74	0.46	0.72	0.69	0.17	0.87	0.17	0.64	0.80	0.20	0.05

Intersection Summary

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

Lanes, Volumes, Timings

Total 2035 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	225	110	272	30	588	70	1252	567	662	1590	5
Future Volume (vph)	5	225	110	272	30	588	70	1252	567	662	1590	5
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	150.0		0.0	285.0		0.0
Storage Lanes	1		1	2		2	2		1	2		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.94		0.92	0.93			0.97		0.95	0.99		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1601	3506	1883	2846	3471	3476	1512	3506	3411	1601
Flt Permitted	0.736			0.950			0.950			0.950		
Satd. Flow (perm)	1309	3579	1465	3265	1883	2846	3367	3476	1440	3479	3411	1554
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144			586			357			113
Link Speed (k/h)		60			60			50				50
Link Distance (m)		168.1			194.3			435.0				273.6
Travel Time (s)		10.1			11.7			31.3				19.7
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	2%	1%	2%	5%	8%	1%	7%	2%
Adj. Flow (vph)	6	250	122	302	33	653	78	1391	630	736	1767	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	250	122	302	33	653	78	1391	630	736	1767	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

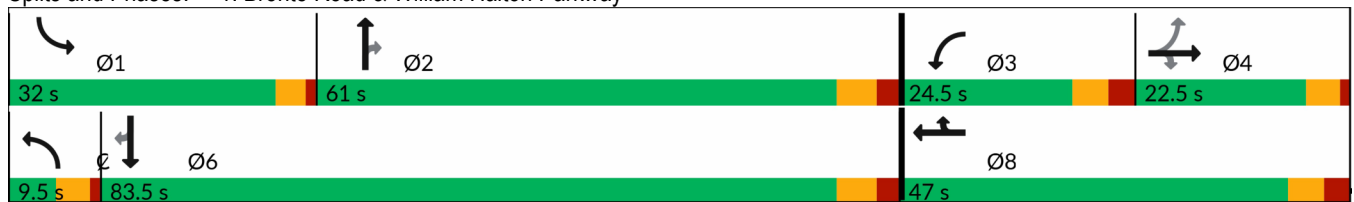
Lanes, Volumes, Timings

Total 2035 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Prot	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8	8	5	2		1	6	
Permitted Phases	4		4						2			6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	22.5	22.5	22.5	24.5	24.5	24.5	9.5	40.5	40.5	11.5	26.5	26.5
Total Split (s)	22.5	22.5	22.5	24.5	47.0	47.0	9.5	61.0	61.0	32.0	83.5	83.5
Total Split (%)	16.1%	16.1%	16.1%	17.5%	33.6%	33.6%	6.8%	43.6%	43.6%	22.9%	59.6%	59.6%
Maximum Green (s)	18.0	18.0	18.0	18.0	40.5	40.5	5.0	54.5	54.5	28.0	77.0	77.0
Yellow Time (s)	3.5	3.5	3.5	3.7	3.7	3.7	3.5	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	2.8	2.8	2.8	1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	6.5	6.5	6.5	4.5	6.5	6.5	4.0	6.5	6.5
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	Min	Min	Min	None	Min	Min	None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Don't Walk (s)	11.0	11.0	11.0					27.0	27.0			
Pedestrian Calls (#/hr)	3	3	3					3	3			
Act Effct Green (s)	14.5	14.5	14.5	15.9	34.9	34.9	5.0	54.6	54.6	28.0	77.1	77.1
Actuated g/C Ratio	0.11	0.11	0.11	0.12	0.26	0.26	0.04	0.41	0.41	0.21	0.57	0.57
v/c Ratio	0.04	0.65	0.43	0.73	0.07	0.56	0.60	0.99	0.79	1.01	0.90	0.01
Control Delay (s/veh)	54.6	66.2	9.9	68.4	37.2	7.1	84.6	60.9	23.3	88.0	34.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.6	66.2	9.9	68.4	37.2	7.1	84.6	60.9	23.3	88.0	34.0	0.0
LOS	D	E	A	E	D	A	F	E	C	F	C	A
Approach Delay (s/veh)		47.8			26.8			50.5			49.8	
Approach LOS		D			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	134.5
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.01
Intersection Signal Delay (s/veh):	46.1
Intersection LOS:	D
Intersection Capacity Utilization:	90.9%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



Queues












Total 2035 - AM Peak Hour  
1: Bronte Road & William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	250	122	302	33	653	78	1391	630	736	1767	6
v/c Ratio	0.04	0.65	0.43	0.73	0.07	0.56	0.60	0.99	0.79	1.01	0.90	0.01
Control Delay (s/veh)	54.6	66.2	9.9	68.4	37.2	7.1	84.6	60.9	23.3	88.0	34.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.6	66.2	9.9	68.4	37.2	7.1	84.6	60.9	23.3	88.0	34.0	0.0
Queue Length 50th (m)	1.5	34.8	0.0	40.8	6.8	7.7	10.9	201.3	73.5	~108.0	226.3	0.0
Queue Length 95th (m)	5.8	49.8	12.6	57.7	15.3	24.2	#22.5	#269.0	139.5	#153.8	#309.1	0.0
Internal Link Dist (m)		144.1			170.3			411.0				249.6
Turn Bay Length (m)							150.0			285.0		
Base Capacity (vph)	175	479	320	469	567	1267	129	1410	796	730	1955	939
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.52	0.38	0.64	0.06	0.52	0.60	0.99	0.79	1.01	0.90	0.01

Intersection Summary

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

2: Hospital Gate & William Halton Parkway/William Halton Parkway

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1156	298	20	833	57	15
Future Volume (vph)	1156	298	20	833	57	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	0.99				0.94	0.94
Frt	0.969				0.995	0.850
Flt Protected			0.950		0.954	
Satd. Flow (prot)	3475	0	1825	3510	3517	1351
Flt Permitted			0.079		0.954	
Satd. Flow (perm)	3475	0	152	3510	3312	1273
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	47				2	15
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		25	25		25	25
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	4%	0%	10%
Adj. Flow (vph)	1284	331	22	926	63	17
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	1615	0	22	926	65	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

