Dr. Iram Zando

3033 Dundas Street West, City of Mississauga

Transportation Impact Study

April 10, 2025

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Transportation Impact Study

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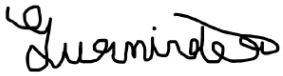

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Acronyms and Abbreviations

AM	Morning Peak Hours
EX	Existing Conditions
FB	Future Background Conditions
FT	Future Total Conditions
GFA	Ground Floor Area
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
PM	Afternoon Peak Hours
STP	Signal Timing Plan
TMC	Traffic Movement Counts
TTS	Transportation Tomorrow Survey
v/c	Volume to Capacity Ratio
Veh	Vehicles
ZBL	Zoning By-Law
MTSA	Major Transit Station Area

1 Introduction

Arcadis has been retained by Dr. Iram Zando (the 'proponent') to prepare this Transportation Impact Study (TIS) in support of a Zoning By-law Amendment application (ZBA).

The proponent is proposing to construct a residential development, located at 3033 Dundas Street West (the "development site"), in the City of Mississauga (the "City"). The development, which is currently vacant, is proposed to be constructed to include one 12-storey apartment building containing 156 residential dwelling units, 350.85 m^2 GFA of retail, 270.53 m^2 GFA of restaurant, and 481.9 m^2 of medical center space. Vehicle access to the site would be via a right-in/right-out access on Dundas Street West on an interim basis, with another proposed access being designed for conversion into a new north-south roadway envisioned by the ongoing MTSA study.

A supply of 223 parking spaces and 105 bicycle parking spaces are proposed to serve the property.

The purpose of this Transportation Impact Study (TIS) is to analyze the impact that the proposed development may have on the surrounding transportation network.

The report is outlined with the following sections:

- **Section 2** reviews the 2024 Existing Conditions;
- **Section 3** discusses the Future Background Conditions;
- **Section 4** discusses the Future Background Conditions traffic analysis;
- **Section 5** discusses the Future Total Conditions;
- **Section 6** discusses the Future Total Conditions traffic analysis;
- **Section 7** discusses the traffic analysis summary and mitigation measures;
- **Section 8** discusses the access location analysis;
- **Section 9** discusses vehicle and bicycle parking review;
- **Section 10** discusses the vehicle circulation analysis; and
- **Section 11** discusses conclusions made based on the preceding sections.

This report adheres to the scope of investigation developed by Arcadis and approved Pre-Study Consultation Checklist correspondence with the City of Mississauga staff dated July 25, 2024. This checklist and the signed Certification form is provided in **Appendix A.**

1.1 Study Area

The proposed development site is located on the northwest corner of Dundas Street West and Winston Churchill Boulevard intersection. This is illustrated in **Figure 1-1.**

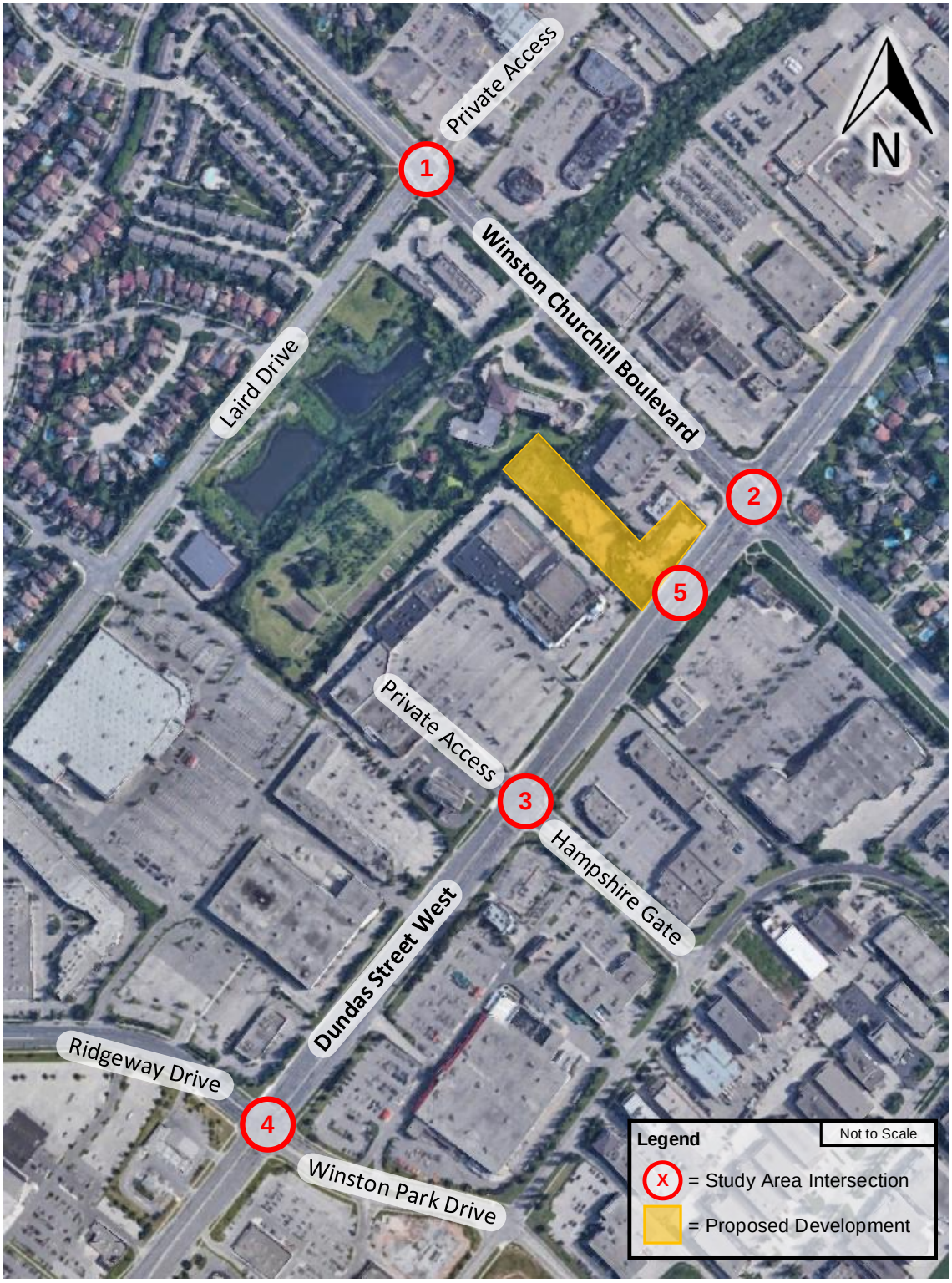

Figure 1-1: Study Area
Base Map Source: Google Earth. Retrieved November 21, 2024, from https://earth.google.com/

The development site is adjacent to low-rise residential uses to the north and commercial / industrial uses east, west, and south of the development site.

The study area intersections consist of the following locations (as illustrated in **Figure 1-1**).

1. Winston Churchill Boulevard & Laird Drive / Commercial Access (signalized);
2. Dundas Street West & Winston Churchill Boulevard (signalized);
3. Dundas Street West & Hampshire Gate (signalized);
4. Dundas Street West & Winston Park Drive / Ridgeway Drive (signalized); and
5. Dundas Street West & Proposed Site Access (unsignalized).

1.2 Analysis Periods

Based on the proposed development's land uses and size, the following analysis periods were used in this study:

- Weekday AM Peak Period – 7:00 a.m. to 9:00 a.m. on a typical weekday; and,
- Weekday PM Peak Period – 4:00 p.m. to 6:00 p.m. on a typical weekday.

1.3 Proposed Development

Dr. Iram Zando (the 'proponent'), is proposing to construct a residential development, located at 3033 Dundas Street West (the "development site"), in the City of Mississauga (the "City"). The development, which is currently vacant, is proposed to be constructed to include one 12-storey apartment building containing 156 residential dwelling units, 350.85 m^2 GFA of retail, 270.53 m^2 GFA of restaurant, and 481.9 m^2 of medical center space. Vehicle access to the site would be via a right-in/right-out access on Dundas Street West on an interim basis, with another proposed access being designed for conversion into a new north-south roadway envisioned by the ongoing MTSA study.

Proposed parking for the development site includes a supply of 223 parking spaces, 1 dedicated loading space and 105 bicycle parking spaces to serve the property. The proposed development is presented in **Figure 1-2.**

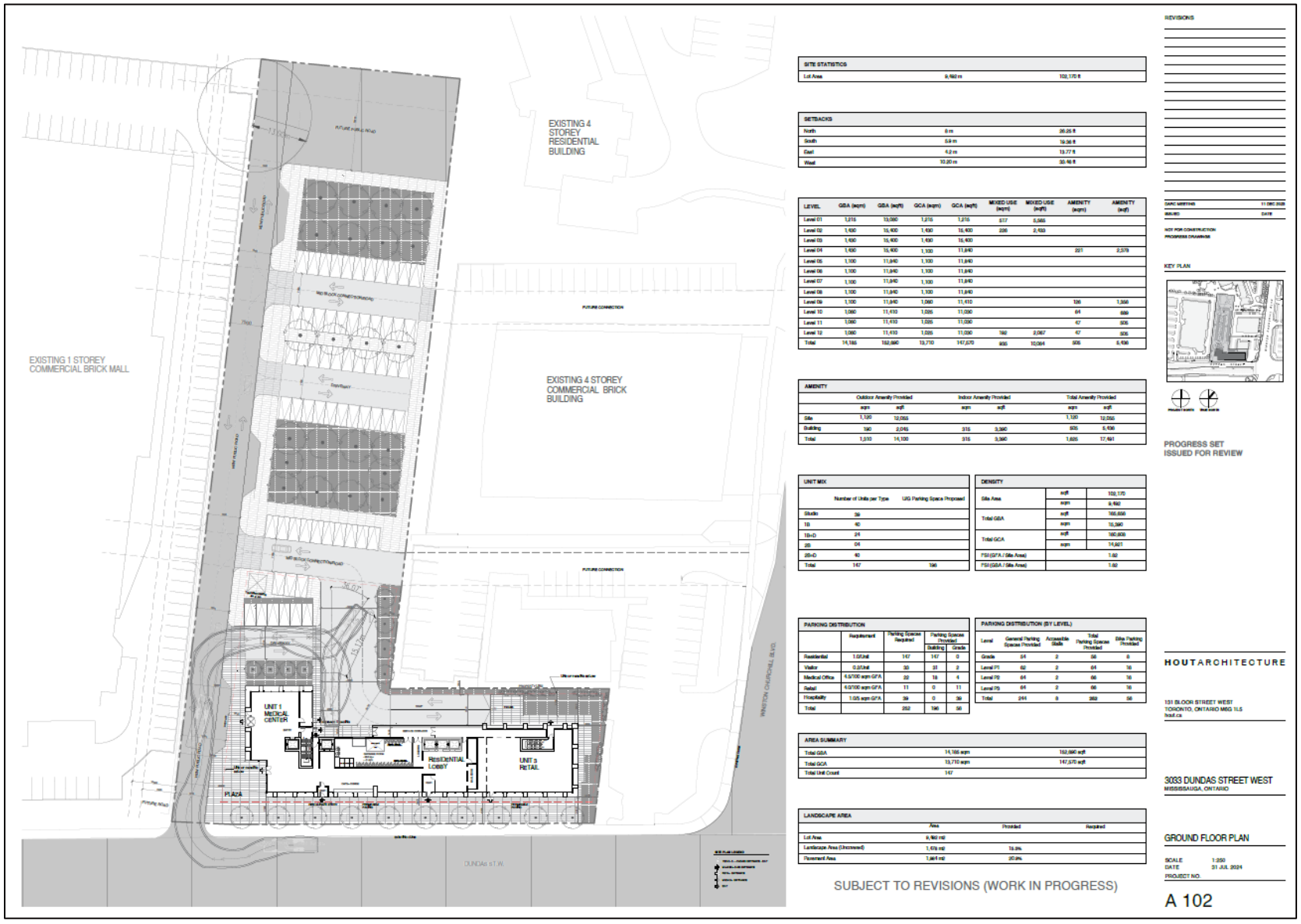

Figure 1-2: Site Plan

2 2024 Existing Conditions

This section documents the transportation network in the study area in 2024, including existing roadways, traffic control measures, intersection performance, and transit operations.

2.1 Existing Road Network

Table 2-1 summarizes the characteristics of the study area roadways.

Table 2-1: Study Area Existing Road Network:

Street Name	Class	Orientation	Road Width (Lanes)	Traffic Direction	From	To	On-Street parking	Speed Limit
Dundas Street West	Arterial	East / West	4	Two-Way	Town of Oakville Boundary	City of Toronto Boundary	Prohibited	60 km/h
Winston Churchill Boulevard	Arterial	North / South	6	Two-Way	Town of Halton Hills	Lakeshore Road West	Prohibited	60 km/h
Laird Road	Minor Collector	East / West	4	Two-Way	The Collegeway	Winston Churchill Boulevard	Prohibited	50 km/h
Hampshire Gate	Minor Collector	North / South	4	Two-Way	Dundas Street West	Bristol Circle	Prohibited	50 km/h
Ridgeway Drive	Major Collector	North / South	4	Two-Way	Eglinton Avenue West	Dundas Street West	Prohibited	50 km/h
Winston Park Drive	Minor Collector	North / South	4	Two-Way	Dundas Street West	Upper Middle Road East	Prohibited	50 km/h

Lane configuration for the study area intersections is illustrated in **Figure 2-1.**

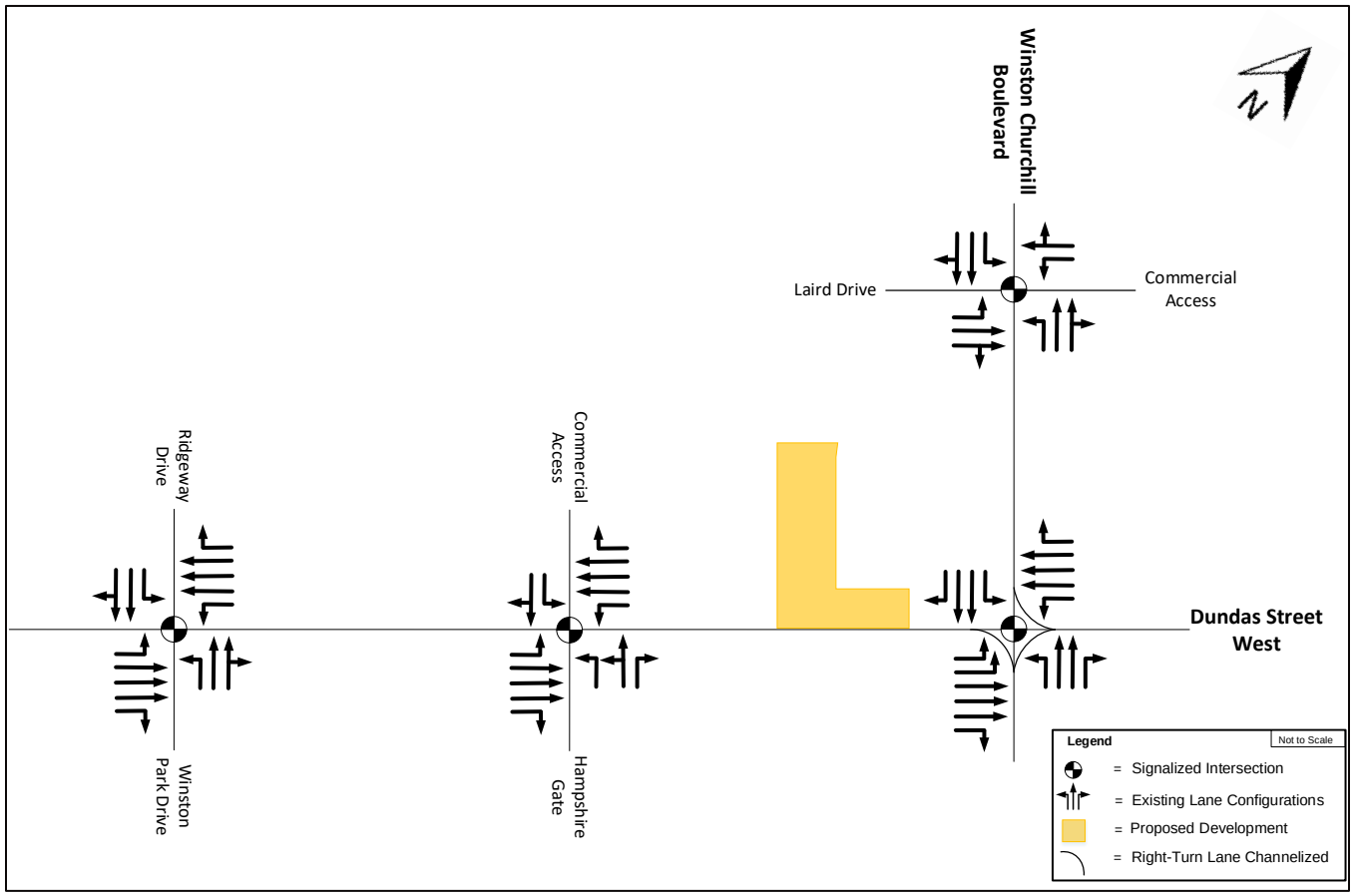

Figure 2-1: Existing Lane Configurations

2.2 Existing Transit Network

The proposed development is located nearby from the City of Mississauga transit agency (MiWay)[1] routes 1 – Dundas. Moreover, the site has close connection to the Oakville Transit Route 24 – South Common. The MiWay system map in relative to the development site is illustrated in **Figure 2-3.** The Oakville Transit system map in relative to the development site is illustrated in **Figure 2-3.**

[1] At present, MiWay routes provide drop-off only service eastbound and pick-up only service westbound while within City of Mississauga borders. This may change pending an ongoing review of cross-border transit services.

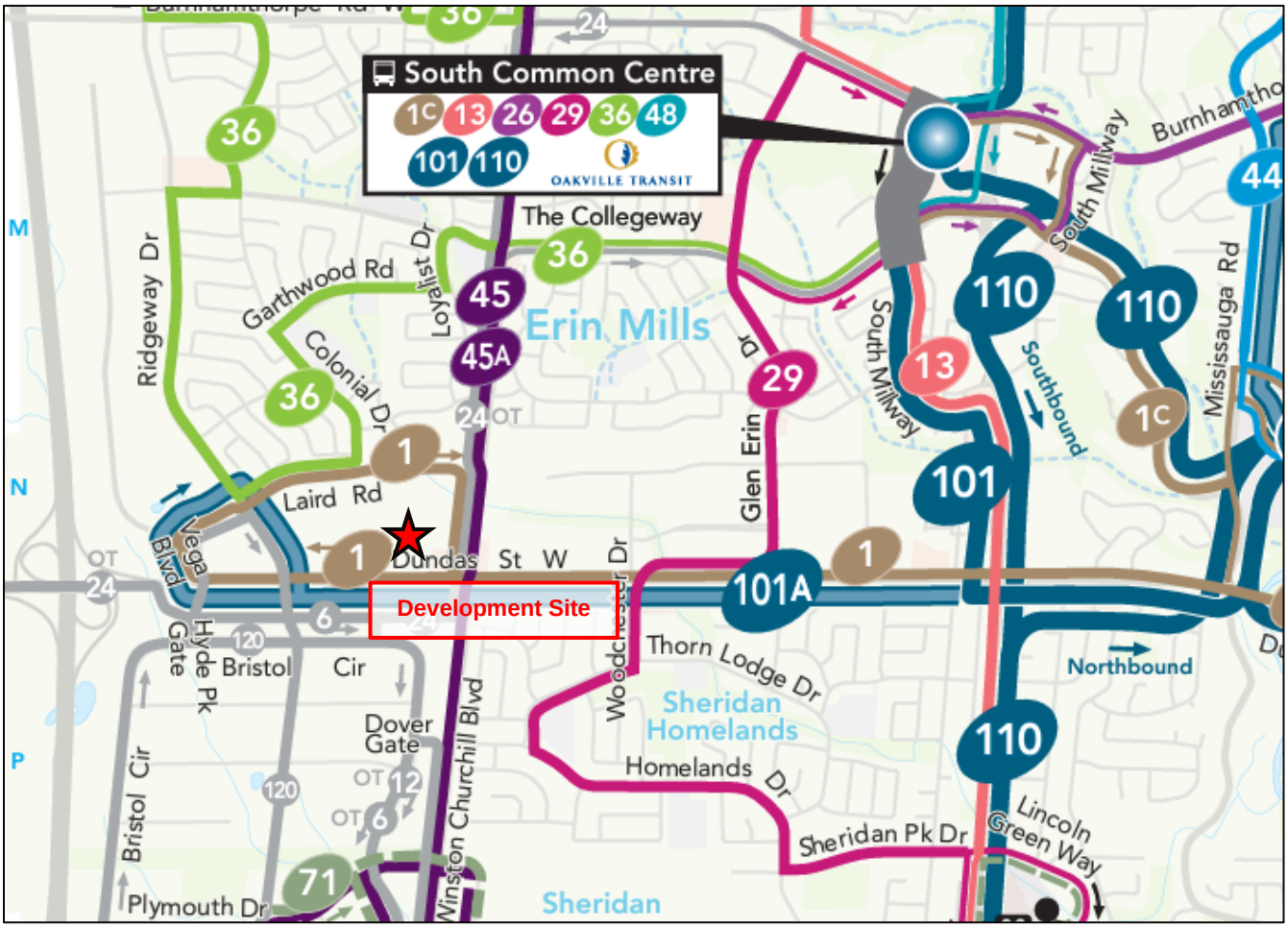

Figure 2-2: City of Mississauga Existing Transit Network
Base Map Source: MiWay – Weekday Service Map. Retrieved November 22, 2024, from http://www.mississauga.ca/portal/miway/systemmaps

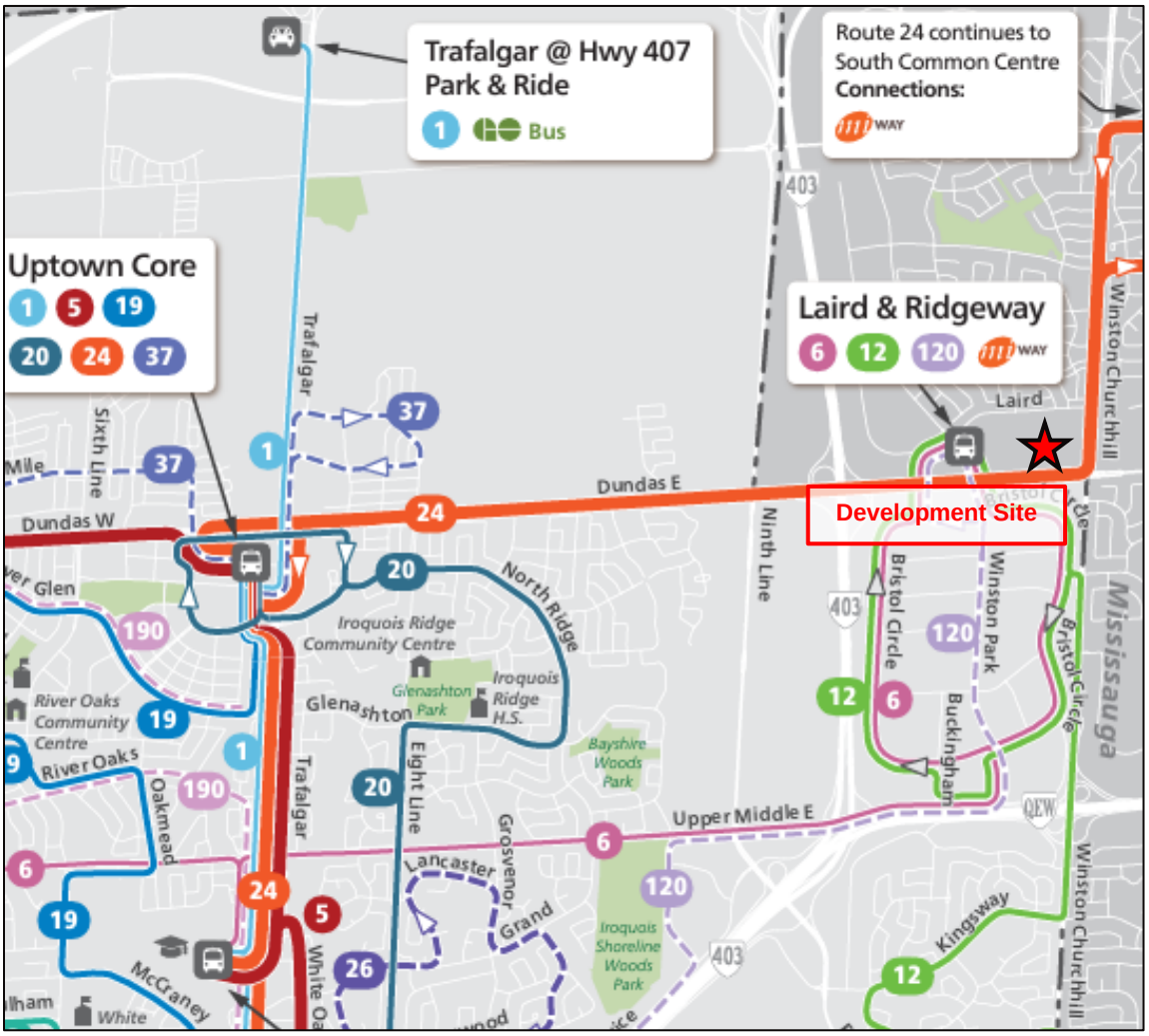

Figure 2-3: Oakville Transit Existing Transit Network
Base Map Source: Oakville Transit. Retrieved November 22, 2024, from https://www.oakvilletransit.ca/getmedia/84a8e5ee-7891-446e-8f7f-6037fbdfe081/transit-system-map.pdf

Transit service patterns and destination of routes in close proximity of the site are summarized in **Table 2-2.**

Table 2-2: Existing Transit Service Patterns

Routes	Onward Transit Connections	Approximate Walking Distance to Nearest Bus Stop	Average peak Hour Bus Service Frequency
1 – Dundas – MiWay	Kipling Bus Terminal, Laird/Ridgeway Drive	700 m (10 minutes)	15 minutes
45 – Winston Churchill – MiWay	Meadowvale Town Centre, Clarkson GO Station	1.0 km (14 minutes)	15 minutes
101 – Dundas Express – MiWay	Kipling Bus Terminal, Soth Common Centre	1.0 km (14 minutes)	30 minutes
6 – Upper Middle – Oakville Transit	Bronte GO, Sheridan College, Laird & Ridgeway	1.0 km (14 minutes)	45 - 60 minutes
12 – Winston Park – Oakville Transit	Clarkson GO, Laird & Ridgeway	750 m (11 minutes)	30 minutes
24 – South Common – Oakville Transit	Oakville GO, Sheridan College, Uptown Core	700 m (10 minutes)	15 - 20 minutes
120 – East Industrial – Oakville Transit	Oakville GO, Laird & Ridgeway	750 m (11 minutes)	15 - 20 minutes

2.3 Existing Active Transportation Network

The proposed development is closely connected to the City of Mississauga cycling network and is located in close proximity to multi-use trails along Winston Churchill Boulevard, Dundas Street West and Ninth Line. Some cycling routes are within a 1.0-kilometer radius. The active transportation network is illustrated in **Figure 2-4.**

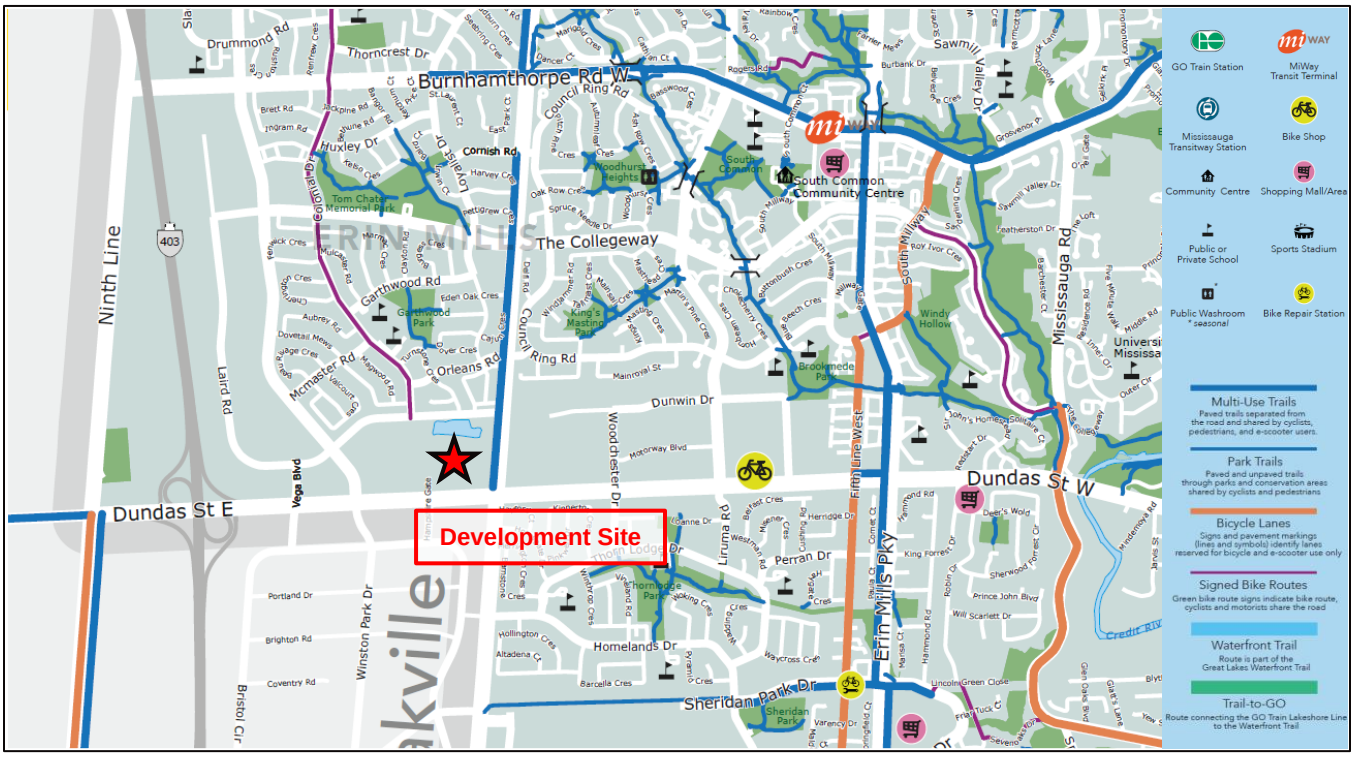

Figure 2-4: Existing City of Mississauga Cycling Network
Base Map Source: City of Mississauga. Retrieved November 25, 2024 from https://www.mississauga.ca/services-and-programs/transportation-and-streets/cycling/cycling-map/

2.4 Turning Movement Counts

Turning Movement Counts (TMCs) for the study area intersections were conducted by Ontario Traffic Inc. on Tuesday September 17th, 2024. The counts were conducted for a weekday morning peak period from 7:00 a.m. to 9:00 a.m., and weekday afternoon peak period from 4:00 p.m. to 6:00 p.m.

Details regarding the TMCs used in this study are summarized below in **Table 2-3**, with full TMC data presented in **Appendix B**.

Table 2-3: Traffic Data Information

Intersection	Data Source	Date	AM Peak Hour	PM Peak Hour
Winston Churchill and Laird Road / Commercial Access	Ontario Traffic Inc.	Tuesday September 17, 2024	08:00 am to 09:00 am	04:30 pm to 05:30 pm
Dundas Street West and Winston Churchill Boulevard			08:00 am to 09:00 am	04:30 pm to 05:30 pm
Dundas Street West and Hampshire Gate / Commercial Access			08:00 am to 09:00 am	04:30 pm to 05:30 pm
Dundas Street West and Ridgeway Drive / Winston Park Drive			08:00 am to 09:00 am	04:30 pm to 05:30 pm

The collected turning movement counts data is presented in **Figure 2-5.**

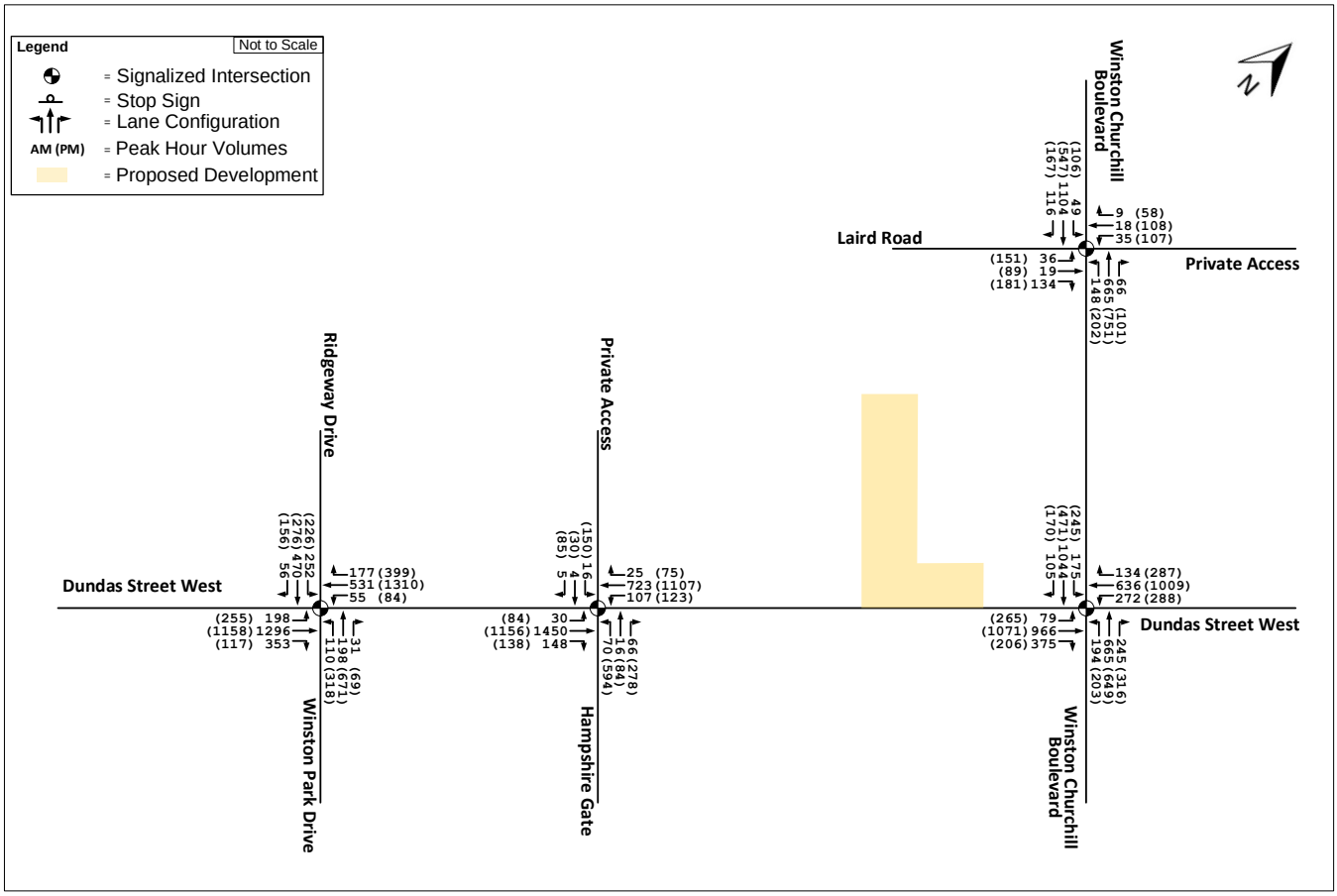

Figure 2-5: 2024 Collected Existing Traffic Volumes

2.5 Signal Timing Plans

Signal timing plans for the signalized study area intersections were acquired from the City of Mississauga and the Regional Municipality of Peel, and are presented in **Appendix C.**

2.6 2024 Existing Conditions Analysis

Using the turning movement counts described in **Section 2.4**, and the signal timing plans described in **Section 2.5,** the study area intersections were analyzed using Synchro v11.0 software based on the Highway Capacity Manual (HCM 2000) methodology.

Based on the City of Mississauga Traffic Impact Study Guidelines (December 2022) and the Region of Peel Traffic Impact Study Guidelines, the criteria for identifying critical intersections or movements at signalized intersections are as follows:

- Volume to capacity (v/c) ratio of 0.85 or above for the overall intersection;
- Volume to capacity (v/c) ratio through movements or shared through/turning movements increased to 0.90 or above;
- Volume to capacity (v/c) ratio of 1.00 or above for exclusive turning movements; or
- 95th percentile queues exceed available storage.

The criteria for identifying critical movements at unsignalized intersections are as follows:

- Level of service (LOS) of “E” or worse; or
- 95th percentile queues exceed available storage.

The following subsections detail existing traffic operations at the study area intersections for Weekday AM and PM peak hours. Full Highway Capacity Manual (HCM) for the 2024 Existing Conditions is provided in **Appendix D.**

2.6.1 Signalized Intersection

The results of the 2024 Existing Conditions traffic operations analysis for the study area signalized intersections are presented in **Table 2-4.**

Table 2-4: 2024 Uncalibrated Existing Conditions Traffic Operations - Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd / Commercial Access	A	9.3	0.46	EBL	E	57.5	0.32	20.2	70
				EBTR	E	55.7	0.21	16.1	-
				WBL	E	58.0	0.35	20.0	-
				WBTR	E	55.3	0.13	13.8	-
				NBL	A	8.4	0.47	23.4	60
				NBTR	A	3.0	0.26	25.5	-
				SBL	A	2.6	0.09	4.9	107
				SBTR	A	3.9	0.44	50.6	-
Winston Churchill Blvd & Dundas St W	D	49	**1.01**	EBL	E	69.5	0.41	22.4	130
				EBT	D	49.5	0.68	124.5	-
				EBR	D	49.4	0.55	96.5	110
				WBL	E	74.1	0.95	126.4	150
				WBT	D	37.9	0.38	75.2	-
				WBR	C	33.8	0.09	16.3	145
				NBL	F	111.5	**1.01**	**103.6**	90
				NBT	D	40.5	0.57	113.5	-
				NBR	C	34.1	0.17	18.8	90
				SBL	C	29.1	0.57	45.6	90
				SBT	D	51.4	0.87	187.5	-
				SBR	C	32.1	0.09	14.5	33

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Hampshire Gate / Commercial Access & Dundas St W	B	13.6	0.44	EBL	A	3.9	0.07	2.1	71
				EBT	B	10.5	0.46	156.5	-
				EBR	A	7.0	0.10	9.1	115
				WBL	A	8.3	0.42	15.1	130
				WBT	A	8.2	0.22	42.2	-
				WBR	A	6.9	0.02	-	115
				NBL	E	73.6	0.41	29.6	-
				NBT	E	73.4	0.40	30.3	-
				NBR	E	69.7	0.04	9.4	70
				SBL	E	77.3	0.28	14.4	-
				SBTR	E	74.7	0.06	7.4	-
Winston Park Dr / Ridgeway Dr & Dundas St W	C	33.1	0.60	EBL	B	13.4	0.41	45.3	120
				EBT	C	21.3	0.48	125.0	-
				EBR	B	19.0	0.30	41.6	60
				WBL	B	18.3	0.30	13.9	145
				WBT	B	18.3	0.22	44.2	-
				WBR	B	11.7	0.12	8.4	110
				NBL	E	62.1	0.72	43.0	80
				NBTR	E	55.5	0.35	45.6	-
				SBL	E	74.4	0.86	**93.6**	85
				SBTR	E	67.5	0.80	106.7	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd / Commercial Access	C	28.6	0.52	EBL	F	119.9	0.95	**73.7**	70
				EBTR	E	55.7	0.22	24.6	-
				WBL	E	72.4	0.69	52.2	-
				WBTR	E	59.6	0.48	64.2	-
				NBL	A	7.6	0.40	33.2	60
				NBTR	B	12.6	0.39	97.5	-
				SBL	A	8.4	0.25	18.4	107
				SBTR	B	13.1	0.33	82.2	-
Winston Churchill Blvd & Dundas St W	D	44	0.90	EBL	E	62.9	0.70	55.7	130
				EBT	D	39.5	0.64	119.7	-
				EBR	C	31.5	0.13	18.0	110
				WBL	D	40.5	0.80	107.7	150
				WBT	D	35.0	0.55	111.5	-
				WBR	C	30.9	0.26	41.1	145
				NBL	C	34.6	0.61	57.2	90
				NBT	D	50.9	0.76	110.6	-
				NBR	D	41.4	0.29	34.4	90
				SBL	F	94.4	**1.00**	**95.2**	90
				SBT	D	48.1	0.61	83.9	-
				SBR	D	42.9	0.23	33.8	33

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Hampshire Gate / Commercial Access & Dundas St W	D	40.6	0.71	EBL	C	25.2	0.48	10.0	71
				EBT	C	29.3	0.65	141.2	-
				EBR	B	10.8	0.09	1.9	115
				WBL	D	41.7	0.70	53.6	130
				WBT	D	41.5	0.61	130.6	-
				WBR	C	31.6	0.05	8.4	115
				NBL	D	54.0	0.70	150.0	-
				NBT	D	53.5	0.69	149.5	-
				NBR	D	43.0	0.27	42.1	70
				SBL	E	78.7	0.72	72.0	-
				SBTR	E	63.9	0.23	29.7	-
Winston Park Dr / Ridgeway Dr & Dundas St W	D	48.9	**0.97**	EBL	E	59.3	0.86	117.3	120
				EBT	C	29.1	0.49	117.5	-
				EBR	C	23.1	0.10	17.3	60
				WBL	C	25.8	0.34	16.4	145
				WBT	D	35.4	0.64	136.7	-
				WBR	D	35.9	0.40	55.0	110
				NBL	F	101.7	**1.01**	**125.9**	80
				NBTR	E	64.0	0.84	139.2	-
				SBL	F	134.1	**1.10**	**112.2**	85
				SBTR	D	51.1	0.47	68.4	-

Note: Red font represents a critical movement.

As shown in **Table 2-4,** there are various movements that are shown to exceed capacity during both the Weekday AM and PM peak hours in 2024 Uncalibrated Existing Conditions.

It should be noted however that a common practice when assessing for Existing Conditions operations is to calibrate intersection capacity models to obtain v/c ratios that are less than 1.00 – as the methodology by which traffic volume data is collected cannot yield volumes greater than the intersection's capacity.

In this instance, calibration include modifications to the Lost Time Adjustment (LTA) to reduce uncalibrated v/c ratios above 1.00 to a level below 1.00. Locations where such calibration was performed include the following:

- At Winston Churchill Boulevard & Dundas Street West intersection, the calibration consisted of:
  - An LTA of -1.0 s being applied to the northbound left-turn movement for the Weekday AM peak hour; and
  - An LTA of -1.0 s being applied to the southbound left-turn movement for the Weekday AM peak hour.
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the calibration consisted of:
  - An LTA of -1.0 s being applied to the northbound left-turn movement for the Weekday AM peak hour; and
  - An LTA of -2.0 s being applied to the southbound left-turn movement for the Weekday PM peak hour.

The results of the 2024 Calibrated Existing Conditions traffic operations analysis for the study area signalized intersection during the Weekday AM and Weekday PM peak hours are presented in

Table 2-5**.**

Table 2-5 2024 Calibrated Existing Conditions Traffic Operations - Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd / Commercial Access	A	9.3	0.46	EBL	E	57.5	0.32	20.2	70
				EBTR	E	55.7	0.21	16.1	-
				WBL	E	58.0	0.35	20.0	-
				WBTR	E	55.3	0.13	13.8	-
				NBL	A	8.4	0.47	23.4	60
				NBTR	A	3.0	0.26	25.5	-
				SBL	A	2.6	0.09	4.9	107
				SBTR	A	3.9	0.44	50.6	-
Winston Churchill Blvd & Dundas St W	D	48.1	**0.98**	EBL	E	69.5	0.41	22.4	130
				EBT	D	49.5	0.68	124.5	-
				EBR	D	49.4	0.55	96.5	110
				WBL	E	74.1	0.95	126.4	150

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				WBT	D	37.9	0.38	75.2	-
				WBR	C	33.8	0.09	16.3	145
				NBL	F	87.7	0.94	**97.7**	90
				NBT	D	40.5	0.57	113.5	-
				NBR	C	34.1	0.17	18.8	90
				SBL	C	29.1	0.57	45.6	90
				SBT	D	51.4	0.87	187.5	-
				SBR	C	32.1	0.09	14.5	33
Hampshire Gate / Commercial Access & Dundas St W	B	13.6	0.44	EBL	A	3.9	0.07	2.1	71
				EBT	B	10.5	0.46	156.5	-
				EBR	A	7.0	0.10	9.1	115
				WBL	A	8.3	0.42	15.1	130
				WBT	A	8.2	0.22	42.2	-
				WBR	A	6.9	0.02	-	115
				NBL	E	73.6	0.41	29.6	-
				NBT	E	73.4	0.40	30.3	-
				NBR	E	69.7	0.04	9.4	70
				SBL	E	77.3	0.28	14.4	-
				SBTR	E	74.7	0.06	7.4	-
Winston Park Dr / Ridgeway Dr & Dundas St W	C	33.1	0.6	EBL	B	13.4	0.41	45.3	120
				EBT	C	21.3	0.48	125.0	-
				EBR	B	19.0	0.30	41.6	60
				WBL	B	18.3	0.30	13.9	145
				WBT	B	18.3	0.22	44.2	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				WBR	B	11.7	0.12	8.4	110
				NBL	E	62.1	0.72	43.0	80
				NBTR	E	55.5	0.35	45.6	-
				SBL	E	74.4	0.86	**93.6**	85
				SBTR	E	67.5	0.80	106.7	-
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd / Commercial Access	C	28.6	0.52	EBL	F	119.9	0.95	**73.7**	70
				EBTR	E	55.7	0.22	24.6	-
				WBL	E	72.4	0.69	52.2	-
				WBTR	E	59.6	0.48	64.2	-
				NBL	A	7.6	0.40	33.2	60
				NBTR	B	12.6	0.39	97.5	-
				SBL	A	8.4	0.25	18.4	107
				SBTR	B	13.1	0.33	82.2	-
Winston Churchill Blvd & Dundas St W	D	42.9	**0.89**	EBL	E	62.9	0.70	55.7	130
				EBT	D	39.5	0.64	119.7	-
				EBR	C	31.5	0.13	18.0	110
				WBL	D	40.5	0.80	107.7	150
				WBT	D	35.0	0.55	111.5	-
				WBR	C	30.9	0.26	41.1	145
				NBL	C	34.6	0.61	57.2	90
				NBT	D	50.9	0.76	110.6	-
				NBR	D	41.3	0.28	33.5	90
				SBL	E	71.9	0.93	88.1	90

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				SBT	D	48.1	0.61	83.9	-
				SBR	D	42.9	0.23	**33.8**	33
Hampshire Gate / Commercial Access & Dundas St W	D	40.5	0.71	EBL	C	25.0	0.48	10.7	71
				EBT	C	29.2	0.65	144.6	-
				EBR	B	10.3	0.09	1.7	115
				WBL	D	41.7	0.70	53.6	130
				WBT	D	41.5	0.61	130.6	-
				WBR	C	31.6	0.05	8.4	115
				NBL	D	54.0	0.70	150.0	-
				NBT	D	53.5	0.69	149.5	-
				NBR	D	43.0	0.27	42.1	70
				SBL	E	78.7	0.72	72.0	-
				SBTR	E	63.9	0.23	29.7	-
Winston Park Dr / Ridgeway Dr & Dundas St W	D	45.7	**0.88**	EBL	E	59.3	0.86	117.3	120
				EBT	C	29.1	0.49	117.5	-
				EBR	C	23.1	0.10	17.3	60
				WBL	C	25.8	0.34	16.4	145
				WBT	D	35.4	0.64	136.7	-
				WBR	D	35.9	0.40	55.0	110
				NBL	F	84.4	0.96	**117.5**	80
				NBTR	E	64.0	0.84	139.2	-
				SBL	F	86.4	0.96	**97.7**	85
				SBTR	D	51.1	0.47	68.4	-

Note: Red font represents a critical movement.