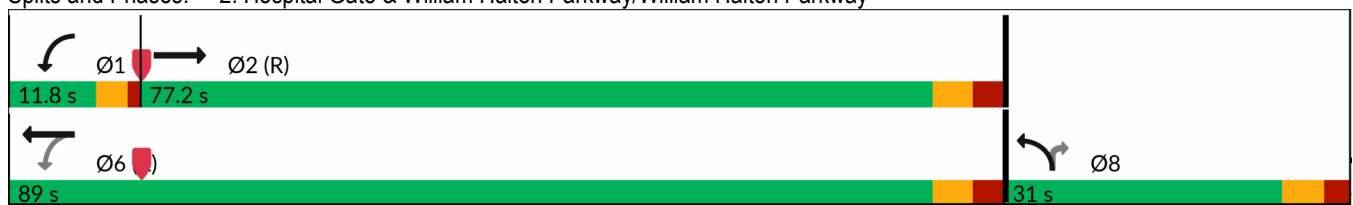


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	77.2		11.8	89.0	31.0	31.0
Total Split (%)	64.3%		9.8%	74.2%	25.8%	25.8%
Maximum Green (s)	70.8		7.8	82.6	25.0	25.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	3			3	3	3
Act Effct Green (s)	76.0		85.0	82.6	25.0	25.0
Actuated g/C Ratio	0.63		0.71	0.69	0.21	0.21
v/c Ratio	0.73		0.11	0.38	0.09	0.05
Control Delay (s/veh)	17.8		6.8	11.5	37.6	17.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.8		6.8	11.5	37.6	17.1
LOS	B		A	B	D	B
Approach Delay (s/veh)	17.8			11.4	33.7	
Approach LOS	B			B	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay (s/veh): 16.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 73.1%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway



Queues

Total 2035 - AM Peak Hour






















2: Hospital Gate & William Halton Parkway/William Halton Parkway

	→	↙	←	↘	↗
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1615	22	926	65	15
v/c Ratio	0.73	0.11	0.38	0.09	0.05
Control Delay (s/veh)	17.8	6.8	11.5	37.6	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.8	6.8	11.5	37.6	17.1
Queue Length 50th (m)	138.6	2.1	63.2	6.2	0.0
Queue Length 95th (m)	168.1	2.8	83.4	12.2	6.9
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2218	216	2416	734	277
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.10	0.38	0.09	0.05
<b>Intersection Summary</b>					

Lanes, Volumes, Timings

Total 2035 - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	754	333	16	754	1	126	40	35	4	8	0
Future Volume (vph)	84	754	333	16	754	1	126	40	35	4	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.95	0.99	1.00		0.96	0.97		0.96		
Fr <sub>t</sub>			0.850					0.930				
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3650	1633	1825	3510	0	1772	3073	0	1825	3650	0
Fl <sub>t</sub> Permitted	0.319			0.319			0.751			0.700		
Satd. Flow (perm)	607	3650	1545	607	3510	0	1341	3073	0	1293	3650	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			370					39				
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%	3%	5%	10%	0%	0%	0%
Adj. Flow (vph)	93	838	370	18	838	1	140	44	39	4	9	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	838	370	18	839	0	140	83	0	4	9	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

Total 2035 - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	29.4	29.4	29.4	29.4	29.4		26.9	26.9		26.9	26.9	
Total Split (s)	75.0	75.0	75.0	75.0	75.0		45.0	45.0		45.0	45.0	
Total Split (%)	62.5%	62.5%	62.5%	62.5%	62.5%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	68.6	68.6	68.6	68.6	68.6		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	16.0	16.0	16.0	16.0	16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effct Green (s)	86.5	86.5	86.5	86.5	86.5		21.2	21.2		21.2	21.2	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72		0.18	0.18		0.18	0.18	
v/c Ratio	0.21	0.32	0.30	0.04	0.33		0.59	0.14		0.02	0.01	
Control Delay (s/veh)	15.5	16.0	7.7	5.7	6.7		56.0	23.9		39.5	39.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	15.5	16.0	7.7	5.7	6.7		56.0	23.9		39.5	39.4	
LOS	B	B	A	A	A		E	C		D	D	
Approach Delay (s/veh)		13.6			6.7			44.1			39.4	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay (s/veh): 14.1      Intersection LOS: B  
 Intersection Capacity Utilization 72.3%      ICU Level of Service C  
 Analysis Period (min) 15

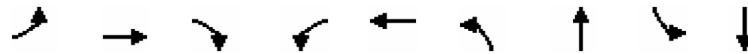
Splits and Phases: 3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway



Queues

Total 2035 - AM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway


































Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	93	838	370	18	839	140	83	4	9
v/c Ratio	0.21	0.32	0.30	0.04	0.33	0.59	0.14	0.02	0.01
Control Delay (s/veh)	15.5	16.0	7.7	5.7	6.7	56.0	23.9	39.5	39.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.5	16.0	7.7	5.7	6.7	56.0	23.9	39.5	39.4
Queue Length 50th (m)	13.5	82.2	29.4	1.0	33.2	31.8	4.8	0.8	0.9
Queue Length 95th (m)	m24.8	108.2	65.9	3.7	50.3	50.9	11.6	3.8	3.1
Internal Link Dist (m)		433.7			393.8		460.7		164.4
Turn Bay Length (m)	150.0		120.0			120.0		60.0	
Base Capacity (vph)	437	2629	1216	437	2529	436	1027	421	1189
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	0.32	0.30	0.04	0.33	0.32	0.08	0.01	0.01