As shown in

Table 2-5, during the Weekday AM peak hour, the following critical operations have been observed for individual movements for the study area signalized intersections in the 2024 Calibrated Existing Conditions:

- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.98. The 95th percentile queue lengths for the northbound left-turn movement were found to exceed the available storage lane capacities by 7.7 m (approximately 2 car lengths); and
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the 95th percentile queue lengths for the northbound left-turn movement were found to exceed the available storage lane capacities by 8.6 m (approximately 2 car lengths);

Furthermore, the following critical operations were observed during the Weekday PM peak hour:

- At Winston Churchill Boulevard & Laird Road / Commercial Access intersection, the 95th percentile queue lengths for the eastbound right-turn movement were found to exceed the available storage lane capacities by 3.7 m (approximately one car length); and
- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.89. The 95th percentile queue lengths for the northbound left-turn movement were found to exceed the available storage lane capacities by 7.7 m (approximately two car lengths); and
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.88. The 95th percentile queue lengths for the northbound left-turn and southbound left-turn movements were found to exceed the available storage lane capacities by 37.5 m and 12.2 m (approximately seven car and three car lengths, respectively);

3 Future Background Conditions

This section discusses the proposed development horizon years, background traffic growth rates, and anticipated future road network improvements.

3.1 Horizon Years

As per the ***City of Mississauga Traffic Impact Study Guidelines***, a horizon year of 5 years from the anticipated completion of the 2024 date of this TIS (i.e. 2029) was selected for the Future Background Conditions and Future Total Conditions analyses. An additional horizon year of 10 years after the anticipated buildout year was also selected for the Future Background Conditions and Future Total Conditions analyses. The following horizon years were selected for this study:

- 2029: 5-years from the date of the TIS; and,
- 2036: 10-years after the full built-out year.

3.2 Background Traffic Growth

As per the City of Mississauga staff, the recommended growth rates were used along Winston Churchill and Dundas Street West. These rates are compounded annual from the 2024 existing to 2031, and 2031 to 2034. The following growth rates are as follows:

Compounded Annual Growth from 2024 Existing to 2031

- Winston Churchill Northbound: AM Peak 0.5%, PM Peak 0.5%;
- Winston Churchill Southbound: AM Peak 1.0%, PM Peak 0.5%;
- Dundas Street West Eastbound: AM Peak 1.5%, PM Peak 1.5%; and
- Dundas Street West Westbound: AM Peak 1.5%, PM Peak 1.5%.

Compounded Annual Growth from 2031 to 2034

- Winston Churchill Northbound: AM Peak 3.0%, PM Peak 3.0%;
- Winston Churchill Southbound: AM Peak 3.0%, PM Peak 3.0%;
- Dundas Street West Eastbound: AM Peak 0.5%, PM Peak 0.5%; and
- Dundas Street West Westbound: AM Peak 0%, PM Peak 0%.

The growth rates along Winston Churchill Boulevard between 2031 and 2034 seem high. However, this is because of the future widening of the road from 4 lanes to 6 lanes.

3.3 Background Developments

Based on a review of the City of Mississauga's active development applications website, the following background development which may introduce non-negligeable traffic volumes to the site has been identified:

- 3055 Vega Boulevard (additional retail spaces of 1,500 m^2 GFA to be built at the existing parking lot of the site).

The locations of the background developments are presented in **Figure 3-1.**

Figure 3-1: Background Development
Base Map Source: Google Earth. Retrieved November 25, 2024, from https://earth.google.com/

Site-generated trips from the individual background development was accounted for and the use of the Trip Generation Rates from the publication *Trip Generation Manual – 11th Edition (Institute of Transportation Engineers, 2021)* were used to estimate vehicle trips for this development. These are presented in **Table 3-1** and **Figure 3-2**. These trips were added to the 2024 Existing Conditions scenario within the study area to produce the 2029 and 2036 Future Background Conditions.

Table 3-1: Background Development Trip Generation

Background Development							
Retail - Strip Retail Plaza (<40k) (822) - General Urban/Suburban - 1,500 Sq. M. (16,145.87 Sq. Ft.)							
Term	**Unit**	**Weekday AM Peak Hour**			**Weekday PM Peak Hour**		
		In	**Out**	**Total**	**In**	**Out**	**Total**
Trip Generation Equation	Vehicle trips / 1,000 Sq. Ft. GLA	Ln(T) = 0.66 Ln(X) + 1.84			Ln(T) = 0.71 Ln(X) + 2.72		
Trip Generation Rate	Vehicle trips / 1,000 Sq. Ft. GLA	1.49	0.99	2.48	3.41	3.41	6.81
Directional Distribution	0	60%	40%	100%	50%	50%	100%
Vehile Trip Generation	Trips / hour	24	16	40	55	55	110
Mode Split Reduction	Trips / hour	-4	-3	-7	-21	-21	-42
Total Trips	**Trips / hour**	**20**	**13**	**33**	**34**	**34**	**68**

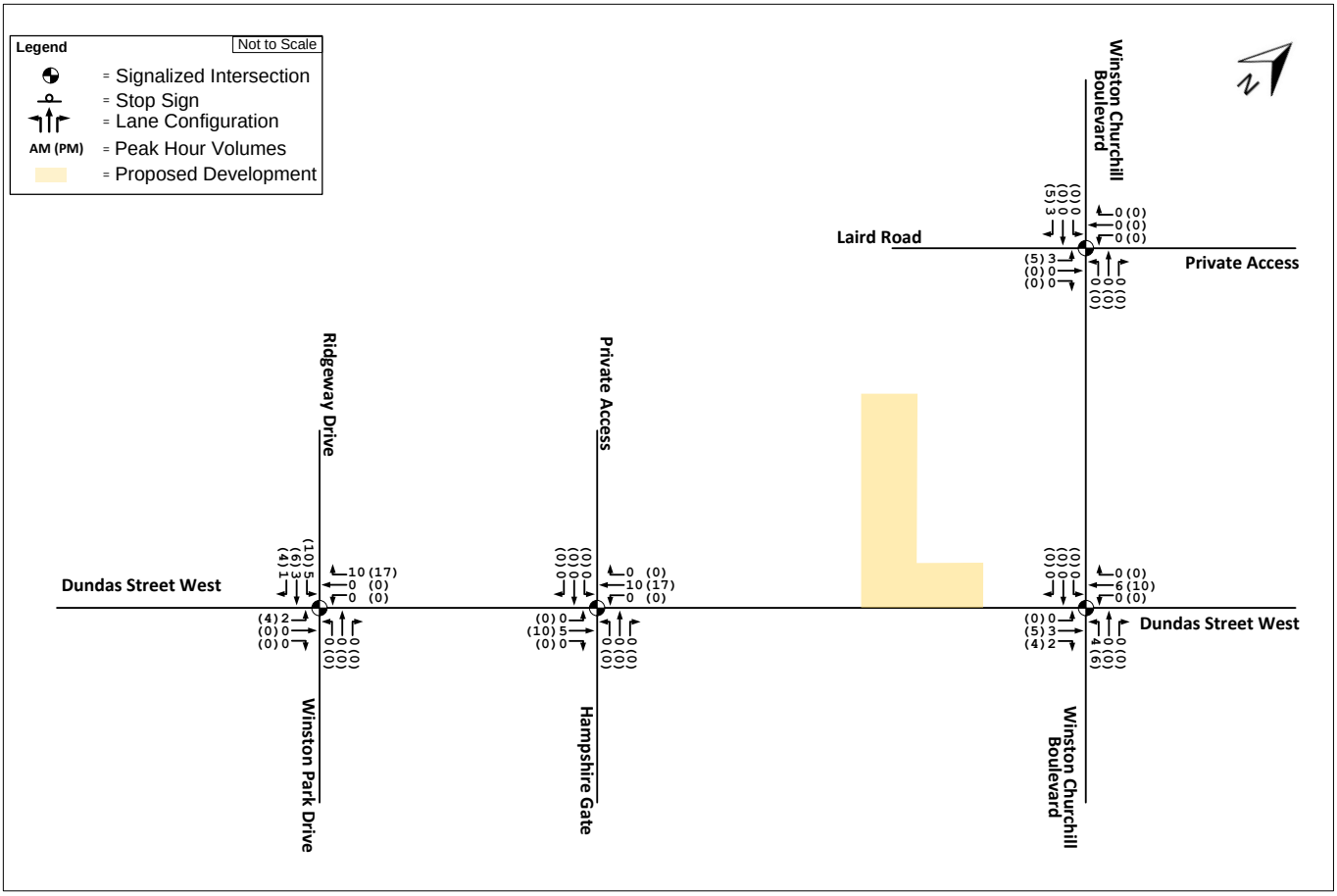

Figure 3-2: Background Development Trips

Trip generation and trip distribution references are provided in **Appendix H and Appendix G**.

3.4 Future Transportation Network Improvements

This section will discuss future transportation network near the proposed development site.

3.4.1 Future Network Improvements

As per information provided by the City of Mississauga staff, Winston Churchill Boulevard will be widened from 4 lanes to 6 lanes between the years 2031-2034. Any plans for this project have not been made public by the City yet. However, this future network improvement was only considered in the 2036 Future Background Conditions scenario.

The Lane configuration with the network changes for the study area intersections in the 2036 Future Conditions scenario is illustrated in **Figure 5-2**.

4 Future Background Conditions Analysis

These following subsections will discuss the horizon years future background condition traffic analysis.

4.1 2029 Future Background Conditions

New trips resulting from the background traffic growth up to the horizon year of 2029 were added to the 2024 existing conditions scenario, producing the 2029 future background traffic volumes illustrated in **Figure 4-1.** Full Highway Capacity Manual (HCM) for the 2029 Future Background is provided in **Appendix E.**

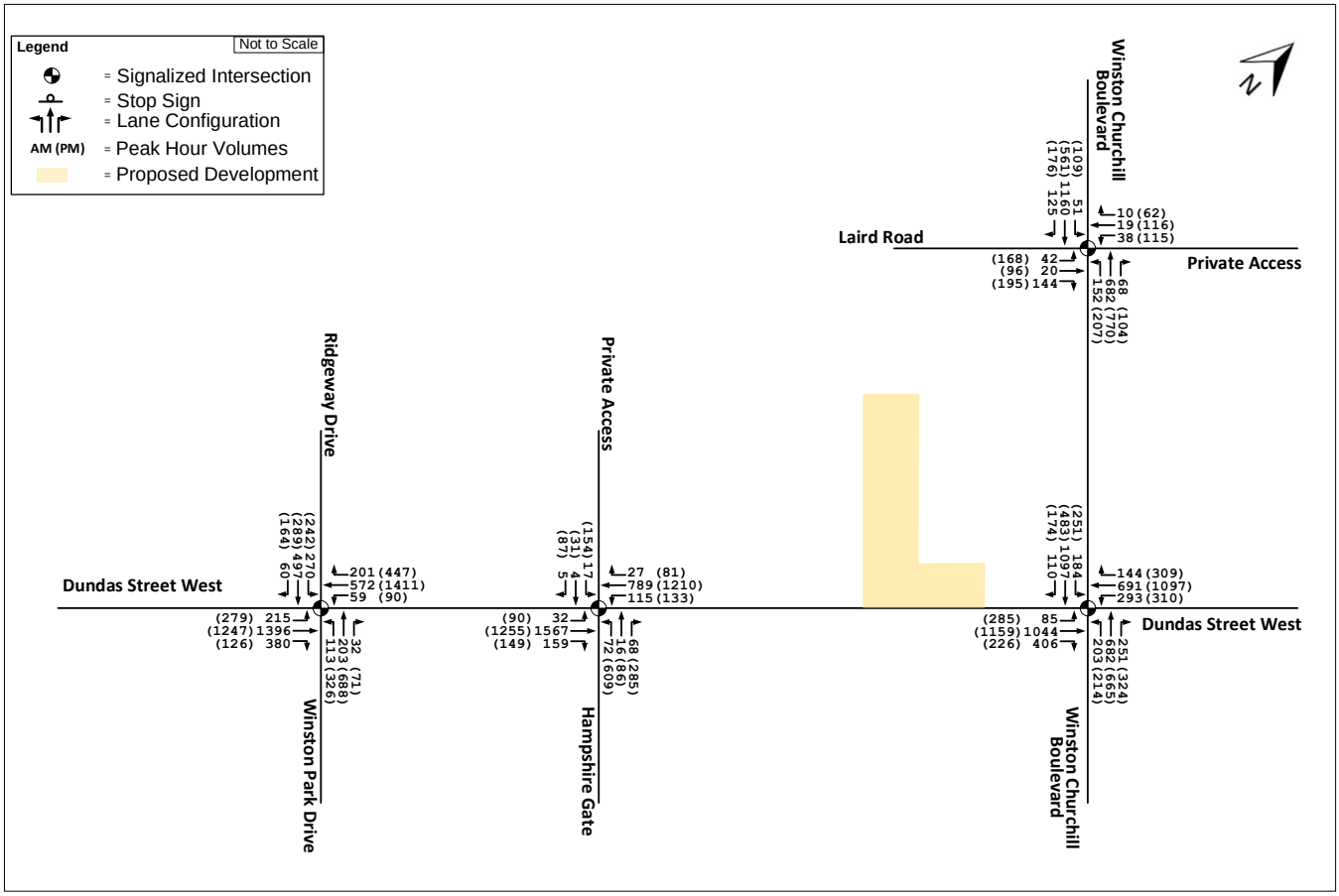

Figure 4-1: 2029 Future Background Conditions Traffic Volumes

4.1.1 Signalized Intersections

The results of the 2029 Future Background Conditions traffic operations analysis for the study area signalized intersections during the Weekday AM and Weekday PM peak hours are presented in **Table 4-1.**

Table 4-1: 2029 Future Background Conditions Traffic Operations - Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd / Commercial Access	A	9.8	0.51	EBL	E	58.1	0.37	22.6	70
				EBTR	E	56.3	0.30	19.6	-
				WBL	E	58.3	0.38	21.4	-
				WBTR	E	55.3	0.13	14.3	-
				NBL	B	10.3	0.52	29.1	60
				NBTR	A	3.1	0.27	27.2	-
				SBL	A	2.7	0.09	5.3	107
				SBTR	A	4.1	0.46	56.7	-
Winston Churchill Blvd & Dundas St W	D	54	**1.11**	EBL	E	71.0	0.44	23.8	130
				EBT	D	53.0	0.74	136.4	-
				EBR	D	54.4	0.64	**114.7**	110
				WBL	F	130.7	**1.11**	**155.1**	150
				WBT	D	40.2	0.42	82.0	-
				WBR	D	35.4	0.10	16.5	145
				NBL	F	117.0	**1.03**	**109.6**	90
				NBT	D	40.3	0.57	117.0	-
				NBR	C	33.9	0.17	19.0	90
				SBL	C	29.3	0.59	48.0	90
				SBT	D	52.1	0.88	201.1	-
				SBR	C	31.6	0.09	15.7	33

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Hampshire Gate / Commercial Access & Dundas St W	B	14.4	0.49	EBL	A	5.2	0.08	2.6	71
				EBT	B	12.0	0.51	177.3	-
				EBR	A	7.4	0.11	9.1	115
				WBL	B	10.4	0.44	18.7	130
				WBT	A	8.4	0.24	46.0	-
				WBR	A	6.9	0.02	-	115
				NBL	E	73.7	0.41	30.3	-
				NBT	E	73.6	0.41	30.9	-
				NBR	E	69.7	0.05	10.3	70
				SBL	E	77.5	0.30	15.0	-
				SBTR	E	74.7	0.06	7.4	-
Winston Park Dr / Ridgeway Dr & Dundas St W	C	34.4	0.65	EBL	B	14.6	0.47	50.6	120
				EBT	C	24.0	0.54	141.3	-
				EBR	C	21.2	0.34	51.8	60
				WBL	C	25.0	0.34	19.2	145
				WBT	B	19.6	0.24	46.9	-
				WBR	B	12.4	0.13	8.9	110
				NBL	E	63.3	0.74	43.3	80
				NBTR	D	54.3	0.34	46.2	-
				SBL	E	76.8	0.88	**96.8**	85
				SBTR	E	67.0	0.81	111.8	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd / Commercial Access	C	29.3	0.56	EBL	F	109.5	0.94	**79.8**	70
				EBTR	D	52.8	0.21	24.8	-
				WBL	E	67.2	0.66	53.8	-
				WBTR	E	56.5	0.46	66.0	-
				NBL	A	9.1	0.43	37.7	60
				NBTR	B	14.7	0.41	109.5	-
				SBL	A	9.9	0.27	20.7	107
				SBTR	B	15.3	0.36	92.8	-
Winston Churchill Blvd & Dundas St W	D	45.6	**0.97**	EBL	E	63.6	0.72	60.6	130
				EBT	D	41.5	0.70	134.3	-
				EBR	C	32.1	0.15	19.1	110
				WBL	E	63.0	0.91	137.2	150
				WBT	D	37.3	0.62	125.8	-
				WBR	C	32.7	0.31	51.5	145
				NBL	D	35.6	0.64	59.8	90
				NBT	D	50.9	0.77	113.5	-
				NBR	D	41.5	0.30	36.6	90
				SBL	F	81.1	0.96	**92.9**	90
				SBT	D	48.6	0.62	85.8	-
				SBR	D	43.3	0.24	**35.2**	33

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Hampshire Gate / Commercial Access & Dundas St W	D	42.5	0.78	EBL	D	40.9	0.59	21.0	71
				EBT	C	30.8	0.72	156.4	-
				EBR	B	10.9	0.10	1.7	115
				WBL	E	64.2	0.85	72.0	130
				WBT	D	44.5	0.67	143.2	-
				WBR	C	32.9	0.05	9.9	115
				NBL	D	52.7	0.70	155.1	-
				NBT	D	52.1	0.69	154.6	-
				NBR	D	42.2	0.28	45.2	70
				SBL	E	79.1	0.73	73.6	-
				SBTR	E	63.9	0.24	31.5	-
Winston Park Dr / Ridgeway Dr & Dundas St W	D	51.3	**0.95**	EBL	F	90.5	0.96	**151.1**	120
				EBT	C	30.4	0.53	129.0	-
				EBR	C	23.8	0.11	19.7	60
				WBL	C	30.9	0.40	17.6	145
				WBT	D	42.7	0.71	148.9	-
				WBR	D	43.9	0.46	72.8	110
				NBL	F	95.5	**1.00**	**127.2**	80
				NBTR	E	64.3	0.85	143.3	-
				SBL	F	98.5	**1.00**	**105.3**	85
				SBTR	D	50.9	0.48	72.2	-

Note: Red font represents a critical movement.

As shown in **Table 4-1**, during the Weekday AM peak hour, the following critical operations have been anticipated for individual movements for the study area signalized intersections in 2029 Future Background Conditions.

- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 1.11. The westbound left-turn and northbound left-turn

movements are anticipated to operate above the critical operational threshold with a v/c ratio of 1.11 and 1.03, as well as a LOS “F”. The 95th percentile queue lengths for the eastbound right-turn, westbound left-turn and northbound left-turn movements are anticipated to exceed the available storage lane capacities by 4.7m, 5.1 m and 19.6 m (approximately one car lengths, one car lengths and four car lengths, respectively); and

- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the 95th percentile queue length for the southbound left-turn movement is anticipated to exceed the available storage lane capacities by 11.8 m (approximately two car lengths).

Furthermore, the following critical operations were observed during the Weekday PM peak hour:

- At Winston Churchill Boulevard & Laird Road / Commercial Access intersection, the 95th percentile queue lengths for the eastbound right-turn movement were found to exceed the available storage lane capacities by 9.8 m (approximately two car lengths);
- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.97. The 95th percentile queue lengths for the southbound left-turn and southbound right-turn movements are anticipated to exceed the available storage lane capacities by 2.9 m and 2.2 m (approximately one car lengths); and
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.95. Both northbound left-turn and southbound left-turn movements are anticipated to operate above the critical operational threshold with a v/c ratio of 1.0, as well as a LOS “F”. The 95th percentile queue lengths for the eastbound left-turn, northbound left-turn and southbound left-turn movements were found to exceed the available storage lane capacities by 31.1 m, 47.2 m and 20.3 m (approximately six car lengths, eight car lengths and four car lengths, respectively).