Intersection Summary

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

Lanes, Volumes, Timings

Total 2035 - AM Peak Hour  
4: Bronte Road & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Traffic Volume (vph)	261	1278	402	155	626	329	152	1359	167	298	1421	269
Future Volume (vph)	261	1278	402	155	626	329	152	1359	167	298	1421	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	2		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00	0.98		1.00		0.96	1.00		0.96
Frt			0.850		0.948				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	5092	1585	1659	4559	0	3340	3444	1570	3309	3380	1484
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1760	5092	1510	1653	4559	0	3330	3444	1500	3298	3380	1418
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159		93				136			221
Link Speed (k/h)		70			70			50				50
Link Distance (m)		275.6			1271.2			364.1				435.0
Travel Time (s)		14.2			65.4			26.2				31.3
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	10%	9%	4%	6%	6%	4%	7%	8%	10%
Adj. Flow (vph)	290	1420	447	172	696	366	169	1510	186	331	1579	299
Shared Lane Traffic (%)												
Lane Group Flow (vph)	290	1420	447	172	1062	0	169	1510	186	331	1579	299
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings

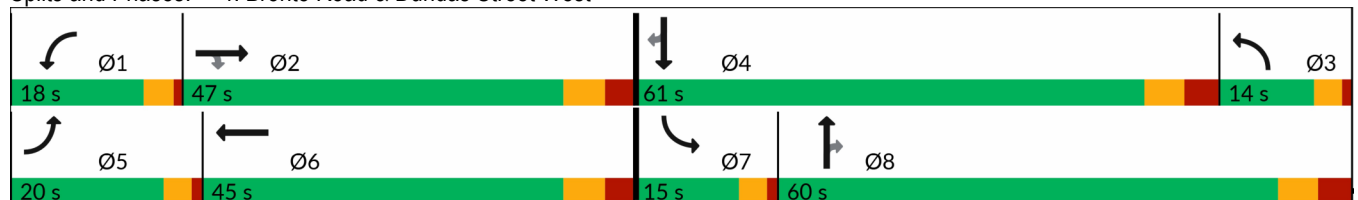
Total 2035 - AM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	20.0	47.0	47.0	18.0	45.0		14.0	60.0	60.0	15.0	61.0	61.0
Total Split (%)	14.3%	33.6%	33.6%	12.9%	32.1%		10.0%	42.9%	42.9%	10.7%	43.6%	43.6%
Maximum Green (s)	16.0	39.8	39.8	14.0	37.8		10.0	52.3	52.3	11.0	53.3	53.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3			3	3		3	3
Act Effct Green (s)	16.0	39.8	39.8	14.0	37.8		10.0	52.3	52.3	11.0	53.3	53.3
Actuated g/C Ratio	0.11	0.28	0.28	0.10	0.27		0.07	0.37	0.37	0.08	0.38	0.38
v/c Ratio	1.44	0.98	0.82	1.04	0.82		0.71	1.17	0.29	1.28	1.23	0.44
Control Delay (s/veh)	264.6	69.1	43.4	141.2	49.6		80.2	126.2	10.4	201.0	147.4	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	264.6	69.1	43.4	141.2	49.6		80.2	126.2	10.4	201.0	147.4	10.7
LOS	F	E	D	F	D		F	F	B	F	F	B
Approach Delay (s/veh)		90.1			62.4			110.5			136.9	
Approach LOS		F			E			F			F	

Intersection Summary












Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.44
Intersection Signal Delay (s/veh):	104.5
Intersection LOS:	F
Intersection Capacity Utilization:	112.0%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



Queues

Total 2035 - AM Peak Hour  
4: Bronte Road & Dundas Street West

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	290	1420	447	172	1062	169	1510	186	331	1579	299
v/c Ratio	1.44	0.98	0.82	1.04	0.82	0.71	1.17	0.29	1.28	1.23	0.44
Control Delay (s/veh)	264.6	69.1	43.4	141.2	49.6	80.2	126.2	10.4	201.0	147.4	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	264.6	69.1	43.4	141.2	49.6	80.2	126.2	10.4	201.0	147.4	10.7
Queue Length 50th (m)	~111.0	146.9	80.4	~55.3	100.2	25.2	~274.6	9.2	~62.8	~301.0	15.2
Queue Length 95th (m)	#169.3	#180.4	#136.0	#105.5	119.4	#40.2	#319.3	26.9	#95.4	#346.0	41.4
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	202	1447	543	165	1298	238	1286	645	259	1286	676
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.44	0.98	0.82	1.04	0.82	0.71	1.17	0.29	1.28	1.23	0.44


















Intersection Summary

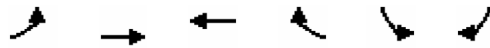
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  		 	
Traffic Volume (vph)	330	1413	1061	228	106	48
Future Volume (vph)	330	1413	1061	228	106	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor	1.00			0.94	0.98	0.96
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1789	5043	4902	1570	3404	1484
Fl <sub>t</sub> Permitted	0.177				0.950	
Satd. Flow (perm)	332	5043	4902	1483	3319	1420
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				253		53
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	25			25	25	25
Confl. Bikes (#/hr)				10		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	7%	4%	4%	10%
Adj. Flow (vph)	367	1570	1179	253	118	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	367	1570	1179	253	118	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	40.0	91.2	51.2	51.2	48.8	48.8
Total Split (%)	28.6%	65.1%	36.6%	36.6%	34.9%	34.9%
Maximum Green (s)	36.0	85.1	45.1	45.1	42.0	42.0
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		3	3	3	3	3
Act Effct Green (s)	88.1	86.0	61.6	61.6	15.3	15.3
Actuated g/C Ratio	0.77	0.75	0.54	0.54	0.13	0.13
v/c Ratio	0.71	0.41	0.45	0.28	0.26	0.22
Control Delay (s/veh)	19.6	6.9	20.5	4.1	44.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	6.9	20.5	4.1	44.2	12.5
LOS	B	A	C	A	D	B
Approach Delay (s/veh)		9.3	17.6		34.4	
Approach LOS		A	B		C	

Intersection Summary

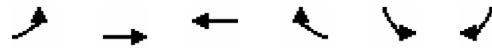
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	114.4
Natural Cycle:	95
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay (s/veh):	13.9
Intersection LOS:	B
Intersection Capacity Utilization:	79.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