4.2 2036 Future Background Conditions

New trips resulting from the background traffic growth up to the horizon year of 2036 were added to the 2036 existing conditions scenario, producing the 2036 future background traffic volumes illustrated in **Figure 4-2.** Full Highway Capacity Manual (HCM) for the 2036 Future Background is provided in **Appendix F.**

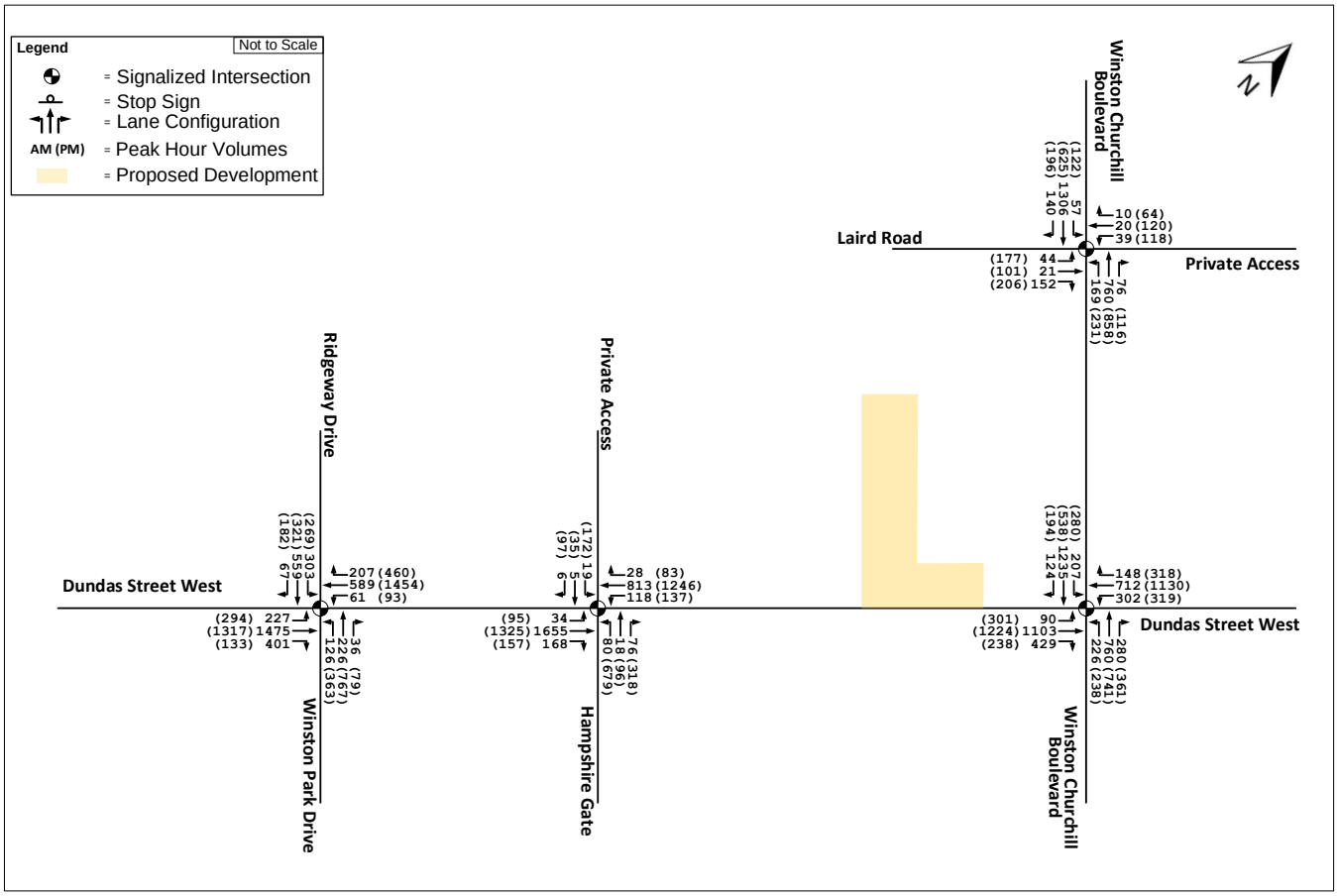

Figure 4-2: 2036 Future Background Conditions Traffic Volumes

4.2.1 Signalized Intersections

The results of the 2036 Future Background Conditions traffic operations analysis for the study area signalized intersections during the Weekday AM and Weekday PM peak hours are presented in **Table 4-2.**

Table 4-2: 2036 Future Background Conditions Traffic Operations - Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd / Commercial Access	A	9.8	0.67	EBL	E	58.2	0.39	23.7	70
				EBTR	E	57.4	0.43	25.1	-
				WBL	E	58.4	0.38	21.7	-
				WBTR	E	55.3	0.14	14.5	-
				NBL	C	20.4	0.70	**74.0**	60
				NBTR	A	2.8	0.21	19.3	-
				SBL	A	2.9	0.12	5.9	107
				SBTR	A	3.4	0.36	37.7	-
Winston Churchill Blvd & Dundas St W	D	50.3	**1.11**	EBL	E	66.5	0.45	24.6	130
				EBT	D	48.3	0.74	141.8	-
				EBR	D	51.0	0.67	**126.8**	110
				WBL	F	120.0	**1.09**	**158.8**	150
				WBT	D	35.7	0.41	82.6	-
				WBR	C	31.3	0.10	16.5	145
				NBL	F	116.1	**1.06**	**116.1**	90
				NBT	D	41.0	0.51	83.9	-
				NBR	D	37.1	0.22	26.4	90
				SBL	C	32.1	0.67	54.0	90
				SBT	D	45.7	0.77	138.6	-
				SBR	C	33.9	0.13	19.9	33

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Hampshire Gate / Commercial Access & Dundas St W	B	14.6	0.52	EBL	A	5.1	0.09	1.9	71
				EBT	B	11.9	0.55	194.5	-
				EBR	A	4.5	0.12	5.7	115
				WBL	B	13.0	0.47	26.4	130
				WBT	A	8.6	0.25	48.4	-
				WBR	A	7.1	0.02	-	115
				NBL	E	73.9	0.45	32.8	-
				NBT	E	73.6	0.44	32.8	-
				NBR	E	69.4	0.05	13.6	70
				SBL	E	78.0	0.33	16.0	-
				SBTR	E	74.9	0.08	8.7	-
Winston Park Dr / Ridgeway Dr & Dundas St W	D	37.7	0.73	EBL	B	17.1	0.54	57.4	120
				EBT	C	27.6	0.60	160.4	-
				EBR	C	24.1	0.37	**62.4**	60
				WBL	D	35.2	0.40	24.2	145
				WBT	C	21.3	0.26	48.5	-
				WBR	B	12.7	0.14	8.3	110
				NBL	E	73.2	0.83	49.5	80
				NBTR	D	51.3	0.34	49.2	-
				SBL	F	88.5	0.95	**108.9**	85
				SBTR	E	64.5	0.82	123.4	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd / Commercial Access	C	28.3	0.62	EBL	F	109.7	0.94	**83.9**	70
				EBTR	D	51.7	0.22	25.7	-
				WBL	E	66.6	0.67	55.4	-
				WBTR	E	55.4	0.46	67.5	-
				NBL	A	9.6	0.51	42.5	60
				NBTR	B	14.3	0.32	77.4	-
				SBL	B	10.3	0.32	22.9	107
				SBTR	B	15.1	0.28	63.4	-
Winston Churchill Blvd & Dundas St W	D	45.5	**1**	EBL	E	60.4	0.73	60.4	130
				EBT	D	38.8	0.70	131.9	-
				EBR	C	29.6	0.16	18.5	110
				WBL	E	63.3	0.91	133.8	150
				WBT	C	34.5	0.61	119.6	-
				WBR	C	30.7	0.34	55.2	145
				NBL	D	39.2	0.71	67.8	90
				NBT	D	48.2	0.68	82.0	-
				NBR	D	44.5	0.43	52.2	90
				SBL	F	103.8	**1.04**	**104.0**	90
				SBT	D	49.3	0.58	63.0	-
				SBR	D	45.1	0.21	28.3	33
Hampshire Gate / Commercial Access & Dundas St W	D	47.4	**0.94**	EBL	E	59.3	0.72	27.3	71
				EBT	C	30.8	0.76	156.2	-
				EBR	A	8.0	0.10	2.3	115
				WBL	F	165.8	**1.16**	83.6	130
				WBT	D	46.9	0.71	148.5	-
				WBR	C	34.0	0.05	10.6	115

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				NBL	E	55.7	0.76	195.3	-
				NBT	D	54.9	0.75	192.7	-
				NBR	D	42.5	0.35	59.4	70
				SBL	E	79.0	0.75	80.2	-
				SBTR	E	63.0	0.29	36.4	-
Winston Park Dr / Ridgeway Dr & Dundas St W	E	62	**1.09**	EBL	F	154.9	**1.16**	**167.2**	120
				EBT	C	33.4	0.58	138.4	-
				EBR	C	25.6	0.12	21.5	60
				WBL	C	34.7	0.45	17.4	145
				WBT	D	45.6	0.73	155.7	-
				WBR	D	46.0	0.50	84.4	110
				NBL	F	132.5	**1.12**	**166.7**	80
				NBTR	E	65.7	0.89	163.7	-
				SBL	F	160.9	**1.17**	**138.7**	85
				SBTR	D	49.5	0.51	81.5	-

Note: Red font represents a critical movement.

As shown in **Table 4-2**, during the Weekday AM peak hour, the following critical operations have been anticipated for individual movements for the study area signalized intersections in 2036 Future Background Conditions.

- At Winston Churchill Boulevard & Laird Road / Commercial Access intersection, the 95th percentile queue lengths for the northbound right-turn movement were found to exceed the available storage lane capacities by 14 m (approximately three car lengths);
- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 1.11. The westbound left-turn and northbound left-turn movements are anticipated to operate above the critical operational threshold with a v/c ratio of 1.09 and 1.06, as well as a LOS “F”. The 95th percentile queue lengths for the eastbound right-turn, westbound left-turn and northbound left-turn movements are anticipated to exceed the available storage lane capacities by 16.8m, 8.8 m and 26.1 m (approximately three car lengths, two car lengths and five car lengths, respectively); and
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the 95th percentile queue lengths for the eastbound right-turn and southbound left-turn movements are anticipated to exceed the available storage lane capacities by 2.4 m and 23.9 m (approximately one car length and four car lengths, respectively).

Furthermore, the following critical operations were observed during the Weekday PM peak hour:

- At Winston Churchill Boulevard & Laird Road / Commercial Access intersection, the 95th percentile queue lengths for the eastbound right-turn movement were found to exceed the available storage lane capacities by 13.9 m (approximately three car lengths);
- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 1.00. The southbound left-turn movement is anticipated to operate above the critical operational threshold with a v/c ratio of 1.04, as well as a LOS “F”. The 95th percentile queue lengths for the southbound left-turn movement is anticipated to exceed the available storage lane capacities by 14 m (approximately three car lengths); and
- At Hampshire Gate / Commercial Access & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.94. The westbound left-turn movement is anticipated to operate above the critical operational threshold with a v/c ratio of 1.16, as well as a LOS “F”.
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 1.09. The eastbound left-turn, northbound left-turn and southbound left-turn movements are anticipated to operate above the critical operational threshold with a v/c ratio of 1.16, 1.12 and 1.17, as well as a LOS “F”. The 95th percentile queue lengths for the eastbound left-turn, northbound left-turn and southbound left-turn movements were found to exceed the available storage lane capacities by 47.2 m, 86.7 m and 53.7 m (approximately eight car lengths, fifteen car lengths and nine car lengths, respectively).

5 Future Total Conditions

This section discusses the proposed development access configurations, trip generation and trip distribution of the proposed development, as well as trip assignment to the future transportation network.

5.1 Proposed Site Access Configurations

As discussed in **Section 1.3**, vehicle access to the site would be via a right-in/right-out access on Dundas Street West on an interim basis of 2036, with another proposed access being designed for conversion into a new north-south roadway envisioned by the ongoing MTSA study. In consideration of the widening of Winston Churchill Boulevard illustrated in **Section 3.4**, the resulting future lane configuration of 2029 and 2036 are illustrated in **Figure 5-1** and **Figure 5-2** respectively.

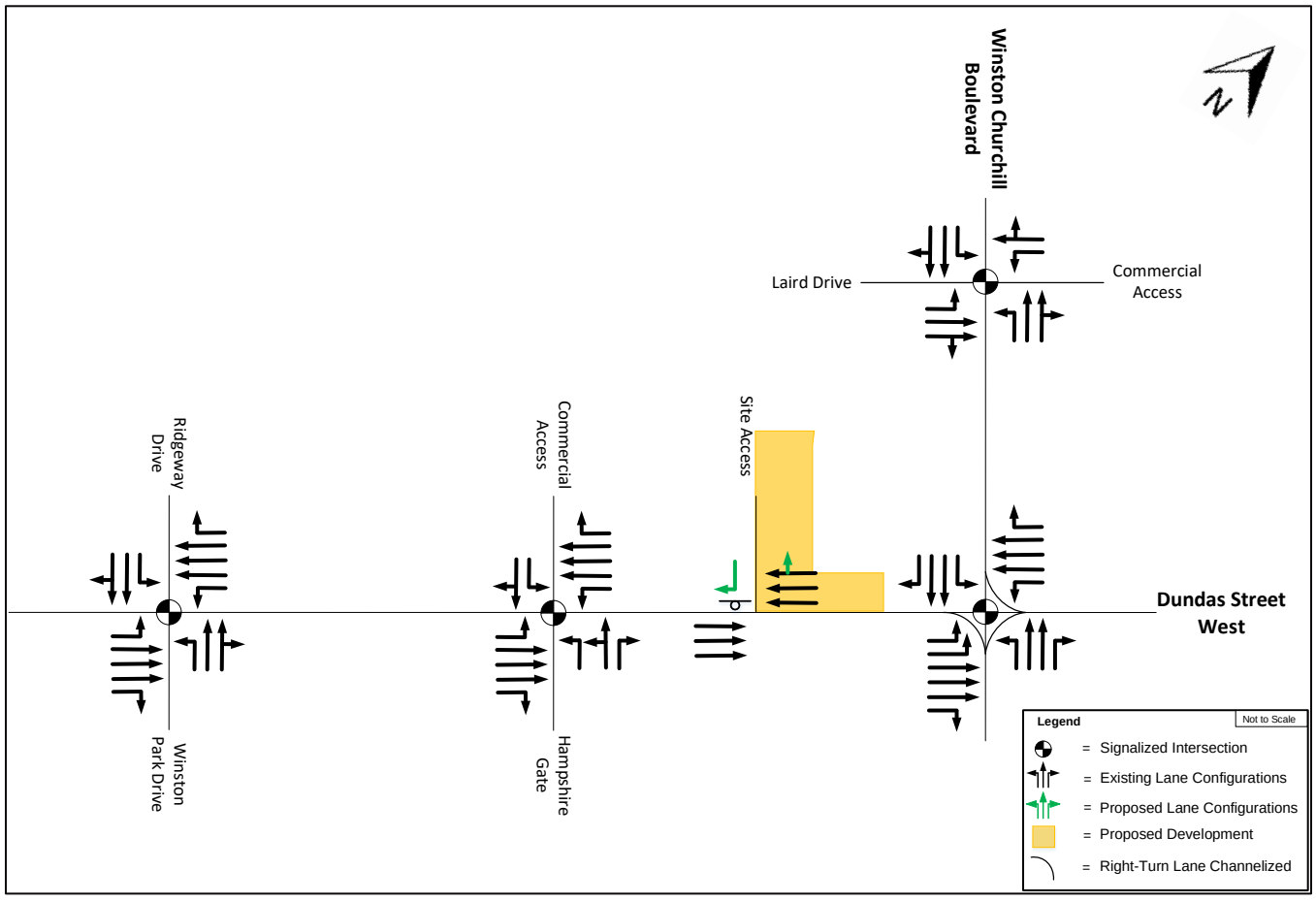

Figure 5-1: Future Lane Configuration with Proposed Development (2029)

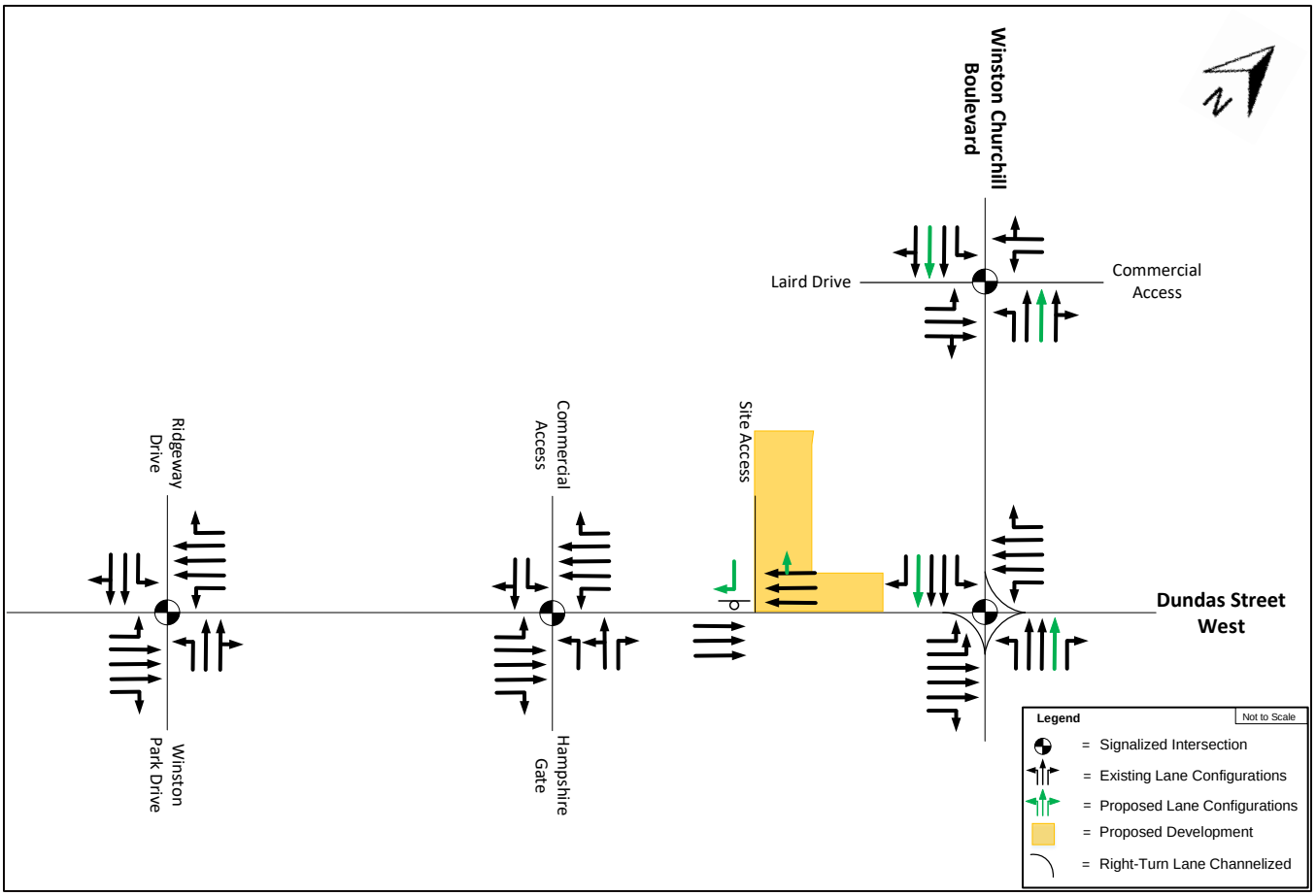

Figure 5-2: Future Lane Configuration with Proposed Development (2036)

5.2 Mode Share

To determine automobile-based trip estimates from the person trips generated, mode share information from the 2016 Transportation Tomorrow Survey (TTS) was referenced. The mode split information is presented in **Table 5-1.** The modal share split is provided in **Appendix G.**

Table 5-1: Study Area Mode Share Split

Mode	Weekday AM Peak Hour	Weekday PM Peak Hour
Driver	83%	61%
Passenger	6%	7%
Transit	11%	16%
Walk	0%	17%
Cycle	0%	0%
Total	100%	100%
Auto Share Reduction	**17%**	**39%**

5.3 Trip Generation

Trip generation rates from the publication *Trip Generation Manual – 11th Edition (Institute of Transportation Engineers, 2021)* were used to estimate future vehicle trips and pass-by trips associated with the proposed development. New trips refer to trips associated with the use, which would not have been made prior to construction, while pass-by trips refer to trips already on the network that divert into the use.

Based on the nature of the development, its location context, and the data quality, fitted curve equation for below Land Use Code were used to calculate the estimated vehicle trips during the Weekday AM and PM Peak hours:

- Land Use Code 222: Multifamily Housing (High-Rise) Not Close to Rail Transit – General Urban/Suburban;
- Land Use Code 822: Strip Retail Plaza (<40k) – General Urban/Suburban;
- Land Use Code 630: Clinic - General Urban/Suburban; and
- Land Use Code 931: Fine Dining Restaurant - General Urban/Suburban.

NCHRP 684 Internal Trip Capture Tool has been used to estimate the internal trip capture deduction between residential and retail within the site. Reduction in trip making due to internal capture was estimated at 0.0% for the AM peak hour, and 20.5% for the PM peak hour.

The estimated new inbound and outbound vehicle trips for the proposed development are presented in **Table 5-2.** Trip generation references are provided in **Appendix H.**

Table 5-2: Proposed Site Trip Generation

Proposed Site							
Residential - Multifamily Housing (High-Rise) - Not Close to Rail Transit (222) - General Urban/Suburban - 156 Units (12-Storey)							
Term	**Unit**	**Weekday AM Peak Hour**			**Weekday PM Peak Hour**		
		Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Trip Generation Equation	Vehicle trips / Unit	T = 0.22(X) + 18.85			T = 0.26(X) + 23.12		
Trip Generation Rate	Vehicle trips / Unit	0.09	0.25	0.34	0.25	0.15	0.40
Directional Distribution		26%	74%	100%	62%	38%	100%
Vehile Trip Generation	Trips / hour	15	40	55	54	31	85
Internal Capture Reduction	Trips / hour	0	0	0	-6	-4	-10
Mode Split Reduction	Trips / hour	-3	-7	-10	-19	-11	-30
Net Trips	**Trips / hour**	**12**	**33**	**45**	**29**	**16**	**45**
Retail - Strip Retail Plaza (<40k) (822) - General Urban/Suburban - 350.85 Sq. M. (3,777 Sq. Ft.)							
Term	**Unit**	**Weekday AM Peak Hour**			**Weekday PM Peak Hour**		
		Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Trip Generation Equation	Vehicle trips / 1,000 Sq. Ft. GLA	Ln(T) = 0.66 Ln(X) + 1.84			Ln(T) = 0.71 Ln(X) + 2.72		
Trip Generation Rate	Vehicle trips / 1,000 Sq. Ft. GLA	2.38	1.59	3.97	5.03	5.03	10.06
Directional Distribution		60%	40%	100%	50%	50%	100%
Vehile Trip Generation	Trips / hour	9	6	15	19	19	38
Internal Capture Reduction	Trips / hour	0	0	0	-5	-9	-14
Mode Split Reduction	Trips / hour	-2	-1	-3	-5	-4	-9
Pass-by Reduction	Trips / hour	0	0	0	-4	-2	-6
Net Trips	**Trips / hour**	**7**	**5**	**12**	**5**	**4**	**9**

Proposed Site							
Medical Center - Clinic (630) - General Urban/Suburban - 481.9 Sq. M. (5,187 Sq. Ft.)							
Term	**Unit**	**Weekday AM Peak Hour**			**Weekday PM Peak Hour**		
		Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Trip Generation Equation	Vehicle trips / 1,000 Sq. Ft. GLA	T = 2.19(X) + 8.68			T = 3.53(X) + 2.98		
Trip Generation Rate	Vehicle trips / 1,000 Sq. Ft. GLA	3.08	0.77	3.86	1.16	2.89	4.05
Directional Distribution		81%	19%	100%	30%	70%	100%
Vehile Trip Generation	Trips / hour	16	4	20	6	15	21
Mode Split Reduction	Trips / hour	-3	-1	-4	-2	-6	-8
Net Trips	**Trips / hour**	**13**	**3**	**16**	**4**	**9**	**13**
Restaurant - Fine Dining Restaurant (931) - General Urban/Suburban - 270.53 Sq. M. (2,912 Sq. Ft.)							
Term	**Unit**	**Weekday AM Peak Hour**			**Weekday PM Peak Hour**		
		Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Trip Generation Equation	Vehicle trips / 1,000 Sq. Ft. GLA	Not Given			Not Given		
Trip Generation Rate	Vehicle trips / 1,000 Sq. Ft. GLA	0.36	0.36	0.73	5.32	2.48	7.80
Directional Distribution		50%[2]	50%	100%	67%	33%	100%
Vehile Trip Generation	Trips / hour	1	1	2	15	7	22
Internal Capture Reduction	Trips / hour	0	0	0	-6	-4	-10
Mode Split Reduction	Trips / hour	0	0	0	-4	-1	-5
Net Trips	**Trips / hour**	**1**	**1**	**2**	**5**	**2**	**7**
Development Total							
Total Net New Auto Trips		**33**	**42**	**75**	**43**	**31**	**74**

[2] Not given for AM Peak Hour due to limited number of samples, Weekday data is referred.

As shown in **Table 5-2**, the proposed development is expected to generate up to 75 (33 inbound and 42 outbound) and 74 (43 inbound and 31 outbound) net new automobile trips during the weekday AM and weekday PM Peak hours, respectively.

5.3.1 Trip Distribution and Assignment

The estimated trips for the proposed development were subsequently distributed across the study area using travel data from 2016 Transportation Tomorrow Survey (TTS). The 2016 TTS data analysis is provided in **Appendix I.** The estimated trip distribution is outlined in **Table 5-3.** Site traffic was assigned to the road network based on trips patterns in the study area, and location and configuration of the site accesses.

Table 5-3: Trip Distribution

Direction (From / To)	To / From	Inbound Trips		Outbound Trips	
		Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour
North	Winston Churchill Boulevard	29%	31%	47%	32%
East	Dundas Street West	29%	30%	34%	24%
South	Dundas Street West	18%	15%	11%	22%
West	Winston Churchill Boulevard	24%	24%	8%	22%
Total		**100%**	**100%**	**100%**	**100%**

Based on the trip distribution shown in **Table 5-3**, new site trips were assigned to the road network. Pass-by trips are illustrated in **Figure 5-3**, and the net site trips are illustrated in **Figure 5-4**.

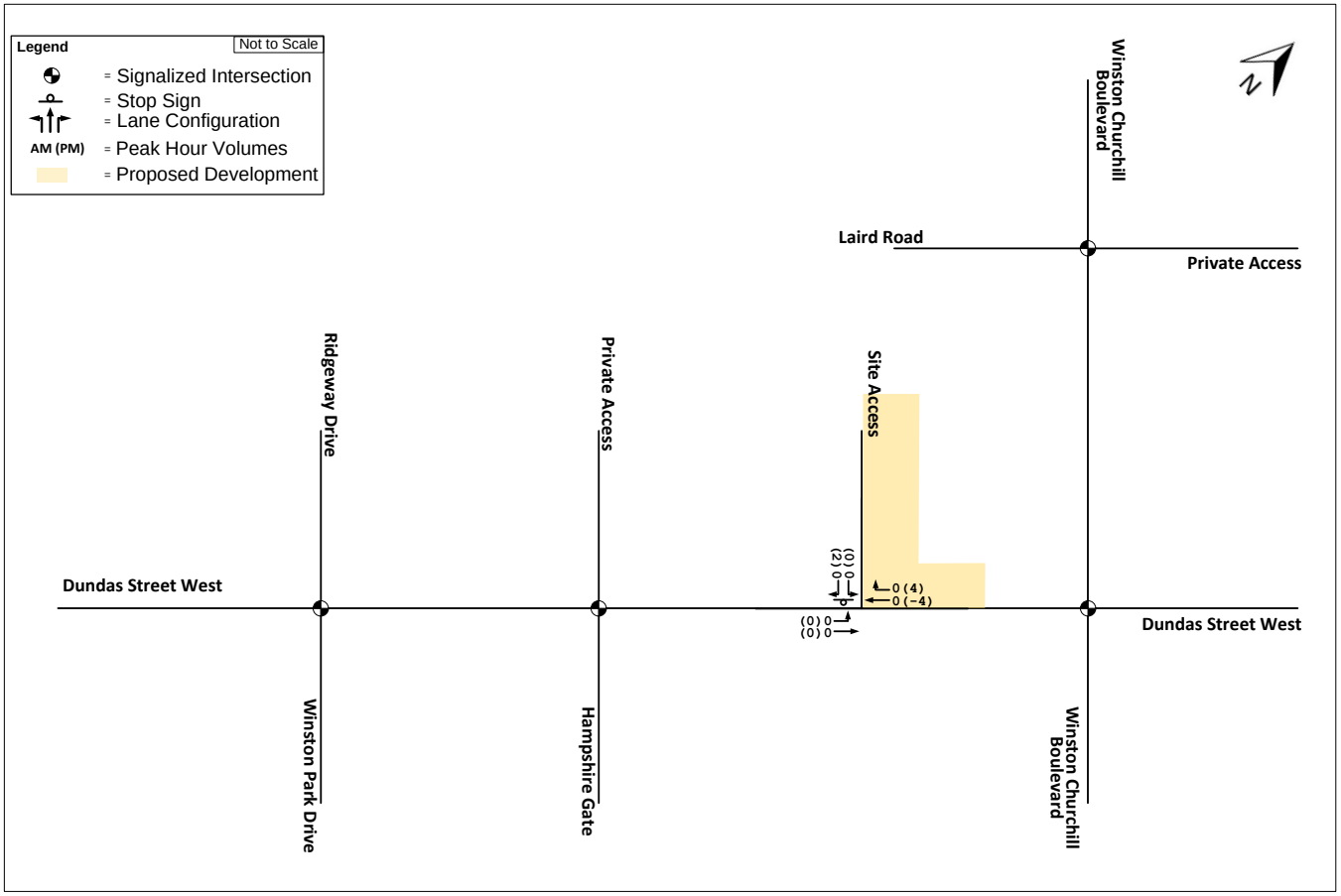

Figure 5-3: Pass-by Trips – Proposed Development

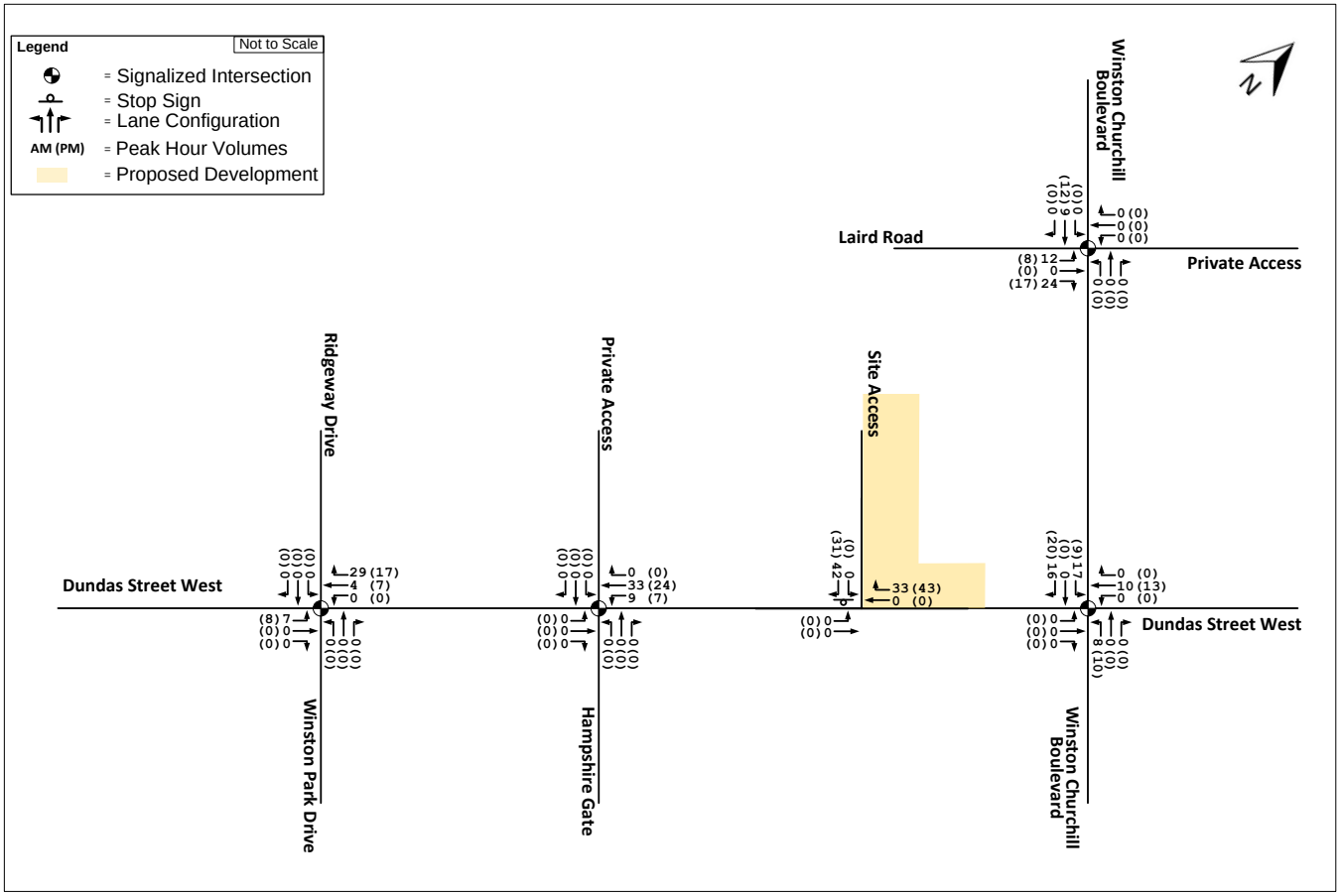

Figure 5-4: New Trips – Proposed Development

6 Future Total Conditions Analysis

The following subsections will discuss the horizon years future total condition traffic analysis.

6.1 2029 Future Total Conditions

New trips resulting from the construction of the proposed development were added to the 2029 future background conditions scenario, producing the 2029 future total traffic volumes illustrated in **Figure 6-1.** Full Highway Capacity Manual (HCM) for the 2029 Future Total is provided in **Appendix I.**

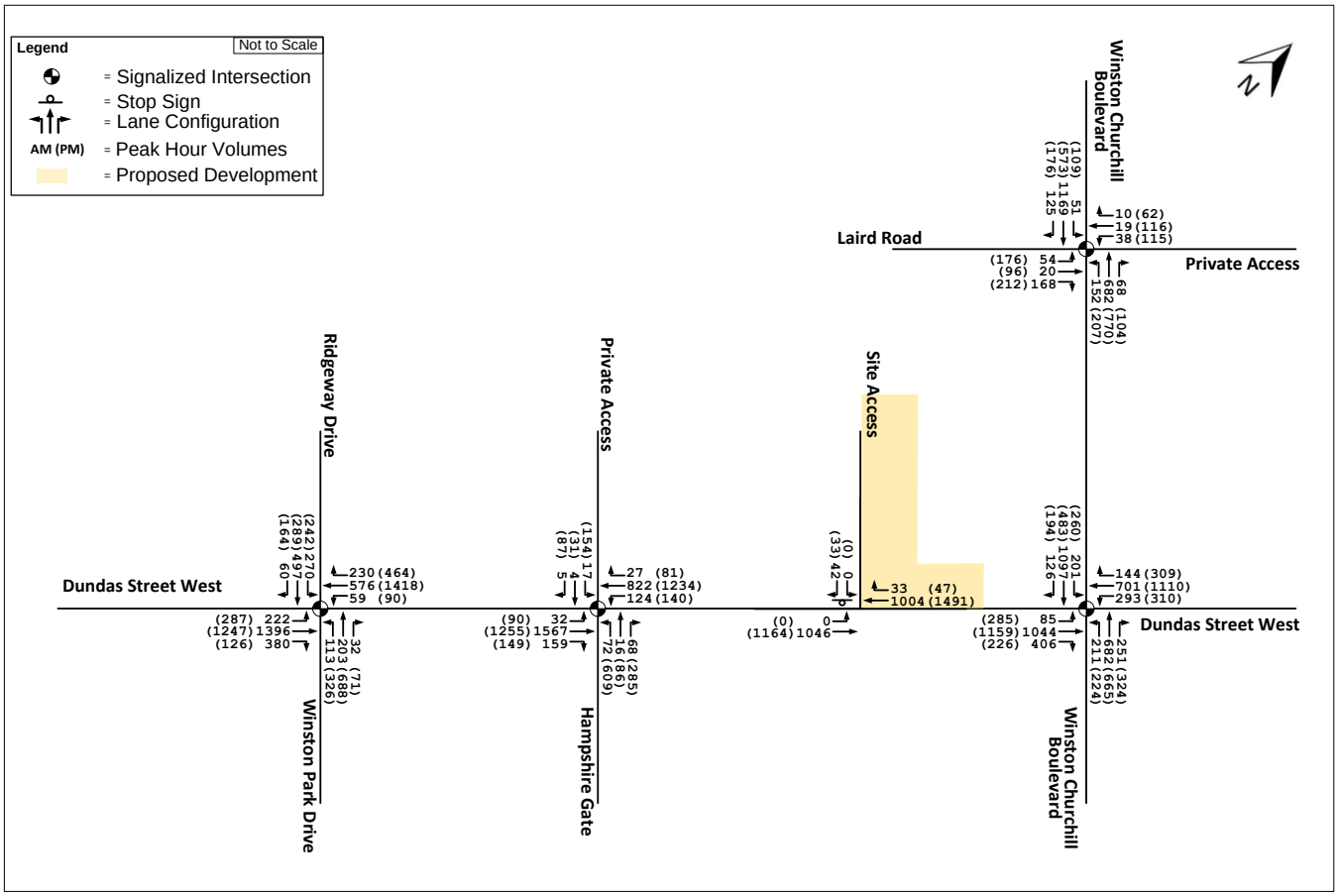

Figure 6-1: 2029 Future Total Conditions Traffic Volumes

6.1.1 Signalized Intersections

The results of the 2029 Future Total Conditions traffic operations analysis for the study area signalized intersections during the Weekday AM and Weekday PM peak hours are presented in **Table 6-1.**

Table 6-1: 2029 Future Total Conditions Traffic Operations - Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	B	11	0.5	EBL	E	58.8	0.45	27.3	70
				EBT	E	56.8	0.38	23.9	-
				WBL	E	58.3	0.38	21.2	-
				WBT	E	55.0	0.13	14.3	-
				NBL	B	11.0	0.53	31.5	60
				NBT	A	3.2	0.27	28.8	-
				SBL	A	2.8	0.09	5.6	107
				SBT	A	4.3	0.47	61.0	-
Winston Churchill Blvd & Dundas St W	D	55	**1.1**	EBL	E	71.0	0.44	23.8	130
				EBT	D	53.0	0.74	136.4	-
				EBR	D	54.3	0.64	**114.7**	110
				WBL	F	130.6	**1.11**	**155.1**	150
				WBT	D	40.3	0.43	83.4	-
				WBR	D	35.3	0.10	16.5	145
				NBL	F	128.1	**1.07**	**115.6**	90
				NBT	D	40.9	0.57	117.0	-
				NBR	C	34.3	0.17	19.0	90
				SBL	C	30.5	0.64	52.2	90
				SBT	D	52.3	0.88	201.1	-
				SBR	C	32.0	0.12	20.4	33

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Hampshire Gate/Commercial Access & Dundas St W	B	15	0.5	EBL	A	6.2	0.08	3.0	71
				EBT	B	13.7	0.53	180.2	-
				EBR	A	9.3	0.11	10.1	115
				WBL	B	11.4	0.45	23.3	130
				WBT	A	8.5	0.25	48.7	-
				WBR	A	6.9	0.02	-	115
				NBL	E	73.7	0.41	30.3	-
				NBT	E	73.6	0.41	30.9	-
				NBR	E	69.7	0.05	10.3	70
				SBL	E	77.5	0.30	15.0	-
				SBT	E	74.7	0.06	7.4	-
Winston Park Dr/Ridgeway Dr & Dundas St W	C	34	0.7	EBL	B	14.7	0.49	52.1	120
				EBT	C	24.0	0.54	141.3	-
				EBR	C	21.2	0.34	51.8	60
				WBL	C	25.0	0.34	19.3	145
				WBT	B	19.8	0.24	47.1	-
				WBR	B	12.3	0.16	9.2	110
				NBL	E	63.3	0.74	43.3	80
				NBT	D	54.3	0.34	46.2	-
				SBL	E	79.6	0.90	**98.9**	85
				SBT	E	67.0	0.81	111.8	-
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	C	30	0.6	EBL	F	107.1	0.93	**82.9**	70
				EBT	D	52.0	0.21	25.0	-
				WBL	E	66.7	0.67	54.0	-
				WBT	E	55.5	0.45	65.6	-
				NBL	A	9.6	0.44	38.1	60

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				NBT	B	15.3	0.42	110.7	-
				SBL	B	10.3	0.27	21.0	107
				SBT	B	16.0	0.37	94.7	-
Winston Churchill Blvd & Dundas St W	D	46	1	EBL	E	63.6	0.72	60.6	130
				EBT	D	41.5	0.70	134.3	-
				EBR	C	32.1	0.15	19.1	110
				WBL	E	63.0	0.91	137.2	150
				WBT	D	37.5	0.62	127.4	-
				WBR	C	32.7	0.31	51.5	145
				NBL	D	36.6	0.67	62.8	90
				NBT	D	50.9	0.77	113.5	-
				NBR	D	41.5	0.31	36.9	90
				SBL	F	92.1	1.00	98.4	90
				SBT	D	49.2	0.63	85.8	-
				SBR	D	44.0	0.27	38.3	33
Hampshire Gate/Commercial Access & Dundas St W	D	44	0.8	EBL	D	46.9	0.61	23.5	71
				EBT	C	31.4	0.73	156.7	-
				EBR	B	11.1	0.10	1.8	115
				WBL	E	77.3	0.90	79.7	130
				WBT	D	45.3	0.70	149.5	-
				WBR	C	32.9	0.05	9.9	115
				NBL	D	52.7	0.70	155.1	-
				NBT	D	52.1	0.69	154.6	-
				NBR	D	42.2	0.28	45.2	70
				SBL	E	79.1	0.73	73.6	-
				SBT	E	63.9	0.24	31.5	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Winston Park Dr/Ridgeway Dr & Dundas St W	D	53	**1**	EBL	F	99.7	0.99	**157.7**	120
				EBT	C	30.4	0.53	129.0	-
				EBR	C	23.8	0.11	19.7	60
				WBL	C	32.0	0.40	17.7	145
				WBT	D	44.2	0.72	150.5	-
				WBR	D	46.3	0.52	90.3	110
				NBL	F	95.5	**1.00**	**127.2**	80
				NBT	E	64.3	0.85	143.3	-
				SBL	F	110.3	**1.04**	**112.6**	85
				SBT	D	50.9	0.48	72.2	-

Note: Red font represents a critical movement.

As shown in **Table 6-1**, during the Weekday AM peak hour, the following critical operations have been anticipated for individual movements for the study area signalized intersections in 2029 Future Total Conditions.

- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 1.12. The westbound left-turn and northbound left-turn movements are anticipated to operate above the critical operational threshold with a v/c ratio of 1.11 and 1.07, as well as a LOS “F”. The 95th percentile queue lengths for the eastbound right-turn, westbound left-turn and northbound left-turn movements are anticipated to exceed the available storage lane capacities by 4.7m, 5.1 m and 25.6 m (approximately one car lengths, one car lengths and five car lengths, respectively); and
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the 95th percentile queue length for the southbound left-turn movement is anticipated to exceed the available storage lane capacities by 13.9 m (approximately three car lengths).

Furthermore, the following critical operations were observed during the Weekday PM peak hour:

- At Winston Churchill Boulevard & Laird Road / Commercial Access intersection, the 95th percentile queue lengths for the eastbound right-turn movement were found to exceed the available storage lane capacities by 12.9 m (approximately three car lengths);
- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.98. The southbound left-turn movement is anticipated to operate above the critical operational threshold with a v/c ratio of 1.00. The 95th percentile queue lengths for the southbound left-turn and southbound right-turn movements are anticipated to exceed the available storage lane capacities by 8.4 m and 5.3 m (approximately two car lengths and one car lengths, respectively); and

- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.97. Both northbound left-turn and southbound left-turn movements are anticipated to operate above the critical operational threshold with a v/c ratio of 1.00 and 1.04, as well as a LOS “F”. The 95th percentile queue lengths for the eastbound left-turn, northbound left-turn and southbound left-turn movements were found to exceed the available storage lane capacities by 37.7 m, 47.2 m and 27.6 m (approximately seven car lengths, eight car lengths and five car lengths, respectively).

6.1.2 Unsignalized Intersections

The results of the 2029 Future Total Conditions traffic operations analysis for the study area unsignalized intersections are presented in **Table 6-2.**

Table 6-2: 2029 Future Total Conditions Traffic Operations - Unsignalized Intersections

Intersection	Intersection Delay (s)	Lane	Lane LOS	Lane Delay (s)	Lane v/c Ratio	Lane 95th Percentile Queue (m)	Storage Capacity
Weekday AM Peak Hour							
Site Access & Dundas St W	0.2	SBR	A	8.9	0.04	1.0	-
Weekday PM Peak Hour							
Site Access & Dundas St W	0.1	SBR	A	9.2	0.03	0.8	-

Note: Red font represents a critical movement.

As shown in **Table 6-2**, all movements across the unsignalized intersections are anticipated to operate below the critical capacity thresholds during the 2029 Future Total Traffic conditions.