Queues
































Total 2035 - AM Peak Hour  
5: Dundas Street West & Hospital Gate



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	367	1570	1179	253	118	53
v/c Ratio	0.71	0.41	0.45	0.28	0.26	0.22
Control Delay (s/veh)	19.6	6.9	20.5	4.1	44.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	6.9	20.5	4.1	44.2	12.5
Queue Length 50th (m)	21.1	30.7	50.6	0.0	12.6	0.0
Queue Length 95th (m)	86.0	101.1	131.0	19.5	20.5	10.9
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	719	3791	2639	915	1263	560
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.41	0.45	0.28	0.09	0.09
<b>Intersection Summary</b>						

Lanes, Volumes, Timings

Total 2035 - AM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (vph)	35	1205	272	502	910	213	296	207	438	139	201	12
Future Volume (vph)	35	1205	272	502	910	213	296	207	438	139	201	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	0.99		0.95	0.98		0.95	0.98		0.95
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4995	1585	3404	4902	1617	1755	3614	1585	1772	3544	1633
Flt Permitted	0.271			0.950			0.498			0.608		
Satd. Flow (perm)	517	4995	1510	3379	4902	1543	902	3614	1512	1111	3544	1556
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			300			237			356			150
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	3%	4%	7%	1%	4%	1%	3%	3%	3%	0%
Adj. Flow (vph)	39	1339	302	558	1011	237	329	230	487	154	223	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	1339	302	558	1011	237	329	230	487	154	223	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

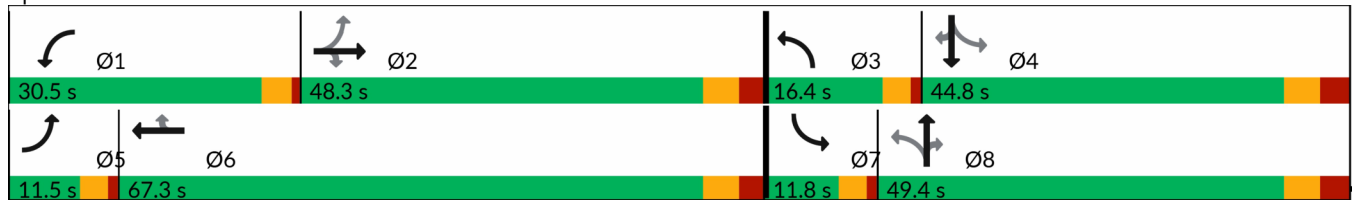
Lanes, Volumes, Timings

Total 2035 - AM Peak Hour  
6: Third Line & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	48.3	48.3	30.5	67.3	67.3	16.4	49.4	49.4	11.8	44.8	44.8
Total Split (%)	8.2%	34.5%	34.5%	21.8%	48.1%	48.1%	11.7%	35.3%	35.3%	8.4%	32.0%	32.0%
Maximum Green (s)	7.5	42.0	42.0	26.5	61.0	61.0	12.4	42.6	42.6	7.8	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		3	3		3	3		3	3		3	3
Act Effct Green (s)	52.3	42.8	42.8	23.4	63.9	63.9	38.2	23.5	23.5	29.5	18.8	18.8
Actuated g/C Ratio	0.44	0.36	0.36	0.20	0.54	0.54	0.32	0.20	0.20	0.25	0.16	0.16
v/c Ratio	0.13	0.75	0.41	0.83	0.38	0.25	0.87	0.32	0.83	0.48	0.40	0.03
Control Delay (s/veh)	14.9	38.1	5.6	58.6	18.7	3.3	58.2	41.4	25.5	36.5	46.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.9	38.1	5.6	58.6	18.7	3.3	58.2	41.4	25.5	36.5	46.2	0.2
LOS	B	D	A	E	B	A	E	D	C	D	D	A
Approach Delay (s/veh)		31.7			29.1			39.3			40.9	
Approach LOS		C			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.8
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay (s/veh):	33.1
Intersection LOS:	C
Intersection Capacity Utilization:	99.8%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Total 2035 - AM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	39	1339	302	558	1011	237	329	230	487	154	223	13
v/c Ratio	0.13	0.75	0.41	0.83	0.38	0.25	0.87	0.32	0.83	0.48	0.40	0.03
Control Delay (s/veh)	14.9	38.1	5.6	58.6	18.7	3.3	58.2	41.4	25.5	36.5	46.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.9	38.1	5.6	58.6	18.7	3.3	58.2	41.4	25.5	36.5	46.2	0.2
Queue Length 50th (m)	3.1	99.5	0.3	64.8	52.1	0.0	67.3	25.0	31.2	27.9	25.8	0.0
Queue Length 95th (m)	10.7	155.6	22.4	#109.3	89.4	15.2	96.0	36.0	74.0	44.3	37.4	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	312	1797	735	767	2635	939	380	1310	775	319	1146	604
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	0.13	0.75	0.41	0.73	0.38	0.25	0.87	0.18	0.63	0.48	0.19	0.02

Intersection Summary

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

Lanes, Volumes, Timings

Total 2035 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	190	100	509	80	1209	190	1880	623	429	1097	0
Future Volume (vph)	10	190	100	509	80	1209	190	1880	623	429	1097	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	150.0		0.0	285.0		0.0
Storage Lanes	1		1	2		2	2		1	2		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.95		0.92	0.93			0.98		0.95	1.00		
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1601	3541	1883	2846	3471	3510	1633	3541	3476	1883
Flt Permitted	0.699			0.950			0.950			0.950		
Satd. Flow (perm)	1249	3579	1465	3284	1883	2846	3392	3510	1557	3531	3476	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			27			337			
Link Speed (k/h)		48			60			50				50
Link Distance (m)		166.2			194.3			435.0				273.6
Travel Time (s)		12.5			11.7			31.3				19.7
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	0%	2%	1%	2%	4%	0%	0%	5%	2%
Adj. Flow (vph)	11	211	111	566	89	1343	211	2089	692	477	1219	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	211	111	566	89	1343	211	2089	692	477	1219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings

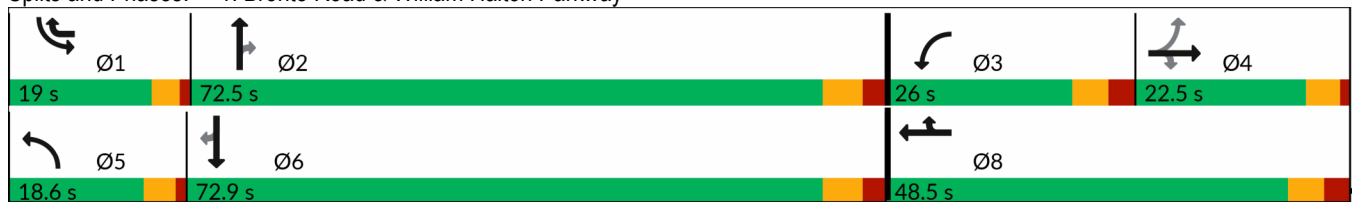
Total 2035 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4						2			6
Detector Phase	4	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	22.5	22.5	22.5	24.5	24.5		9.5	40.5	40.5	11.5	26.5	26.5
Total Split (s)	22.5	22.5	22.5	26.0	48.5		18.6	72.5	72.5	19.0	72.9	72.9
Total Split (%)	16.1%	16.1%	16.1%	18.6%	34.6%		13.3%	51.8%	51.8%	13.6%	52.1%	52.1%
Maximum Green (s)	18.0	18.0	18.0	19.5	42.0		14.1	66.0	66.0	15.0	66.4	66.4
Yellow Time (s)	3.5	3.5	3.5	3.7	3.7		3.5	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	2.8	2.8		1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	6.5	6.5		4.5	6.5	6.5	4.0	6.5	6.5
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
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0					7.0	7.0			
Flash Don't Walk (s)	11.0	11.0	11.0					27.0	27.0			
Pedestrian Calls (#/hr)	5	5	5					5	5			
Act Effct Green (s)	18.0	18.0	18.0	19.5	42.0	61.0	12.9	66.0	66.0	15.0	67.6	
Actuated g/C Ratio	0.13	0.13	0.13	0.14	0.30	0.44	0.09	0.47	0.47	0.11	0.48	
v/c Ratio	0.07	0.46	0.39	1.15	0.16	1.07	0.66	1.26	0.76	1.26	0.73	
Control Delay (s/veh)	55.0	60.1	13.1	140.3	37.0	83.7	71.8	156.4	21.0	185.2	32.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	55.0	60.1	13.1	140.3	37.0	83.7	71.8	156.4	21.0	185.2	32.2	
LOS	D	E	B	F	D	F	E	F	C	F	C	
Approach Delay (s/veh)		44.3			97.7			119.1			75.2	
Approach LOS		D			F			F			E	

Intersection Summary












Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.26
Intersection Signal Delay (s/veh):	98.9
Intersection LOS:	F
Intersection Capacity Utilization:	115.3%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 1: Bronte Road & William Halton Parkway



Queues

Total 2035 - PM Peak Hour  
1: Bronte Road & William Halton Parkway

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	211	111	566	89	1343	211	2089	692	477	1219
v/c Ratio	0.07	0.46	0.39	1.15	0.16	1.07	0.66	1.26	0.76	1.26	0.73
Control Delay (s/veh)	55.0	60.1	13.1	140.3	37.0	83.7	71.8	156.4	21.0	185.2	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.0	60.1	13.1	140.3	37.0	83.7	71.8	156.4	21.0	185.2	32.2
Queue Length 50th (m)	2.8	29.3	0.0	~94.5	18.4	~233.1	29.8	~393.6	84.2	~85.1	146.0
Queue Length 95th (m)	9.0	42.7	17.2	#130.7	32.4	#280.2	43.3	#435.5	137.5	#119.4	174.4
Internal Link Dist (m)		142.2			170.3			411.0			249.6
Turn Bay Length (m)							150.0			285.0	
Base Capacity (vph)	160	460	286	493	564	1255	349	1654	912	379	1679
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.46	0.39	1.15	0.16	1.07	0.60	1.26	0.76	1.26	0.73

Intersection Summary
















~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

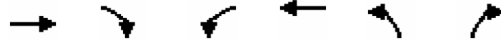
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

2: Hospital Gate & William Halton Parkway/William Halton Parkway

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	 			 	  	
Traffic Volume (vph)	1171	70	19	1627	172	20
Future Volume (vph)	1171	70	19	1627	172	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	150.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	0.91
Ped Bike Factor	1.00				0.94	0.94
Frt	0.992				0.998	0.850
Flt Protected			0.950		0.953	
Satd. Flow (prot)	3544	0	1825	3579	3471	1415
Flt Permitted			0.129		0.953	
Satd. Flow (perm)	3544	0	248	3579	3265	1334
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	9				1	20
Link Speed (k/h)	60			60	50	
Link Distance (m)	234.4			457.7	199.2	
Travel Time (s)	14.1			27.5	14.3	
Confl. Peds. (#/hr)		25	25		25	25
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	0%	2%	2%	5%
Adj. Flow (vph)	1301	78	21	1808	191	22
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	1379	0	21	1808	193	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