6.2 2036 Future Total Conditions

New trips resulting from the construction of the proposed development were added to the 2036 future background conditions scenario, producing the 2036 future total traffic volumes illustrated in **Figure 6-2.** Full Highway Capacity Manual (HCM) for the 2036 Future Total is provided in **Appendix J.**

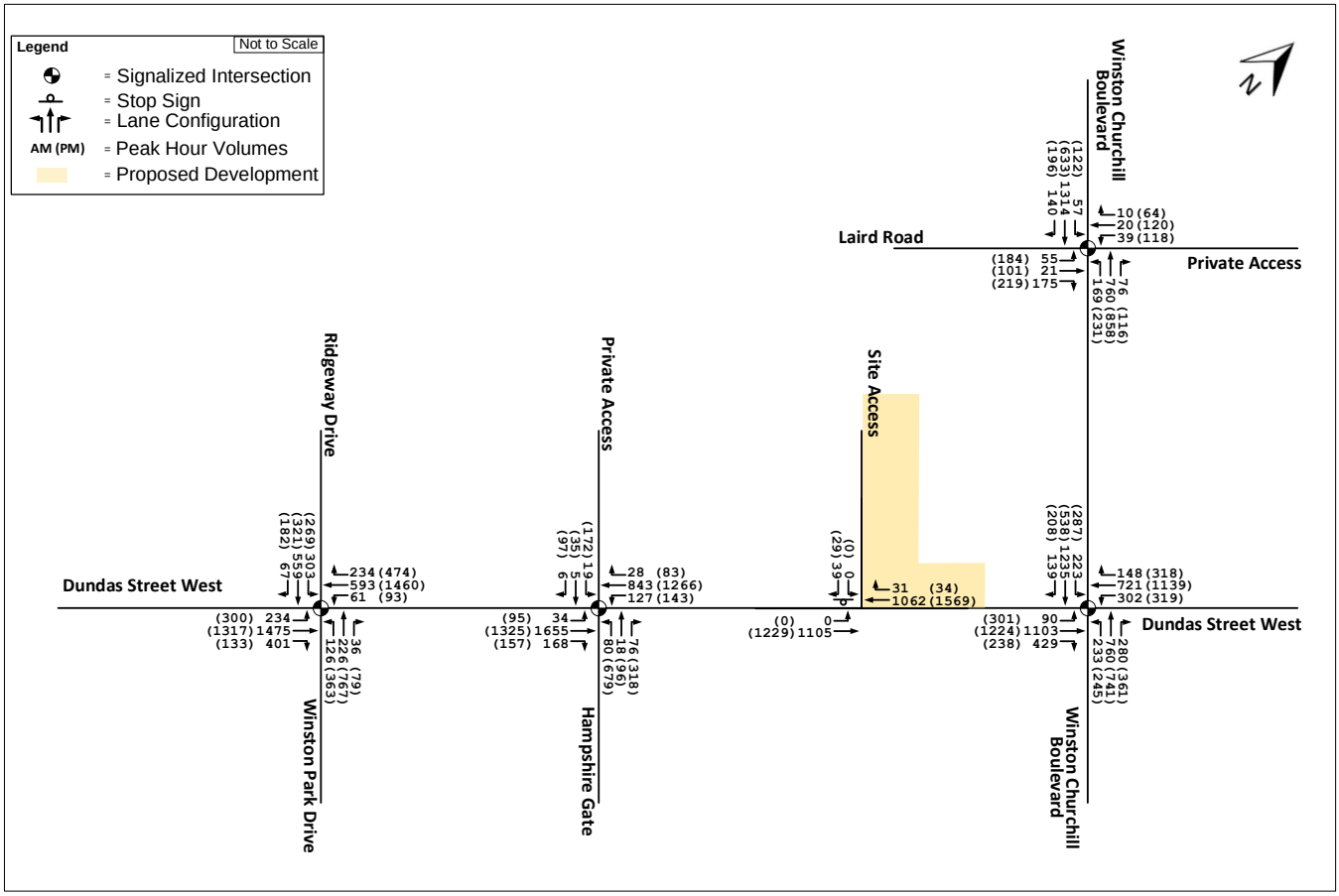

Figure 6-2: 2036 Future Total Conditions Traffic Volumes

6.2.1 Signalized Intersections

The results of the 2036 Future Total Conditions traffic operations analysis for the study area signalized intersections during the Weekday AM and Weekday PM Peak hours are presented in **Table 6-3.**

Table 6-3: 2036 Future Total Conditions Traffic Operations - Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	B	11	0.7	EBL	E	58.8	0.46	28.1	70
				EBT	E	57.9	0.88	29.6	-
				WBL	E	58.5	0.40	21.9	-
				WBT	D	54.9	0.13	14.5	-
				NBL	C	22.1	0.71	**75.7**	60
				NBT	A	3.0	0.21	20.6	-
				SBL	A	3.1	0.12	6.3	107
				SBT	A	3.6	0.37	40.6	-
Winston Churchill Blvd & Dundas St W	D	51	**1.1**	EBL	E	66.5	0.45	24.6	130
				EBT	D	48.3	0.74	141.8	-
				EBR	D	51.0	0.67	**126.8**	110
				WBL	F	120.0	**1.09**	**158.8**	150
				WBT	D	35.8	0.42	83.8	-
				WBR	C	31.3	0.10	16.5	145
				NBL	F	127.1	**1.09**	**121.8**	90
				NBT	D	41.5	0.51	83.9	-
				NBR	D	37.7	0.23	28.7	90
				SBL	C	34.1	0.71	58.3	90
				SBT	D	45.7	0.77	138.6	-
				SBR	C	34.3	0.16	24.7	33

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Hampshire Gate/Commercial Access & Dundas St W	B	16	0.5	EBL	A	6.0	0.09	1.9	71
				EBT	B	13.5	0.56	197.0	-
				EBR	A	5.6	0.12	6.7	115
				WBL	B	14.7	0.47	31.8	130
				WBT	A	8.7	0.26	51.3	-
				WBR	A	7.1	0.02	-	115
				NBL	E	73.9	0.45	32.8	-
				NBT	E	73.6	0.44	32.8	-
				NBR	E	69.4	0.05	13.6	70
				SBL	E	78.0	0.33	16.0	-
				SBT	E	74.9	0.08	8.7	-
Winston Park Dr/Ridgeway Dr & Dundas St W	D	38	0.7	EBL	B	17.4	0.55	59.3	120
				EBT	C	27.6	0.60	160.4	-
				EBR	C	24.1	0.37	**62.4**	60
				WBL	D	35.1	0.40	24.2	145
				WBT	C	21.5	0.26	48.6	-
				WBR	B	12.5	0.16	8.6	110
				NBL	E	73.2	0.83	49.5	80
				NBT	D	51.3	0.34	49.2	-
				SBL	F	92.3	0.96	**113.4**	85
				SBT	E	64.5	0.82	123.4	-
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	C	29	0.6	EBL	F	108.4	0.95	**92.1**	70
				EBT	D	50.9	0.22	26.1	-
				WBL	E	66.2	0.67	56.0	-
				WBT	D	54.3	0.44	67.5	-
				NBL	B	10.2	0.52	42.5	60

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				NBT	B	14.8	0.33	77.4	-
				SBL	B	10.8	0.33	22.9	107
				SBT	B	15.8	0.29	64.6	-
Winston Churchill Blvd & Dundas St W	D	46	1	EBL	E	60.4	0.73	60.4	130
				EBT	D	38.8	0.70	131.9	-
				EBR	C	29.6	0.16	18.5	110
				WBL	E	63.3	0.91	133.8	150
				WBT	C	34.7	0.62	121.4	-
				WBR	C	30.7	0.34	55.2	145
				NBL	D	40.5	0.73	70.2	90
				NBT	D	48.2	0.68	82.0	-
				NBR	D	44.6	0.44	52.5	90
				SBL	F	113.5	1.07	108.9	90
				SBT	D	49.6	0.59	63.0	-
				SBR	D	45.6	0.23	30.1	33
Hampshire Gate/Commercial Access & Dundas St W	D	49	1	EBL	E	70.2	0.76	31.8	71
				EBT	C	31.4	0.77	157.5	-
				EBR	A	8.4	0.10	2.4	115
				WBL	F	192.5	1.23	90.0	130
				WBT	D	47.7	0.74	154.9	-
				WBR	C	34.0	0.05	10.6	115
				NBL	E	55.7	0.76	195.3	-
				NBT	D	54.9	0.75	192.7	-
				NBR	D	42.5	0.35	59.4	70
				SBL	E	79.0	0.75	80.2	-
				SBT	E	63.1	0.30	36.7	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Winston Park Dr/Ridgeway Dr & Dundas St W	E	64	**1.1**	EBL	F	167.9	**1.19**	**172.8**	120
				EBT	C	33.4	0.58	138.4	-
				EBR	C	25.6	0.12	21.5	60
				WBL	D	35.3	0.45	17.2	145
				WBT	D	46.7	0.74	157.0	-
				WBR	D	48.6	0.55	102.8	110
				NBL	F	132.5	**1.12**	**166.7**	80
				NBT	E	65.7	0.89	163.7	-
				SBL	F	177.2	**1.21**	**145.4**	85
				SBT	D	49.5	0.51	81.5	-

Note: Red font represents a critical movement.

As shown in **Table 6-3**, during the Weekday AM peak hour, the following critical operations have been anticipated for individual movements for the study area signalized intersections in 2036 Future Total Conditions:

- At Winston Churchill Boulevard & Laird Road / Commercial Access intersection, the 95th percentile queue lengths for the northbound right-turn movement were found to exceed the available storage lane capacities by 15.7 m (approximately three car lengths);
- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 1.13. The westbound left-turn and northbound left-turn movements are anticipated to operate above the critical operational threshold with a v/c ratio of 1.09, as well as a LOS “F”. The 95th percentile queue lengths for the eastbound right-turn, westbound left-turn and northbound left-turn movements are anticipated to exceed the available storage lane capacities by 16.8m, 8.8 m and 31.8 m (approximately three car lengths, two car lengths and six car lengths, respectively); and
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the 95th percentile queue lengths for the eastbound right-turn and southbound left-turn movements are anticipated to exceed the available storage lane capacities by 2.4 m and 28.4 m (approximately one car lengths and five car lengths, respectively).

Furthermore, the following critical operations were observed during the Weekday PM peak hour:

- At Winston Churchill Boulevard & Laird Road / Commercial Access intersection, the 95th percentile queue lengths for the eastbound right-turn movement were found to exceed the available storage lane capacities by 22.1 m (approximately four car lengths);
- At Winston Churchill Boulevard & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 1.01. The southbound left-turn movement is anticipated to operate above the critical operational threshold with a v/c ratio of 1.07, as well as a LOS “F”. The 95th

percentile queue lengths for the southbound left-turn movement is anticipated to exceed the available storage lane capacities by 18.9 m (approximately four car lengths); and

- At Hampshire Gate / Commercial Access & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 0.98. The westbound left-turn movement is anticipated to operate above the critical operational threshold with a v/c ratio of 1.23, as well as a LOS “F”.
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection, the overall is observed to operate above the critical operational threshold with a v/c ratio of 1.11. The eastbound left-turn, northbound left-turn and southbound left-turn movements are anticipated to operate above the critical operational threshold with a v/c ratio of 1.19, 1.12 and 1.21, as well as a LOS “F”. The 95th percentile queue lengths for the eastbound left-turn, northbound left-turn and southbound left-turn movements were found to exceed the available storage lane capacities by 52.8 m, 86.7 m and 60.4 m (approximately nine car lengths, fifteen car lengths and ten car lengths, respectively).

6.2.2 Unsignalized Intersections

The results of the 2036 Future Total Conditions traffic operations analysis for the study area unsignalized intersections are presented in **Table 6-4.**

Table 6-4: 2036 Future Total Conditions Traffic Operations - Unsignalized Intersections

Intersection	Intersection Delay (s)	Lane	Lane LOS	Lane Delay (s)	Lane v/c Ratio	Lane 95th Percentile Queue (m)	Storage Capacity
Weekday AM Peak Hour							
Site Access & Dundas St W	0.2	SBR	A	8.9	0.04	1.0	-
Weekday PM Peak Hour							
Site Access & Dundas St W	0.1	SBR	A	9.2	0.03	0.8	-

Note: Red font represents a critical movement.

As shown in **Table 6-4**, all movements across the unsignalized intersections are anticipated to operate below the critical capacity thresholds during the 2036 Future Total Traffic conditions.

7 Traffic Analysis Summary

7.1 Mitigation Measures

As noted in **Section 2.6** and **Sections 3 and 5**, several movement-specific traffic operations are observed to exceed critical operational thresholds under existing and future conditions. This section discusses measures to mitigate these constraints, as appropriate.

7.1.1 Signalized Intersections

Based on anticipated instances of movements exceeding critical thresholds, signal timing phase changes were considered to improve operations at the study area signalized intersections. The considered changes are as follows:

- At Winston Churchill Boulevard & Laird Road / Commercial Access intersection:
  - During the weekday AM peak hour, northbound left-turn permitted phase is to be converted to a protected and permitted phase with 10 seconds, and the southbound movement split is to be decreased from 112 seconds to 102 seconds. The cycle length is to remain at 160 seconds;
  - During the weekday PM peak hour, northbound and southbound movement split is to be decreased from 88 seconds to 59 seconds, and the eastbound and westbound movement split is to be decreased from 53 seconds to 42 seconds. The cycle length is to be decreased from 160 seconds to 120 seconds.
- At Winston Churchill Boulevard & Dundas Street West intersection:
  - During the weekday AM peak hour, the westbound left-turn movement split is to be increased from 22 seconds to 32 seconds, the eastbound movement split is to be decreased from 51 seconds to 44 seconds, the southbound left-turn movement split is to be decreased from 22 seconds to 19 seconds, the westbound through and right-turn movement split is to be increased from 56 seconds to 59 seconds, the northbound left-turn movement split is to be increased from 16 seconds to 24 seconds, and the southbound through and right-turn movement split is to be decreased from 71 seconds to 60 seconds. The cycle length is to remain at 160 seconds;
  - During the weekday PM peak hour, the westbound left-turn movement split is to be increased from 25 seconds to 29 seconds, the eastbound movement split is to be decreased from 53 seconds to 47 seconds, the southbound left-turn movement split is to be increased from 16 seconds to 27 seconds, the northbound through and right-turn movement split is to be decreased from 66 seconds to 57 seconds, the westbound through and right-turn movement split is to be decreased from 53 seconds to 51 seconds, and the northbound left-turn movement split is to be increased from 23 seconds to 25 seconds. The cycle length is to remain at 160 seconds.
- At Hampshire Gate / Commercial Access & Dundas Street West intersection:
  - During the weekday PM peak hour, the westbound left-turn movement split is to be increased from 10 seconds to 15 seconds, and the eastbound movement split is to be decreased from 64 seconds to 59 seconds. The cycle length is to remain at 160 seconds.
- At Winston Park Drive / Ridgeway Drive & Dundas Street West intersection:

- During the weekday AM peak hour, northbound and southbound movement split is to be increased from 14 seconds to 18 seconds, and the eastbound and westbound movement split is to be decreased from 81 seconds to 57 seconds. The cycle length is to be decreased from 160 seconds to 140 seconds;
- During the weekday PM peak hour, the eastbound left-turn movement split is to be increased from 20 seconds to 28 seconds, the westbound movement split is to be decreased from 70 seconds to 56 seconds, the eastbound through and right-turn movement split is to be decreased from 75 seconds to 69 seconds, and the northbound and southbound movement split is to be increased from 17 seconds to 23 seconds. The cycle length is to remain at 160 seconds.

The results of the 2029 and 2036 Future Total Mitigated Conditions traffic operations analysis for signalized intersections is presented in **Table 7-1** and **Table 7-2**. Full Highway Capacity Manual analysis for the 2029 and 2036 Future Total Mitigated Conditions scenario is presented in **Appendix K**.

Table 7-1: 2029 Mitigated Future Total Conditions Traffic Operations – Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	B	12.3	0.51	EBL	E	58.8	0.45	27.3	70
				EBT	E	55.5	0.22	17.4	-
				WBL	E	58.3	0.38	21.2	-
				WBT	E	55.0	0.13	14.3	-
				NBL	A	5.6	0.46	10.5	60
				NBT	A	3.2	0.27	28.8	-
				SBL	A	5.3	0.10	8.1	107
				SBT	A	8.1	0.52	89.1	-
Winston Churchill Blvd & Dundas St W	E	55.7	**0.96**	EBL	E	72.6	0.45	23.8	130
				EBT	E	64.1	0.86	151.4	-
				EBR	E	58.5	0.60	97.4	110
				WBL	E	78.0	0.92	126.2	150
				WBT	D	41.2	0.43	81.0	-
				WBR	D	36.1	0.10	16.0	145
				NBL	E	62.6	0.81	87.6	90
				NBT	D	40.1	0.55	117.0	-
				NBR	C	33.8	0.17	19.0	90

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				SBL	C	34.4	0.65	54.5	90
				SBT	E	70.8	0.97	241.5	-
				SBR	D	35.9	0.10	17.6	33
Hampshire Gate/Commercial Access & Dundas St W	B	17.1	0.5	EBL	A	8.9	0.08	5.6	71
				EBT	B	16.5	0.53	135.1	-
				EBR	B	11.6	0.11	10.1	115
				WBL	B	11.4	0.45	23.3	130
				WBT	A	8.5	0.25	48.7	-
				WBR	A	6.9	0.02	-	115
				NBL	E	73.7	0.41	30.3	-
				NBT	E	73.6	0.41	30.9	-
				NBR	E	69.7	0.05	10.3	70
				SBL	E	77.5	0.30	15.0	-
				SBT	E	74.7	0.06	7.4	-
Winston Park Dr/Ridgeway Dr & Dundas St W	C	32.1	0.67	EBL	B	16.2	0.51	54.0	120
				EBT	C	25.8	0.59	145.4	-
				EBR	C	22.7	0.36	58.9	60
				WBL	C	21.3	0.38	16.3	145
				WBT	C	24.9	0.28	57.4	-
				WBR	C	23.6	0.16	17.8	110
				NBL	D	42.6	0.57	35.1	80
				NBT	D	48.4	0.35	40.2	-
				SBL	D	47.3	0.75	79.8	85
				SBT	E	57.0	0.78	97.4	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	C	24	0.56	EBL	E	73.2	0.86	63.4	70
				EBT	D	39.0	0.21	20.0	-
				WBL	D	48.4	0.62	41.9	-
				WBT	D	41.6	0.43	49.8	-
				NBL	A	8.8	0.45	31.7	60
				NBT	B	14.8	0.45	95.3	-
				SBL	A	9.5	0.28	17.6	107
				SBT	B	15.4	0.40	82.5	-
Winston Churchill Blvd & Dundas St W	D	47.2	**0.87**	EBL	E	66.2	0.74	65.6	130
				EBT	D	51.7	0.82	165.2	-
				EBR	D	37.9	0.15	21.5	110
				WBL	E	62.3	0.88	146.7	150
				WBT	D	43.1	0.68	144.5	-
				WBR	D	35.3	0.23	32.7	145
				NBL	C	34.2	0.60	60.0	90
				NBT	D	52.3	0.77	122.7	-
				NBR	D	41.8	0.24	27.4	90
				SBL	D	42.7	0.80	74.2	90
				SBT	D	44.5	0.53	85.0	-
				SBR	D	40.6	0.25	**37.1**	33
Hampshire Gate/Commercial Access & Dundas St W	D	44.2	0.77	EBL	D	47.8	0.61	23.3	71
				EBT	C	34.7	0.76	169.4	-
				EBR	C	20.1	0.10	9.6	115
				WBL	E	57.3	0.80	67.2	130
				WBT	D	45.3	0.70	149.5	-
				WBR	C	32.9	0.05	9.9	115

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				NBL	D	52.7	0.70	155.1	-
				NBT	D	52.1	0.69	154.6	-
				NBR	D	42.2	0.28	45.2	70
				SBL	E	79.1	0.73	73.6	-
				SBT	E	63.9	0.24	31.5	-
Winston Park Dr/Ridgeway Dr & Dundas St W	E	56.3	**0.9**	EBL	E	79.7	0.92	**137.9**	120
				EBT	C	34.6	0.57	137.9	-
				EBR	C	26.9	0.12	22.6	60
				WBL	D	46.9	0.43	23.2	145
				WBT	E	64.5	0.83	174.7	-
				WBR	E	78.2	0.51	105.4	110
				NBL	D	52.8	0.84	**96.5**	80
				NBT	E	64.3	0.85	143.3	-
				SBL	E	57.4	0.84	**89.1**	85
				SBT	D	51.7	0.49	72.2	-

Note: Red font represents a critical movement

Table 7-2: 2036 Mitigated Future Total Conditions Traffic Operations – Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	B	11.3	0.57	EBL	E	58.9	0.46	27.8	70
				EBT	E	56.3	0.32	21.7	-
				WBL	E	58.7	0.40	21.9	-
				WBT	E	55.0	0.13	14.5	-
				NBL	A	6.1	0.57	11.7	60
				NBT	A	2.9	0.21	20.5	-
				SBL	A	5.7	0.13	9.2	107
				SBT	A	6.9	0.40	59.1	-
Winston Churchill Blvd & Dundas St W	D	51.1	**0.91**	EBL	E	70.5	0.46	25.0	130
				EBT	E	63.0	0.88	166.4	-
				EBR	E	58.5	0.65	**112.1**	110
				WBL	E	76.5	0.92	132.9	150
				WBT	D	39.0	0.43	83.5	-
				WBR	C	34.1	0.10	16.3	145
				NBL	E	64.3	0.85	**101.7**	90
				NBT	D	39.1	0.46	83.6	-
				NBR	D	35.3	0.19	19.8	90
				SBL	D	37.8	0.71	60.6	90
				SBT	D	51.9	0.82	154.9	-
				SBR	D	37.8	0.13	21.4	33
Hampshire Gate/Commercial Access & Dundas St W	B	18.3	0.53	EBL	A	9.3	0.09	6.0	71
				EBT	B	17.7	0.56	148.7	-
				EBR	B	12.1	0.12	10.8	115
				WBL	B	14.5	0.47	31.6	130
				WBT	A	8.7	0.26	50.5	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				WBR	A	7.1	0.02	-	115
				NBL	E	73.9	0.45	32.8	-
				NBT	E	73.6	0.44	32.8	-
				NBR	E	69.4	0.05	13.6	70
				SBL	E	78.0	0.33	16.0	-
				SBT	E	74.9	0.08	8.7	-
Winston Park Dr/Ridgeway Dr & Dundas St W	C	34.5	0.73	EBL	B	19.3	0.57	60.8	120
				EBT	C	29.8	0.66	165.3	-
				EBR	C	25.8	0.40	**70.3**	60
				WBL	C	24.9	0.45	17.7	145
				WBT	C	27.6	0.31	59.1	-
				WBR	C	25.9	0.15	17.5	110
				NBL	D	42.5	0.63	36.6	80
				NBT	D	45.6	0.34	42.7	-
				SBL	D	48.4	0.79	84.5	85
				SBT	E	55.1	0.79	106.8	-
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	C	23.2	0.62	EBL	E	75.1	0.88	66.8	70
				EBT	D	38.3	0.22	20.6	-
				WBL	D	47.7	0.62	43.2	-
				WBT	D	40.9	0.43	51.4	-
				NBL	A	9.0	0.51	35.3	60
				NBT	B	14.1	0.35	66.1	-
				SBL	A	9.9	0.32	19.3	107
				SBT	B	15.0	0.31	56.0	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Winston Churchill Blvd & Dundas St W	D	46.6	**0.85**	EBL	E	64.6	0.75	65.5	130
				EBT	D	51.4	0.85	163.4	-
				EBR	D	36.6	0.16	22.1	110
				WBL	E	57.1	0.86	139.3	150
				WBT	D	41.0	0.68	137.7	-
				WBR	C	33.9	0.26	37.5	145
				NBL	D	37.2	0.65	66.7	90
				NBT	D	50.7	0.69	88.7	-
				NBR	D	45.9	0.37	45.3	90
				SBL	D	44.8	0.82	82.6	90
				SBT	D	45.1	0.47	62.3	-
				SBR	D	42.1	0.20	28.1	33
Hampshire Gate/Commercial Access & Dundas St W	D	44.5	0.82	EBL	E	70.9	0.74	36.5	71
				EBT	C	30.2	0.83	60.0	-
				EBR	A	3.2	0.10	1.7	115
				WBL	E	70.8	0.86	70.9	130
				WBT	D	47.3	0.73	151.8	-
				WBR	C	34.0	0.05	10.6	115
				NBL	E	55.7	0.76	195.3	-
				NBT	D	54.9	0.75	192.7	-
				NBR	D	42.5	0.35	59.4	70
				SBL	E	79.0	0.75	80.2	-
				SBT	E	63.0	0.29	36.4	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Winston Park Dr/Ridgeway Dr & Dundas St W	D	49.2	**0.95**	EBL	F	91.1	0.96	**144.9**	120
				EBT	D	38.5	0.63	148.0	-
				EBR	C	29.3	0.14	24.6	60
				WBL	C	25.8	0.49	13.4	145
				WBT	D	41.4	0.91	179.0	-
				WBR	C	26.6	0.53	48.5	110
				NBL	E	67.7	0.94	**108.2**	80
				NBT	E	65.5	0.89	163.7	-
				SBL	E	77.0	0.91	**115.6**	85
				SBT	D	49.6	0.51	81.5	-

Note: Red font represents a critical movement

As shown in **Table 7-1** and **Table 7-2**, applying these signal timing plan changes is expected to result in improvements to the critical operations at the various study area signalized intersections during both peak hour settings. Through signal timing plan changes only and without infrastructure modifications, a few intersection movements within the study area are shown to have v/c ratios that do not exceed 1.00 and that therefore do not indicate volumes that are above capacity.

Note that if the proposed signal timing plan changes that were identified in this section were applied to the 2029 and 2036 Future Background Conditions scenario, traffic operations at the study area intersections would be as presented in **Table 7-3** and **Table 7-4**. Full Highway Capacity Manual analysis for the 2029 and 2036 Future Background Mitigated Conditions scenario is presented in **Appendix L**.

Table 7-3: 2029 Mitigated Future Background Conditions Traffic Operations – Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	B	11.4	0.49	EBL	E	58.1	0.37	22.6	70
				EBT	E	55.1	0.13	13.3	-
				WBL	E	58.3	0.38	21.4	-
				WBT	E	55.3	0.13	14.3	-
				NBL	A	5.3	0.45	9.8	60
				NBT	A	3.1	0.27	27.2	-
				SBL	A	5.2	0.10	7.8	107
				SBT	A	7.9	0.51	84.7	-
Winston Churchill Blvd & Dundas St W	E	55.2	**0.95**	EBL	E	72.3	0.45	23.8	130
				EBT	E	63.6	0.86	151.4	-
				EBR	E	58.2	0.60	97.4	110
				WBL	E	77.8	0.92	126.2	150
				WBT	D	40.9	0.42	79.7	-
				WBR	D	35.9	0.10	16.0	145
				NBL	E	60.0	0.79	81.6	90
				NBT	D	39.8	0.55	117.0	-
				NBR	C	33.5	0.17	19.0	90
				SBL	C	32.9	0.60	50.1	90
				SBT	E	69.6	0.97	241.5	-
				SBR	D	35.4	0.08	12.7	33
Hampshire Gate/Commercial Access & Dundas St W	B	16.4	0.49	EBL	A	8.1	0.08	5.6	71
				EBT	B	15.2	0.51	132.0	-
				EBR	B	10.7	0.11	10.0	115
				WBL	B	10.4	0.44	18.7	130
				WBT	A	8.4	0.24	46.0	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				WBR	A	6.9	0.02	-	115
				NBL	E	73.7	0.41	30.3	-
				NBT	E	73.6	0.41	30.9	-
				NBR	E	69.7	0.05	10.3	70
				SBL	E	77.5	0.30	15.0	-
				SBT	E	74.7	0.06	7.4	-
Winston Park Dr/Ridgeway Dr & Dundas St W	C	32.1	0.67	EBL	B	16.0	0.50	52.4	120
				EBT	C	25.8	0.59	145.4	-
				EBR	C	22.7	0.36	58.9	60
				WBL	C	21.2	0.38	16.3	145
				WBT	C	24.7	0.28	56.9	-
				WBR	C	23.2	0.13	16.4	110
				NBL	D	42.6	0.57	35.1	80
				NBT	D	48.4	0.35	40.2	-
				SBL	D	46.4	0.74	78.4	85
				SBT	E	57.0	0.78	97.4	-
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	C	23.5	0.55	EBL	E	72.5	0.85	60.4	70
				EBT	D	39.4	0.21	19.8	-
				WBL	D	48.2	0.61	41.5	-
				WBT	D	42.2	0.44	49.8	-
				NBL	A	8.5	0.44	31.7	60
				NBT	B	14.5	0.44	95.3	-
				SBL	A	9.2	0.28	17.6	107
				SBT	B	14.9	0.39	80.8	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Winston Churchill Blvd & Dundas St W	D	46.8	**0.87**	EBL	E	65.7	0.73	65.6	130
				EBT	D	51.2	0.81	165.2	-
				EBR	D	37.6	0.15	21.5	110
				WBL	E	62.0	0.88	146.7	150
				WBT	D	42.6	0.68	142.6	-
				WBR	D	35.1	0.23	32.7	145
				NBL	C	33.8	0.58	57.5	90
				NBT	D	52.0	0.77	122.7	-
				NBR	D	41.5	0.23	26.2	90
				SBL	D	41.0	0.78	70.5	90
				SBT	D	44.1	0.53	85.0	-
				SBR	D	40.0	0.22	**34.1**	33
Hampshire Gate/Commercial Access & Dundas St W	D	43.3	0.75	EBL	D	42.1	0.59	20.8	71
				EBT	C	33.6	0.75	167.6	-
				EBR	B	19.6	0.10	9.9	115
				WBL	D	50.7	0.76	58.8	130
				WBT	D	44.5	0.67	143.2	-
				WBR	C	32.9	0.05	9.9	115
				NBL	D	52.7	0.70	155.1	-
				NBT	D	52.1	0.69	154.6	-
				NBR	D	42.2	0.28	45.2	70
				SBL	E	79.1	0.73	73.6	-
				SBT	E	63.9	0.24	31.5	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Winston Park Dr/Ridgeway Dr & Dundas St W	E	55.3	**0.9**	EBL	E	79.7	0.91	**132.4**	120
				EBT	C	34.4	0.57	137.9	-
				EBR	C	26.8	0.12	22.6	60
				WBL	D	45.4	0.43	23.4	145
				WBT	E	62.3	0.81	173.4	-
				WBR	E	78.3	0.44	87.5	110
				NBL	D	53.0	0.84	**96.5**	80
				NBT	E	64.3	0.85	143.3	-
				SBL	D	52.9	0.81	79.4	85
				SBT	D	51.8	0.50	72.2	-

Note: Red font represents a critical movement

Table 7-4: 2036 Mitigated Future Background Conditions Traffic Operations – Signalized Intersections

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Weekday AM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	B	10.5	0.55	EBL	E	58.3	0.39	23.7	70
				EBT	E	55.9	0.24	17.6	-
				WBL	E	58.5	0.39	21.7	-
				WBT	E	55.4	0.14	14.5	-
				NBL	A	5.7	0.56	10.8	60
				NBT	A	2.8	0.21	19.3	-
				SBL	A	5.5	0.13	8.8	107
				SBT	A	6.6	0.40	56.3	-
Winston Churchill Blvd & Dundas St W	D	50.8	**0.91**	EBL	E	70.2	0.46	25.0	130
				EBT	E	62.3	0.88	166.4	-
				EBR	E	58.0	0.65	**112.1**	110
				WBL	E	76.3	0.92	132.9	150
				WBT	D	38.7	0.42	82.4	-
				WBR	C	33.9	0.10	16.3	145
				NBL	E	61.8	0.83	**95.8**	90
				NBT	D	39.0	0.46	83.6	-
				NBR	D	35.2	0.19	19.8	90
				SBL	D	36.1	0.67	56.2	90
				SBT	D	51.9	0.82	154.9	-
				SBR	D	37.3	0.10	17.0	33
Hampshire Gate/Commercial Access & Dundas St W	B	17.6	0.52	EBL	A	8.6	0.09	6.0	71
				EBT	B	16.5	0.55	146.4	-
				EBR	B	11.3	0.12	10.6	115
				WBL	B	13.0	0.47	26.4	130
				WBT	A	8.6	0.25	48.4	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
				WBR	A	7.1	0.02	-	115
				NBL	E	73.9	0.45	32.8	-
				NBT	E	73.6	0.44	32.8	-
				NBR	E	69.4	0.05	13.6	70
				SBL	E	78.0	0.33	16.0	-
				SBT	E	74.9	0.08	8.7	-
Winston Park Dr/Ridgeway Dr & Dundas St W	C	34.5	0.73	EBL	B	18.9	0.56	59.3	120
				EBT	C	29.8	0.66	165.3	-
				EBR	C	25.8	0.40	**70.3**	60
				WBL	C	24.9	0.45	17.7	145
				WBT	C	27.4	0.30	58.6	-
				WBR	C	25.5	0.14	16.6	110
				NBL	D	42.5	0.63	36.6	80
				NBT	D	45.6	0.34	42.7	-
				SBL	D	48.4	0.79	84.5	85
				SBT	E	55.1	0.79	106.8	-
Weekday PM Peak Hour									
Winston Churchill Blvd & Laird Rd/Commercial Access	C	22.8	0.61	EBL	E	75.6	0.87	64.2	70
				EBT	D	38.8	0.22	20.5	-
				WBL	D	48.2	0.62	42.8	-
				WBT	D	41.5	0.44	51.4	-
				NBL	A	8.7	0.51	35.3	60
				NBT	B	13.7	0.35	66.1	-
				SBL	A	9.6	0.32	19.3	107
				SBT	B	14.6	0.30	55.3	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Winston Churchill Blvd & Dundas St W	D	46.3	0.84	EBL	E	64.2	0.75	65.5	130
				EBT	D	51.0	0.84	163.4	-
				EBR	D	36.4	0.16	22.1	110
				WBL	E	56.6	0.86	139.3	150
				WBT	D	40.5	0.67	136.3	-
				WBR	C	33.7	0.26	37.5	145
				NBL	D	36.7	0.64	64.8	90
				NBT	D	50.5	0.69	88.7	-
				NBR	D	45.7	0.36	44.6	90
				SBL	D	43.5	0.81	79.3	90
				SBT	D	45.0	0.47	62.3	-
				SBR	D	41.8	0.19	26.8	33
Hampshire Gate/Commercial Access & Dundas St W	D	46.2	0.81	EBL	E	59.9	0.72	27.1	71
				EBT	D	36.3	0.83	179.2	-
				EBR	B	17.2	0.10	8.8	115
				WBL	E	65.7	0.83	66.2	130
				WBT	D	46.9	0.71	148.5	-
				WBR	C	34.0	0.05	10.6	115
				NBL	E	55.7	0.76	195.3	-
				NBT	D	54.9	0.75	192.7	-
				NBR	D	42.5	0.35	59.4	70
				SBL	E	79.0	0.75	80.2	-
				SBT	E	63.0	0.29	36.4	-

Intersection	Intersection			Movement	LOS	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Storage Length (m)
	LOS	Delay (s)	v/c Ratio						
Winston Park Dr/Ridgeway Dr & Dundas St W	E	61.3	**0.94**	EBL	F	87.6	0.95	**140.9**	120
				EBT	D	38.5	0.63	148.0	-
				EBR	C	29.3	0.14	24.6	60
				WBL	D	51.1	0.49	22.4	145
				WBT	E	71.1	0.90	183.4	-
				WBR	F	81.7	0.50	100.8	110
				NBL	E	67.7	0.94	**108.2**	80
				NBT	E	65.5	0.89	163.7	-
				SBL	E	77.0	0.91	**115.6**	85
				SBT	D	49.6	0.51	81.5	-

Note: Red font represents a critical movement

7.1.2 Unsignalized Intersections

The analysis of the 2036 Future Total Traffic conditions indicates all movements across the unsignalized intersections are anticipated to operate below the critical capacity thresholds. Therefore, no further mitigation is applied on unsignalized intersections within study area.

7.2 Traffic Analysis Summary

Based on the analysis conducted in the preceding sections, the comparison between the 2029 Future Background Mitigated Conditions and 2029 Future Total Mitigated Conditions is presented in **Table 7-5**, and a comparison between the 2036 Future Background Mitigated Conditions and 2036 Future Total Mitigated Conditions is presented in **Table 7-6**.

As shown in **Table 7-5** and **Table 7-6**, the addition of the proposed development's site-generated traffic is expected to have a minor impact on traffic operations in general within the study area. Based on the analysis, the primary factors which result in instances of movements exceeding critical thresholds is the future background developments which contribute traffic volumes to the study area.

By adjusting split timings of signalized intersections, most anticipated instances of movements exceeding critical thresholds can be mitigated.

Table 7-5: Traffic Analysis Summary Comparison – 2029 Horizon Year

Intersection	Movement	2029 Future Background Conditions - Mitigated			2029 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
Weekday AM Peak Hour										
Winston Churchill Blvd & Laird Rd/Commercial Access	EBL	58.1	0.37	22.6	58.8	0.45	27.3	0.7	0.08	4.7
	EBT	55.1	0.13	13.3	55.5	0.22	17.4	0.4	0.09	4.1
	WBL	58.3	0.38	21.4	58.3	0.38	21.2	0.0	0.00	-0.2
	WBT	55.3	0.13	14.3	55.0	0.13	14.3	-0.3	0.00	0.0
	NBL	5.3	0.45	9.8	5.6	0.46	10.5	0.3	0.01	0.7
	NBT	3.1	0.27	27.2	3.2	0.27	28.8	0.1	0.00	1.6
	SBL	5.2	0.10	7.8	5.3	0.10	8.1	0.1	0.00	0.3
	SBT	7.9	0.51	84.7	8.1	0.52	89.1	0.2	0.01	4.4
Winston Churchill Blvd & Dundas St W	EBL	72.3	0.45	23.8	72.6	0.45	23.8	0.3	0.00	0.0
	EBT	63.6	0.86	151.4	64.1	0.86	151.4	0.5	0.00	0.0
	EBR	58.2	0.60	97.4	58.5	0.60	97.4	0.3	0.00	0.0
	WBL	77.8	0.92	126.2	78.0	0.92	126.2	0.2	0.00	0.0
	WBT	40.9	0.42	79.7	41.2	0.43	81.0	0.3	0.01	1.3
	WBR	35.9	0.10	16.0	36.1	0.10	16.0	0.2	0.00	0.0
	NBL	60.0	0.79	81.6	62.6	0.81	87.6	2.6	0.02	6.0
	NBT	39.8	0.55	117.0	40.1	0.55	117.0	0.3	0.00	0.0
	NBR	33.5	0.17	19.0	33.8	0.17	19.0	0.3	0.00	0.0
	SBL	32.9	0.60	50.1	34.4	0.65	54.5	1.5	0.05	4.4

Intersection	Movement	2029 Future Background Conditions - Mitigated			2029 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
	SBT	69.6	0.97	241.5	70.8	0.97	241.5	1.2	0.00	0.0
	SBR	35.4	0.08	12.7	35.9	0.10	17.6	0.5	0.02	4.9
Hampshire Gate/Commercial Access & Dundas St W	EBL	8.1	0.08	5.6	8.9	0.08	5.6	0.8	0.00	0.0
	EBT	15.2	0.51	132.0	16.5	0.53	135.1	1.3	0.02	3.1
	EBR	10.7	0.11	10.0	11.6	0.11	10.1	0.9	0.00	0.1
	WBL	10.4	0.44	18.7	11.4	0.45	23.3	1.0	0.01	4.6
	WBT	8.4	0.24	46.0	8.5	0.25	48.7	0.1	0.01	2.7
	WBR	6.9	0.02	-	6.9	0.02	-	0.0	0.00	-
	NBL	73.7	0.41	30.3	73.7	0.41	30.3	0.0	0.00	0.0
	NBT	73.6	0.41	30.9	73.6	0.41	30.9	0.0	0.00	0.0
	NBR	69.7	0.05	10.3	69.7	0.05	10.3	0.0	0.00	0.0
	SBL	77.5	0.30	15.0	77.5	0.30	15.0	0.0	0.00	0.0
	SBT	74.7	0.06	7.4	74.7	0.06	7.4	0.0	0.00	0.0
Winston Park Dr/Ridgeway Dr & Dundas St W	EBL	16.0	0.50	52.4	16.2	0.51	54.0	0.2	0.01	1.6
	EBT	25.8	0.59	145.4	25.8	0.59	145.4	0.0	0.00	0.0
	EBR	22.7	0.36	58.9	22.7	0.36	58.9	0.0	0.00	0.0
	WBL	21.2	0.38	16.3	21.3	0.38	16.3	0.1	0.00	0.0
	WBT	24.7	0.28	56.9	24.9	0.28	57.4	0.2	0.00	0.5
	WBR	23.2	0.13	16.4	23.6	0.16	17.8	0.4	0.03	1.4
	NBL	42.6	0.57	35.1	42.6	0.57	35.1	0.0	0.00	0.0

Intersection	Movement	2029 Future Background Conditions - Mitigated			2029 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
	NBT	48.4	0.35	40.2	48.4	0.35	40.2	0.0	0.00	0.0
	SBL	46.4	0.74	78.4	47.3	0.75	79.8	0.9	0.01	1.4
	SBT	57.0	0.78	97.4	57.0	0.78	97.4	0.0	0.00	0.0
Weekday PM Peak Hour										
Winston Churchill Blvd & Laird Rd/Commercial Access	EBL	72.5	0.85	60.4	73.2	0.86	63.4	0.7	0.01	3.0
	EBT	39.4	0.21	19.8	39.0	0.21	20.0	-0.4	0.00	0.2
	WBL	48.2	0.61	41.5	48.4	0.62	41.9	0.2	0.01	0.4
	WBT	42.2	0.44	49.8	41.6	0.43	49.8	-0.6	-0.01	0.0
	NBL	8.5	0.44	31.7	8.8	0.45	31.7	0.3	0.01	0.0
	NBT	14.5	0.44	95.3	14.8	0.45	95.3	0.3	0.01	0.0
	SBL	9.2	0.28	17.6	9.5	0.28	17.6	0.3	0.00	0.0
	SBT	14.9	0.39	80.8	15.4	0.40	82.5	0.5	0.01	1.7
Winston Churchill Blvd & Dundas St W	EBL	65.7	0.73	65.6	66.2	0.74	65.6	0.5	0.01	0.0
	EBT	51.2	0.81	165.2	51.7	0.82	165.2	0.5	0.01	0.0
	EBR	37.6	0.15	21.5	37.9	0.15	21.5	0.3	0.00	0.0
	WBL	62.0	0.88	146.7	62.3	0.88	146.7	0.3	0.00	0.0
	WBT	42.6	0.68	142.6	43.1	0.68	144.5	0.5	0.00	1.9
	WBR	35.1	0.23	32.7	35.3	0.23	32.7	0.2	0.00	0.0
	NBL	33.8	0.58	57.5	34.2	0.60	60.0	0.4	0.02	2.5
	NBT	52.0	0.77	122.7	52.3	0.77	122.7	0.3	0.00	0.0

Intersection	Movement	2029 Future Background Conditions - Mitigated			2029 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
	NBR	41.5	0.23	26.2	41.8	0.24	27.4	0.3	0.01	1.2
	SBL	41.0	0.78	70.5	42.7	0.80	74.2	1.7	0.02	3.7
	SBT	44.1	0.53	85.0	44.5	0.53	85.0	0.4	0.00	0.0
	SBR	40.0	0.22	34.1	40.6	0.25	37.1	0.6	0.03	3.0
Hampshire Gate/Commercial Access & Dundas St W	EBL	42.1	0.59	20.8	47.8	0.61	23.3	5.7	0.02	2.5
	EBT	33.6	0.75	167.6	34.7	0.76	169.4	1.1	0.01	1.8
	EBR	19.6	0.10	9.9	20.1	0.10	9.6	0.5	0.00	-0.3
	WBL	50.7	0.76	58.8	57.3	0.80	67.2	6.6	0.04	8.4
	WBT	44.5	0.67	143.2	45.3	0.70	149.5	0.8	0.03	6.3
	WBR	32.9	0.05	9.9	32.9	0.05	9.9	0.0	0.00	0.0
	NBL	52.7	0.70	155.1	52.7	0.70	155.1	0.0	0.00	0.0
	NBT	52.1	0.69	154.6	52.1	0.69	154.6	0.0	0.00	0.0
	NBR	42.2	0.28	45.2	42.2	0.28	45.2	0.0	0.00	0.0
	SBL	79.1	0.73	73.6	79.1	0.73	73.6	0.0	0.00	0.0
	SBT	63.9	0.24	31.5	63.9	0.24	31.5	0.0	0.00	0.0
Winston Park Dr/Ridgeway Dr & Dundas St W	EBL	79.7	0.91	132.4	79.7	0.92	137.9	0.0	0.01	5.5
	EBT	34.4	0.57	137.9	34.6	0.57	137.9	0.2	0.00	0.0
	EBR	26.8	0.12	22.6	26.9	0.12	22.6	0.1	0.00	0.0
	WBL	45.4	0.43	23.4	46.9	0.43	23.2	1.5	0.00	-0.2
	WBT	62.3	0.81	173.4	64.5	0.83	174.7	2.2	0.02	1.3

Intersection	Movement	2029 Future Background Conditions - Mitigated			2029 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
	WBR	78.3	0.44	87.5	78.2	0.51	105.4	-0.1	0.07	17.9
	NBL	53.0	0.84	96.5	52.8	0.84	96.5	-0.2	0.00	0.0
	NBT	64.3	0.85	143.3	64.3	0.85	143.3	0.0	0.00	0.0
	SBL	52.9	0.81	79.4	57.4	0.84	89.1	4.5	0.03	9.7
	SBT	51.8	0.50	72.2	51.7	0.49	72.2	-0.1	-0.01	0.0

Table 7-6: Traffic Analysis Summary Comparison – 2036 Horizon Year

Intersection	Movement	2036 Future Background Conditions - Mitigated			2036 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
Weekday AM Peak Hour										
Winston Churchill Blvd & Laird Rd/Commercial Access	EBL	58.3	0.39	23.7	58.9	0.46	27.8	0.6	0.07	4.1
	EBT	55.9	0.24	17.6	56.3	0.32	21.7	0.4	0.08	4.1
	WBL	58.5	0.39	21.7	58.7	0.40	21.9	0.2	0.01	0.2
	WBT	55.4	0.14	14.5	55.0	0.13	14.5	-0.4	-0.01	0.0
	NBL	5.7	0.56	10.8	6.1	0.57	11.7	0.4	0.01	0.9
	NBT	2.8	0.21	19.3	2.9	0.21	20.5	0.1	0.00	1.2
	SBL	5.5	0.13	8.8	5.7	0.13	9.2	0.2	0.00	0.4
	SBT	6.6	0.40	56.3	6.9	0.40	59.1	0.3	0.00	2.8
Winston Churchill Blvd & Dundas St W	EBL	70.2	0.46	25.0	70.5	0.46	25.0	0.3	0.00	0.0
	EBT	62.3	0.88	166.4	63.0	0.88	166.4	0.7	0.00	0.0
	EBR	58.0	0.65	112.1	58.5	0.65	112.1	0.5	0.00	0.0
	WBL	76.3	0.92	132.9	76.5	0.92	132.9	0.2	0.00	0.0
	WBT	38.7	0.42	82.4	39.0	0.43	83.5	0.3	0.01	1.1
	WBR	33.9	0.10	16.3	34.1	0.10	16.3	0.2	0.00	0.0
	NBL	61.8	0.83	95.8	64.3	0.85	101.7	2.5	0.02	5.9
	NBT	39.0	0.46	83.6	39.1	0.46	83.6	0.1	0.00	0.0
	NBR	35.2	0.19	19.8	35.3	0.19	19.8	0.1	0.00	0.0
	SBL	36.1	0.67	56.2	37.8	0.71	60.6	1.7	0.04	4.4