2: Hospital Gate & William Halton Parkway/William Halton Parkway

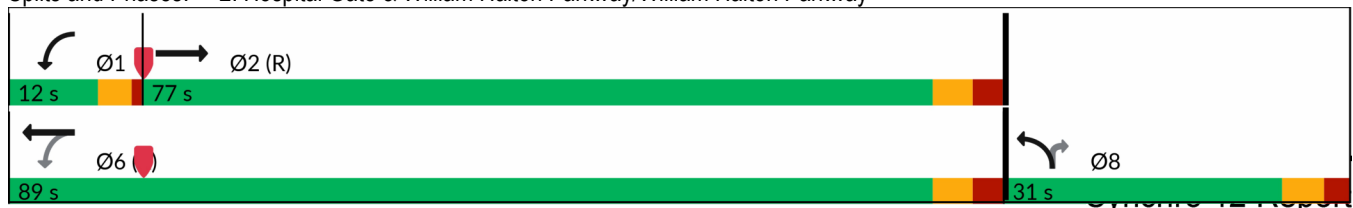


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		7.0	20.0	20.0	20.0
Minimum Split (s)	34.4		11.5	34.4	31.0	31.0
Total Split (s)	77.0		12.0	89.0	31.0	31.0
Total Split (%)	64.2%		10.0%	74.2%	25.8%	25.8%
Maximum Green (s)	70.6		8.0	82.6	25.0	25.0
Yellow Time (s)	3.7		3.0	3.7	3.7	3.7
All-Red Time (s)	2.7		1.0	2.7	2.3	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Don't Walk (s)	21.0			21.0	18.0	18.0
Pedestrian Calls (#/hr)	5			5	5	5
Act Effct Green (s)	78.2		85.0	82.6	25.0	25.0
Actuated g/C Ratio	0.65		0.71	0.69	0.21	0.21
v/c Ratio	0.60		0.08	0.73	0.27	0.07
Control Delay (s/veh)	13.9		4.8	10.8	40.8	15.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.9		4.8	10.8	40.8	15.6
LOS	B		A	B	D	B
Approach Delay (s/veh)	13.9			10.7	38.4	
Approach LOS	B			B	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay (s/veh): 13.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 76.1%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 2: Hospital Gate & William Halton Parkway/William Halton Parkway



## 2: Hospital Gate &amp; William Halton Parkway/William Halton Parkway

	→	↙	←	↘	↗
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1379	21	1808	193	20
v/c Ratio	0.60	0.08	0.73	0.27	0.07
Control Delay (s/veh)	13.9	4.8	10.8	40.8	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.9	4.8	10.8	40.8	15.6
Queue Length 50th (m)	79.4	0.7	40.6	20.0	0.0
Queue Length 95th (m)	130.0	m1.9	93.8	30.5	7.4
Internal Link Dist (m)	210.4		433.7	175.2	
Turn Bay Length (m)		150.0		90.0	
Base Capacity (vph)	2312	280	2463	723	293
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.08	0.73	0.27	0.07






















## Intersection Summary

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

Lanes, Volumes, Timings

Total 2035 - PM Peak Hour

3: Third Line/Glenorchy Road & William Halton Parkway /William Halton Parkway

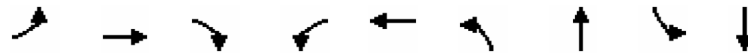
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	898	275	24	1336	3	217	15	45	21	78	16
Future Volume (vph)	18	898	275	24	1336	3	217	15	45	21	78	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		120.0	0.0		0.0	120.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.95	0.99	1.00		0.96	0.95		0.96	0.99	
Fr <sub>t</sub>			0.850					0.888			0.974	
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3650	1633	1825	3444	0	1789	3049	0	1825	3518	0
Fl <sub>t</sub> Permitted	0.120			0.249			0.686			0.711		
Satd. Flow (perm)	231	3650	1545	475	3444	0	1244	3049	0	1313	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			306					50			18	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		457.7			417.8			484.7			188.4	
Travel Time (s)		27.5			25.1			34.9			13.6	
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	20	998	306	27	1484	3	241	17	50	23	87	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	998	306	27	1487	0	241	67	0	23	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



## Queues

Total 2035 - PM Peak Hour

## 3: Third Line/Glenorchy Road &amp; William Halton Parkway /William Halton Parkway


























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	998	306	27	1487	241	67	23	105
v/c Ratio	0.13	0.42	0.27	0.09	0.66	0.81	0.09	0.07	0.12
Control Delay (s/veh)	11.5	10.3	1.8	10.5	15.3	62.6	12.3	32.4	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.5	10.3	1.8	10.5	15.3	62.6	12.3	32.4	27.7
Queue Length 50th (m)	1.6	53.4	0.1	2.1	106.7	54.7	1.6	4.2	8.4
Queue Length 95th (m)	m2.1	38.1	5.6	7.3	164.1	77.2	6.6	9.9	14.0
Internal Link Dist (m)		433.7			393.8		460.7		164.4
Turn Bay Length (m)	150.0		120.0			120.0		60.0	
Base Capacity (vph)	151	2399	1120	312	2263	394	1002	416	1129
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	0.13	0.42	0.27	0.09	0.66	0.61	0.07	0.06	0.09

## Intersection Summary

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

Lanes, Volumes, Timings

Total 2035 - PM Peak Hour  
4: Bronte Road & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	864	174	176	1293	558	312	2079	86	209	1034	454
Future Volume (vph)	183	864	174	176	1293	558	312	2079	86	209	1034	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		110.0	140.0		0.0	220.0		100.0	200.0		105.0
Storage Lanes	1		1	1		0	2		1	2		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.95	0.99	0.99		0.99		0.96	1.00		0.95
Frt			0.850		0.955				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	5092	1570	1772	4809	0	3471	3510	1570	3506	3510	1601
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1804	5092	1497	1759	4809	0	3452	3510	1500	3502	3510	1529
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193		81				95			170
Link Speed (k/h)		70			70			50				50
Link Distance (m)		275.6			1271.2			364.1				435.0
Travel Time (s)		14.2			65.4			26.2				31.3
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	4%	3%	3%	2%	2%	4%	4%	1%	4%	2%
Adj. Flow (vph)	203	960	193	196	1437	620	347	2310	96	232	1149	504
Shared Lane Traffic (%)												
Lane Group Flow (vph)	203	960	193	196	2057	0	347	2310	96	232	1149	504
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

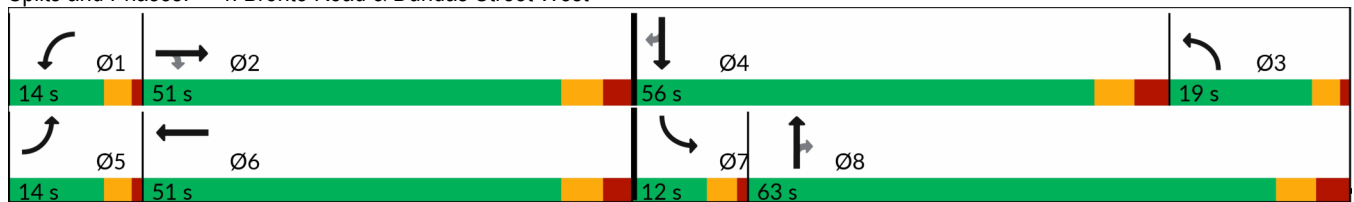
Lanes, Volumes, Timings

Total 2035 - PM Peak Hour  
4: Bronte Road & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	44.2	44.2	11.0	44.2		14.0	45.7	45.7	11.0	45.7	45.7
Total Split (s)	14.0	51.0	51.0	14.0	51.0		19.0	63.0	63.0	12.0	56.0	56.0
Total Split (%)	10.0%	36.4%	36.4%	10.0%	36.4%		13.6%	45.0%	45.0%	8.6%	40.0%	40.0%
Maximum Green (s)	10.0	43.8	43.8	10.0	43.8		15.0	55.3	55.3	8.0	48.3	48.3
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2		3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0		1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	4.0	7.2		4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Don't Walk (s)		30.0	30.0		30.0			31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		5	5		5			5	5		5	5
Act Effct Green (s)	10.0	43.8	43.8	10.0	43.8		15.0	55.3	55.3	8.0	48.3	48.3
Actuated g/C Ratio	0.07	0.31	0.31	0.07	0.31		0.11	0.40	0.40	0.06	0.35	0.35
v/c Ratio	1.57	0.60	0.32	1.56	1.32		0.94	1.67	0.15	1.16	0.95	0.79
Control Delay (s/veh)	332.0	42.7	6.0	325.6	185.2		94.5	332.8	5.6	169.1	61.0	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	332.0	42.7	6.0	325.6	185.2		94.5	332.8	5.6	169.1	61.0	37.0
LOS	F	D	A	F	F		F	F	A	F	E	D
Approach Delay (s/veh)		80.8			197.4			291.4			67.9	
Approach LOS		F			F			F			E	












Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Natural Cycle:	145
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.67
Intersection Signal Delay (s/veh):	180.0
Intersection LOS:	F
Intersection Capacity Utilization:	130.8%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 4: Bronte Road & Dundas Street West



Queues

Total 2035 - PM Peak Hour  
4: Bronte Road & Dundas Street West

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	203	960	193	196	2057	347	2310	96	232	1149	504
v/c Ratio	1.57	0.60	0.32	1.56	1.32	0.94	1.67	0.15	1.16	0.95	0.79
Control Delay (s/veh)	332.0	42.7	6.0	325.6	185.2	94.5	332.8	5.6	169.1	61.0	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	332.0	42.7	6.0	325.6	185.2	94.5	332.8	5.6	169.1	61.0	37.0
Queue Length 50th (m)	~80.2	84.5	0.0	~78.1	~270.5	50.7	~504.5	0.2	~39.3	167.9	88.3
Queue Length 95th (m)	#130.6	99.7	17.7	#128.7	#300.0	#80.0	#545.0	11.7	#66.4	#213.3	136.5
Internal Link Dist (m)		251.6			1247.2		340.1			411.0	
Turn Bay Length (m)	130.0		110.0	140.0		220.0		100.0	200.0		105.0
Base Capacity (vph)	129	1593	600	126	1560	371	1386	649	200	1210	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.57	0.60	0.32	1.56	1.32	0.94	1.67	0.15	1.16	0.95	0.79


















Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  		 	
Traffic Volume (vph)	71	1088	1832	122	296	195
Future Volume (vph)	71	1088	1832	122	296	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped Bike Factor				0.95	0.98	0.96
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1706	5043	5043	1526	3372	1585
Fl <sub>t</sub> Permitted	0.059				0.950	
Satd. Flow (perm)	106	5043	5043	1445	3288	1516
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				134		141
Link Speed (k/h)		70	70		50	
Link Distance (m)		518.9	410.7		273.6	
Travel Time (s)		26.7	21.1		19.7	
Confl. Peds. (#/hr)	25			25	25	25
Confl. Bikes (#/hr)				10		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	4%	4%	7%	5%	3%
Adj. Flow (vph)	79	1209	2036	136	329	217
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	1209	2036	136	329	217
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	11.5	34.1	34.1	34.1	48.8	48.8
Total Split (s)	14.2	91.0	76.8	76.8	49.0	49.0
Total Split (%)	10.1%	65.0%	54.9%	54.9%	35.0%	35.0%
Maximum Green (s)	10.2	84.9	70.7	70.7	42.2	42.2
Yellow Time (s)	3.0	4.2	4.2	4.2	3.3	3.3
All-Red Time (s)	1.0	1.9	1.9	1.9	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.8	6.8
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)		21.0	21.0	21.0	35.0	35.0
Pedestrian Calls (#/hr)		5	5	5	5	5
Act Effct Green (s)	87.6	85.5	76.2	76.2	19.9	19.9
Actuated g/C Ratio	0.74	0.72	0.64	0.64	0.17	0.17
v/c Ratio	0.43	0.33	0.63	0.14	0.58	0.58
Control Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.3
LOS	B	A	B	A	D	C
Approach Delay (s/veh)		8.0	15.4		38.3	
Approach LOS		A	B		D	

Intersection Summary

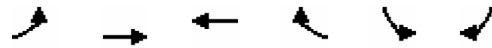
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	118.4
Natural Cycle:	105
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay (s/veh):	16.1
Intersection LOS:	B
Intersection Capacity Utilization:	78.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Dundas Street West & Hospital Gate



Queues

























Total 2035 - PM Peak Hour  
5: Dundas Street West & Hospital Gate



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	79	1209	2036	136	329	217
v/c Ratio	0.43	0.33	0.63	0.14	0.58	0.58
Control Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.6	7.4	16.2	2.9	48.8	22.3
Queue Length 50th (m)	3.9	29.4	93.3	0.2	37.8	15.9
Queue Length 95th (m)	21.7	71.8	192.1	11.3	51.4	38.8
Internal Link Dist (m)		494.9	386.7		249.6	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	217	3642	3243	977	1210	634
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.33	0.63	0.14	0.27	0.34
Intersection Summary						

Lanes, Volumes, Timings

Total 2035 - PM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	1083	299	521	1644	139	336	186	444	307	219	28
Future Volume (vph)	17	1083	299	521	1644	139	336	186	444	307	219	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.95	0.99		0.95	0.98		0.95	0.98		0.95
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5043	1601	3437	5043	1617	1755	3476	1585	1789	3476	1633
Flt Permitted	0.097			0.950			0.512			0.622		
Satd. Flow (perm)	169	5043	1523	3406	5043	1543	928	3476	1512	1147	3476	1556
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			332			143			362			119
Link Speed (k/h)		70			70			50				50
Link Distance (m)		410.7			471.0			306.6				484.7
Travel Time (s)		21.1			24.2			22.1				34.9
Confl. Peds. (#/hr)	25		25	25		25	25		25	25		25
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	4%	2%	3%	4%	1%	4%	5%	3%	2%	5%	0%
Adj. Flow (vph)	19	1203	332	579	1827	154	373	207	493	341	243	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	1203	332	579	1827	154	373	207	493	341	243	31
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

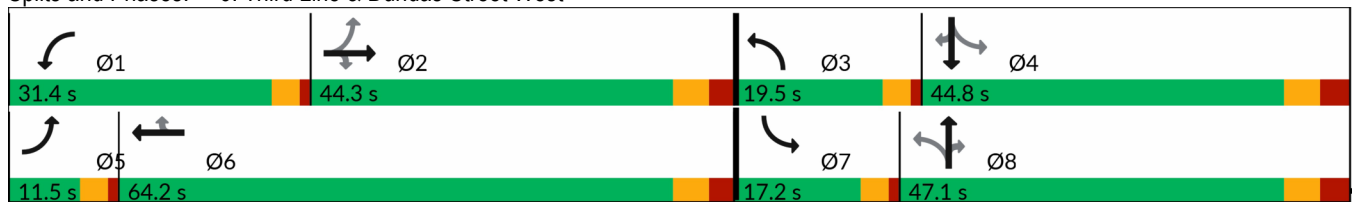
Lanes, Volumes, Timings

Total 2035 - PM Peak Hour  
6: Third Line & Dundas Street West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	10.0	20.0	20.0	7.0	5.0	5.0	7.0	10.0	10.0
Minimum Split (s)	11.5	42.3	42.3	14.5	42.3	42.3	11.5	44.8	44.8	11.5	44.8	44.8
Total Split (s)	11.5	44.3	44.3	31.4	64.2	64.2	19.5	47.1	47.1	17.2	44.8	44.8
Total Split (%)	8.2%	31.6%	31.6%	22.4%	45.9%	45.9%	13.9%	33.6%	33.6%	12.3%	32.0%	32.0%
Maximum Green (s)	7.5	38.0	38.0	27.4	57.9	57.9	15.5	40.3	40.3	13.2	38.0	38.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.1	3.1	1.0	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.8	6.8	4.0	6.8	6.8
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	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effct Green (s)	47.9	38.5	38.5	24.0	62.6	62.6	40.9	22.4	22.4	36.2	20.0	20.0
Actuated g/C Ratio	0.40	0.32	0.32	0.20	0.52	0.52	0.34	0.19	0.19	0.30	0.17	0.17
v/c Ratio	0.12	0.74	0.46	0.84	0.69	0.18	0.88	0.32	0.85	0.82	0.42	0.09
Control Delay (s/veh)	18.3	41.3	6.2	58.7	25.8	4.9	55.5	42.5	27.5	49.4	45.9	0.5
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 (s/veh)	18.3	41.3	6.2	58.7	25.8	4.9	55.5	42.5	27.5	49.4	45.9	0.5
LOS	B	D	A	E	C	A	E	D	C	D	D	A
Approach Delay (s/veh)		33.5			32.0			40.1			45.6	
Approach LOS		C			C			D			D	













Intersection Summary	
Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	119.6
Natural Cycle:	115
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay (s/veh):	35.3
Intersection LOS:	D
Intersection Capacity Utilization:	102.6%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 6: Third Line & Dundas Street West



Queues

Total 2035 - PM Peak Hour  
6: Third Line & Dundas Street West

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	19	1203	332	579	1827	154	373	207	493	341	243	31
v/c Ratio	0.12	0.74	0.46	0.84	0.69	0.18	0.88	0.32	0.85	0.82	0.42	0.09
Control Delay (s/veh)	18.3	41.3	6.2	58.7	25.8	4.9	55.5	42.5	27.5	49.4	45.9	0.5
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 (s/veh)	18.3	41.3	6.2	58.7	25.8	4.9	55.5	42.5	27.5	49.4	45.9	0.5
Queue Length 50th (m)	1.9	93.7	0.0	67.4	102.7	1.1	74.1	23.3	31.6	64.9	28.4	0.0
Queue Length 95th (m)	7.3	140.2	24.0	#110.8	195.4	15.3	#106.8	34.7	76.5	94.0	41.3	0.0
Internal Link Dist (m)		386.7			447.0			282.6			460.7	
Turn Bay Length (m)	290.0		100.0	220.0		100.0	95.0		85.0	115.0		90.0
Base Capacity (vph)	162	1621	715	797	2638	875	425	1185	754	418	1117	581
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	0.12	0.74	0.46	0.73	0.69	0.18	0.88	0.17	0.65	0.82	0.22	0.05

Intersection Summary

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



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