Intersection	Movement	2036 Future Background Conditions - Mitigated			2036 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
	SBT	51.9	0.82	154.9	51.9	0.82	154.9	0.0	0.00	0.0
	SBR	37.3	0.10	17.0	37.8	0.13	21.4	0.5	0.03	4.4
Hampshire Gate/Commercial Access & Dundas St W	EBL	8.6	0.09	6.0	9.3	0.09	6.0	0.7	0.00	0.0
	EBT	16.5	0.55	146.4	17.7	0.56	148.7	1.2	0.01	2.3
	EBR	11.3	0.12	10.6	12.1	0.12	10.8	0.8	0.00	0.2
	WBL	13.0	0.47	26.4	14.5	0.47	31.6	1.5	0.00	5.2
	WBT	8.6	0.25	48.4	8.7	0.26	50.5	0.1	0.01	2.1
	WBR	7.1	0.02	-	7.1	0.02	-	0.0	0.00	-
	NBL	73.9	0.45	32.8	73.9	0.45	32.8	0.0	0.00	0.0
	NBT	73.6	0.44	32.8	73.6	0.44	32.8	0.0	0.00	0.0
	NBR	69.4	0.05	13.6	69.4	0.05	13.6	0.0	0.00	0.0
	SBL	78.0	0.33	16.0	78.0	0.33	16.0	0.0	0.00	0.0
	SBT	74.9	0.08	8.7	74.9	0.08	8.7	0.0	0.00	0.0
Winston Park Dr/Ridgeway Dr & Dundas St W	EBL	18.9	0.56	59.3	19.3	0.57	60.8	0.4	0.01	1.5
	EBT	29.8	0.66	165.3	29.8	0.66	165.3	0.0	0.00	0.0
	EBR	25.8	0.40	70.3	25.8	0.40	70.3	0.0	0.00	0.0
	WBL	24.9	0.45	17.7	24.9	0.45	17.7	0.0	0.00	0.0
	WBT	27.4	0.30	58.6	27.6	0.31	59.1	0.2	0.01	0.5
	WBR	25.5	0.14	16.6	25.9	0.15	17.5	0.4	0.01	0.9
	NBL	42.5	0.63	36.6	42.5	0.63	36.6	0.0	0.00	0.0

Intersection	Movement	2036 Future Background Conditions - Mitigated			2036 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
	NBT	45.6	0.34	42.7	45.6	0.34	42.7	0.0	0.00	0.0
	SBL	48.4	0.79	84.5	48.4	0.79	84.5	0.0	0.00	0.0
	SBT	55.1	0.79	106.8	55.1	0.79	106.8	0.0	0.00	0.0
Weekday PM Peak Hour										
Winston Churchill Blvd & Laird Rd/Commercial Access	EBL	75.6	0.87	64.2	75.1	0.88	66.8	-0.5	0.01	2.6
	EBT	38.8	0.22	20.5	38.3	0.22	20.6	-0.5	0.00	0.1
	WBL	48.2	0.62	42.8	47.7	0.62	43.2	-0.5	0.00	0.4
	WBT	41.5	0.44	51.4	40.9	0.43	51.4	-0.6	-0.01	0.0
	NBL	8.7	0.51	35.3	9.0	0.51	35.3	0.3	0.00	0.0
	NBT	13.7	0.35	66.1	14.1	0.35	66.1	0.4	0.00	0.0
	SBL	9.6	0.32	19.3	9.9	0.32	19.3	0.3	0.00	0.0
	SBT	14.6	0.30	55.3	15.0	0.31	56.0	0.4	0.01	0.7
Winston Churchill Blvd & Dundas St W	EBL	64.2	0.75	65.5	64.6	0.75	65.5	0.4	0.00	0.0
	EBT	51.0	0.84	163.4	51.4	0.85	163.4	0.4	0.01	0.0
	EBR	36.4	0.16	22.1	36.6	0.16	22.1	0.2	0.00	0.0
	WBL	56.6	0.86	139.3	57.1	0.86	139.3	0.5	0.00	0.0
	WBT	40.5	0.67	136.3	41.0	0.68	137.7	0.5	0.01	1.4
	WBR	33.7	0.26	37.5	33.9	0.26	37.5	0.2	0.00	0.0
	NBL	36.7	0.64	64.8	37.2	0.65	66.7	0.5	0.01	1.9
	NBT	50.5	0.69	88.7	50.7	0.69	88.7	0.2	0.00	0.0

Intersection	Movement	2036 Future Background Conditions - Mitigated			2036 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
	NBR	45.7	0.36	44.6	45.9	0.37	45.3	0.2	0.01	0.7
	SBL	43.5	0.81	79.3	44.8	0.82	82.6	1.3	0.01	3.3
	SBT	45.0	0.47	62.3	45.1	0.47	62.3	0.1	0.00	0.0
	SBR	41.8	0.19	26.8	42.1	0.20	28.1	0.3	0.01	1.3
Hampshire Gate/Commercial Access & Dundas St W	EBL	59.9	0.72	27.1	70.9	0.74	36.5	11.0	0.02	9.4
	EBT	36.3	0.83	179.2	30.2	0.83	60.0	-6.1	0.00	-119.2
	EBR	17.2	0.10	8.8	3.2	0.10	1.7	-14.0	0.00	-7.1
	WBL	65.7	0.83	66.2	70.8	0.86	70.9	5.1	0.03	4.7
	WBT	46.9	0.71	148.5	47.3	0.73	151.8	0.4	0.02	3.3
	WBR	34.0	0.05	10.6	34.0	0.05	10.6	0.0	0.00	0.0
	NBL	55.7	0.76	195.3	55.7	0.76	195.3	0.0	0.00	0.0
	NBT	54.9	0.75	192.7	54.9	0.75	192.7	0.0	0.00	0.0
	NBR	42.5	0.35	59.4	42.5	0.35	59.4	0.0	0.00	0.0
	SBL	79.0	0.75	80.2	79.0	0.75	80.2	0.0	0.00	0.0
	SBT	63.0	0.29	36.4	63.0	0.29	36.4	0.0	0.00	0.0
Winston Park Dr/Ridgeway Dr & Dundas St W	EBL	87.6	0.95	140.9	91.1	0.96	144.9	3.5	0.01	4.0
	EBT	38.5	0.63	148.0	38.5	0.63	148.0	0.0	0.00	0.0
	EBR	29.3	0.14	24.6	29.3	0.14	24.6	0.0	0.00	0.0
	WBL	51.1	0.49	22.4	25.8	0.49	13.4	-25.3	0.00	-9.0
	WBT	71.1	0.90	183.4	41.4	0.91	179.0	-29.7	0.01	-4.4

Intersection	Movement	2036 Future Background Conditions - Mitigated			2036 Future Total Conditions - Mitigated			Comparison (Future Total - Future Background)		
		Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)	Delay (s)	v/c Ratio	95th Percentile Queue (m)
	WBR	81.7	0.50	100.8	26.6	0.53	48.5	-55.1	0.03	-52.3
	NBL	67.7	0.94	108.2	67.7	0.94	108.2	0.0	0.00	0.0
	NBT	65.5	0.89	163.7	65.5	0.89	163.7	0.0	0.00	0.0
	SBL	77.0	0.91	115.6	77.0	0.91	115.6	0.0	0.00	0.0
	SBT	49.6	0.51	81.5	49.6	0.51	81.5	0.0	0.00	0.0

8 Access Location Analysis

This section discusses the proposed Dundas Street West site access sightlines. The Transportation Association of Canada's (TAC) **Geometric Design Guide for Canadian Roads** (June 2017) was used to identify whether the anticipated site accesses' locations fulfill the minimum stopping and intersection sight distances. A design speed of 70 km/h was used for Dundas Street West (posted speed limit of 60 km/h + 10 km/h reflective of the urban conditions) at the location of the site access.

8.1 Stopping Sight Distance

Stopping sight distance refers to the distance necessary for a driver travelling on a certain roadway to avoid a collision by coming to a complete stop in reaction to a vehicle departing from an access.

This distance is given by Equation 2.5.2 in TAC:

$$SSD = 0.278Vt + 0.039\frac{V^2}{a}$$

Where:

SSD = Stopping sight distance (m)
t = Brake reaction time (2.5 s)
V = Design speed (km/h)
a = Deceleration rate (3.4 m/s2)

The resulting stopping sight distance requirements at the proposed site access are presented in **Table 8-1.**

Table 8-1: Stopping Sight Distance Summary

Scenario	Design Speed	Minimum TAC Stopping Sight Distance	Meets Minimum TAC Stopping Sight Distance	Maximum Distance Estimated via Google Streetview
Approaching Dundas Street West site access from the east	70 km/h	105 m	✔	> 105 m

As shown in **Table 8-1**, available and observable stopping sight distances exceed the minimum distances required by TAC guidelines for vehicles approaching the proposed site access from the east. This is illustrated in **Figure 8-1**. The red arrow in each figure indicates the approximate location of the proposed site access.

Figure 8-1: Dundas Street West Site Access - Stopping Sight Distance in Westbound Direction

8.2 Intersection Sight Distance

Intersection sight distance refers to the distance required for a stopped passenger car to turn left onto a two-lane highway with no median and grades of 3% or less.

This distance is given by Equation 9.5.1 in TAC:

$$ISD = 0.278 V_{major} t_g$$

Where:

ISD = Intersection sight distance (m)
t_g = time gap for minor road vehicle to enter major (s)
V_{major} = Design speed of major road (km/h)

The resulting intersection sight distance requirements for Dundas Street West at the proposed site access is presented for Case B2 – right turns from the minor road are presented in **Table 8-2**.

Table 8-2: Intersection Sight Distance Summary

Case	Scenario	Design Speed	Time Gap	Minimum TAC Design Intersection Sight Distance	Meets Minimum TAC Design Intersection Sight Distance	Maximum Distance Observed on Site
Case B2 – Right Turn from Stop	Right Turn from Site Access onto Colborne Street West	70 km/h	6.5 seconds	130 m	✔	> 130 m

As shown in **Table 8-2**, available and observable intersection sight distances exceed the minimum distances required by TAC guidelines for vehicles turning onto Dundas Street West from the proposed site access. This is illustrated in **Figure 8-2**. The red arrow in each figure indicates the approximate intersection sight distance required.

Figure 8-2: Dundas Street West Site Access - Intersection Sight Distance for Right-turn from Stop - Looking East

8.3 Corner Clearance

Corner clearance is the distance from an intersection to the nearest access upstream or downstream of it. Corner clearance is measured from near the curb of the cross roadway to the near edge of the access throat.

This distance is given by Figure 8.8.2 in TAC for an operating speed of 60 km/h and is presented in **Table 8-3** for both the east and west side of the proposed stop-controlled site access.

Table 8-3: Minimum Corner Clearance Summary

Street (Type)	Direction from Driveway	Minimum Clearance Required	Meets Minimum TAC Design Intersection Sight Distance	Maximum Distance Measured on Site Plan
3018 Dundas Street West Commercial Plaza Site Access (Local)	East	15 m	✔	91 m
3055 - 3125 Dundas Street West Commercial Plaza Site Access (Local)	West	15 m	✔	85 m

As shown in **Table 8-3**, the measured corner clearance exceeds the minimum distance required by TAC guidelines for the proposed site access. Note that the potential development to the right of the proposed development is not built and the corner clearance to the east was measured with the existing conditions. The proposed corner clearances are in illustrated in **Figure 8-3**.

Figure 8-3: Corner Clearance of Site Access to East and West Local Accesses

8.4 Clear Throat Length

Clear throat length refers to the provided desirable no conflict and storage zone within the driveway to operate efficiently, both from the side road and internally.

The suggested minimum clear throat length for major driveway of the proposed development off of Dundas Street West which is classified as an arterial is given by Table 8.9.3 in TAC is presented in **Table 8-4**.

Table 8-4: Minimum Clear Throat Lengths Summary

Land Use	Development Size	Minimum Clear Throat Length	Meets Minimum TAC Clear Throat Length	Maximum Distance Measured on Site Plan
Apartments	>200 units	Arterial: 25 m	✗	14.8 m

As shown in **Table 8-4**, the measured clear throat length does not meet the minimum distanced required by TAC guidelines for the proposed throat length of the proposed development. The proposed throat length is illustrated in **Figure 8-4**.

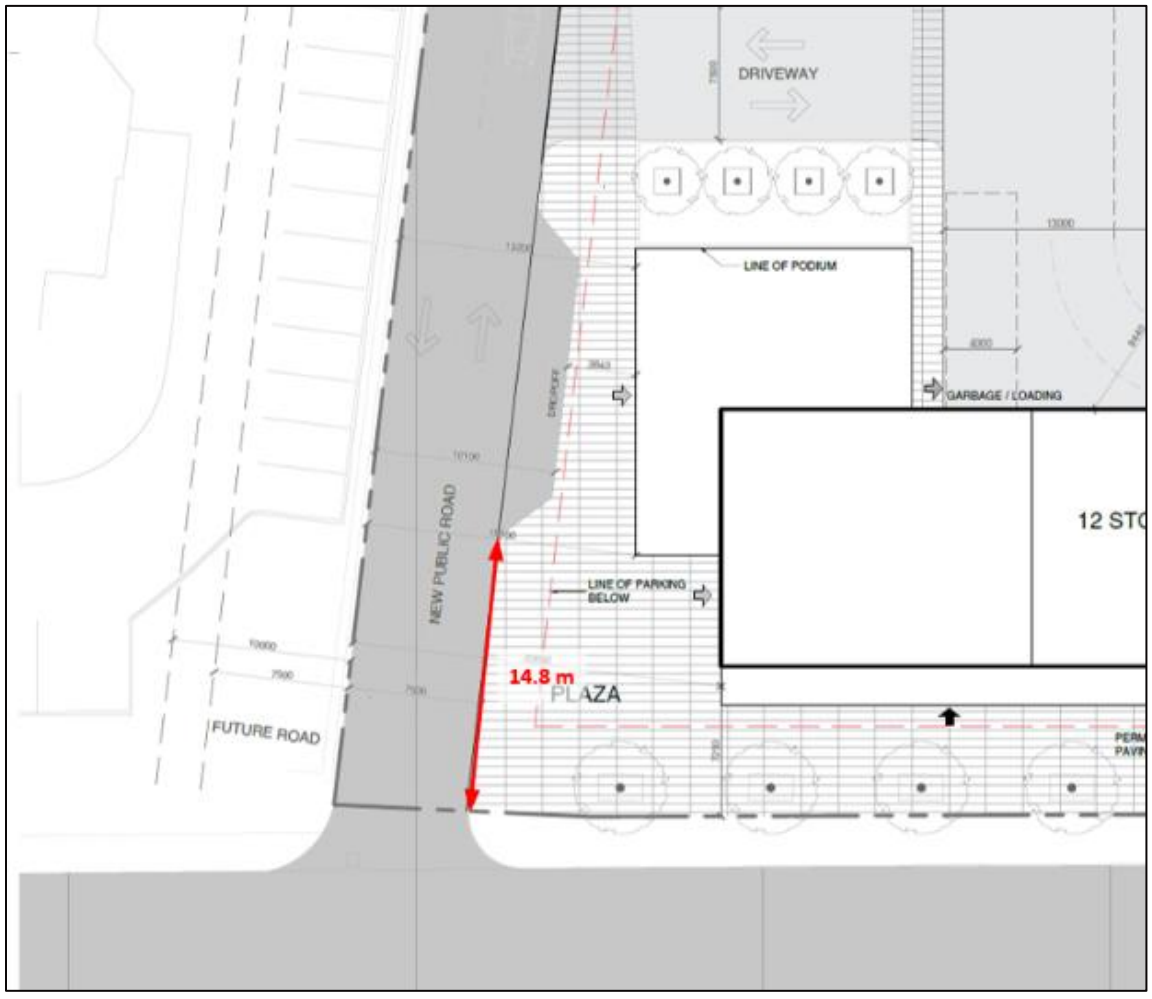

Figure 8-4: Minimum Clear Throat Length at Proposed Site Access

9 Parking Review

The purpose of the parking study is to determine if the proposed parking supply of 223 vehicular parking spaces (147 resident parking spaces, 33 visitor parking spaces, and 54 mixed-use parking spaces), 1 dedicated loading space and 105 bicycle parking spaces is an appropriate supply to accommodate anticipated demand from the proposed development. This section analyzes the zoning by-law requirements, the sustainable transportation network in the city, and parking observations at typical multi-family residential developments in the City of Mississauga.

9.1 Zoning By-Law Requirements

The development site is presently governed by the City of Mississauga Zoning By-law 0225-2007 (ZBL) legacy requirements for “Parking Precinct 3, with an exception following IZ-2”. Vehicular and bicycle parking requirements have been assessed and compared to ZBL requirements.

9.1.1 Vehicle Parking Requirements

Considering the mixed use of the development site, Mixed Use Development Shared Parking Formula in the ZBL is applied to reduce the required parking spaces. The relevant vehicle parking requirements as stipulated in the ZBL legacy requirements, and the proposed parking supply are presented in **Table 9-1.**

Table 9-1: ZBL Vehicle Parking Requirements, City of Mississauga Zoning By-Law 0225-2007

Land Use	Number of Units	Minimum Parking Rate (Spaces per Unit)	Minimum Number of Parking Spaces
Residential Parking Requirements			
Dwelling Unit	156	1	156
Visitor Parking Requirements			
Residential Visitor parking requirement	156	0.2	32
Non-Residential Parking Requirements			
Medical Office	481.9 m^2	4.5 / 100 m^2	22
Retail Store	350.85 m^2	4.0 / 100 m^2	15
Restaurant	270.53 m^2	9.0 / 100 m^2	25

Land Use	Number of Units	Minimum Parking Rate (Spaces per Unit)	Minimum Number of Parking Spaces
Total			
Total Required Parking Spaces			250
Total Required Parking Spaces after Mixed Use Development deduction[3]			229
Proposed Residential, Visitors, Non-Residential			223
Surplus/Deficiency			**(Deficiency of 6 parking spaces)**
Accessible Parking Requirement			
Minimum accessible parking spaces requirement	-	1.0 space plus 2% of the total	6
Proposed Supply			9
Surplus/Deficiency			**(surplus of 3 accessible parking spaces)**

As shown in **Table 9-1**, the proposed development has a deficiency of 5 auto visitor parking spaces. According to Schedule 12 Planning Act 5(2) in *Bill 185, Cutting Red Tape to Build More Homes Act, 2024*, a zoning by-law may not require an owner or occupant of a building or structure to provide and maintain parking facilities, other than parking facilities for bicycles, on land that is not part of a highway and that is located within protected major transit station areas(MTSA). As the development site is in Winston Churchill MTSA and has immediate access to existing and future transit stations, the deficiency of parking spaces is minor (2.2% of total required parking spaces) and is acceptable.

The proposed development has a surplus of 3 accessible parking spaces, and the minimum accessible parking space requirements are met under Zoning By-law 0225-2007 provisions.

[3] Mississauga Zoning By-law 0225-2007 - Table 3.1.2.4 - Mixed Use Development Shared Parking Formula applied

9.1.2 Bicycle Parking Requirements

The relevant bicycle parking requirements as stipulated in the City of Mississauga Zoning By-Law 0225-2007 (ZBL) and the proposed bicycle parking supply is presented in **Table 9-2.** It should be mentioned that "Class A" bicycle spaces refer to long-term spaces and "Class B" bicycle spaces refer to short-term spaces.

Table 9-2: ZBL Bicycle Parking Requirements

Land Use	Number of Units	Parking Rate Requirement	Minimum Number of Parking Spaces
Residential Parking Requirements			
Apartment and stacked townhouse without exclusive garages - Long Term (Class A)	156	0.60 spaces per unit	94
Apartment and stacked townhouse without exclusive garages - Short Term (Class B)	156	The greater of 0.05 spaces per unit or 6.0 spaces	8
Non-Residential Parking Requirements			
Medical Office and Medical Office - Restricted (Class A)	481.9 m^2	0.1 spaces per 100 m^2 GFA - non-residential	1
Medical Office and Medical Office - Restricted (Class B)	481.9 m^2	0.1 spaces per 100 m^2 GFA - non-residential	1
Entertainment Establishment, Restaurant, Convenience Restaurant, Take-out Restaurant Retail Centre, Retail Store, and Service Establishment (Class A)	621.38 m^2	0.15 spaces per 100 m^2 GFA - non-residential	1
Entertainment Establishment, Restaurant, Convenience Restaurant, Take-out Restaurant Retail Centre, Retail Store, and Service Establishment (Class B)	621.38 m^2	0.2 spaces per 100 m^2 GFA - non-residential	1

Land Use	Number of Units	Parking Rate Requirement	Minimum Number of Parking Spaces
Total			
Required Residential Bicycle Parking Spaces			102 bicycle parking spaces (94 long-term and 8 short-term)
Required Non-Residential Bicycle Parking Spaces			4 bicycle parking spaces (2 long-term and 2 short-term)
Total Required Bicycle Parking Spaces			106 bicycle parking spaces (96 long-term and 10 short-term)
Proposed Supply			105 bicycle parking spaces
Surplus/Deficiency			**-1**
Compliance Expected			❌

As shown in **Table 9-2**, based on the requirements of Zoning By-law 0225-2007, the proposed development does not meet the minimum requirements of the City of Mississauga ZBL as there is a deficiency of 1 bicycle parking spaces.

9.1.3 Transportation Demand Management Incentives

Transportation Demand Management (TDM) refers to policies, design features, and incentives which encourage sustainable transportation choices. TDM can reduce the intensity of peak hour trips by encouraging deferred travel, can reduce automobile trips by encouraging the use of non-automobile transportation modes, and can reduce the demand for parking by reducing the need to own and operate a personal vehicle.

As discussed in **Section 2.2**, the proposed development is well connected to both the existing and the planned future City of Mississauga transit network. Therefore, an opportunity exists to leverage this proximity through targeted TDM measures designed to increase transit use and decrease reliance on and ownership of private automobiles. In addition, as the proposed development is equipped with 56 secure bicycle parking spaces and is proposed to be located near existing and future cycling and transit facilities, opportunities exist to employ targeted TDM measured designed to increase cycling use as an alternative to private vehicle use.

Based on these opportunities, the following measures are recommended to better leverage existing and future sustainable transportation options:

- The provision of bicycle repair tools and stations, to be located within bicycle locker zones. This measure is expected to incentivize cycling as a more feasible means of transportation; and
- The addition of a real-time transit and transportation information screen, to be installed at an easily accessible area for residents.

These measures, when taken together with existing and future sustainable transportation options, are expected to reduce private vehicle use and ownership and reduce parking demand at the proposed development site.

10 Vehicle Swept Path Analysis

A vehicle swept path analysis was conducted using AutoTURN to demonstrate that vehicles can enter and exit the site in a forward motion, and that access to loading and waste collection areas are functional.

The AutoTURN analysis concluded the following:

- Region of Peel Standard Front-end Waste Collection Vehicle and Medium Single Unit (MSU) Truck are able to ingress and egress the Type “G” loading area;
- A City of Mississauga Fire Truck and a Pumper Fire Truck are able to circulate the site; and,
- Passenger Cars can access critical parking spaces.

The vehicle swept path analysis is presented in **Appendix M.**

11 Conclusions

This section summarizes the key findings of this Transportation Impact Study.

11.1 Traffic Operations Analysis

Based on the analysis presented in this Transportation Impact Study, the proposed development is expected to generate 70 vehicle trips during the Weekday AM peak hour (31 inbound trips and 39 outbound trips), and 56 vehicle trips (30 inbound trips and 26 outbound trips) during the PM peak hour.

Based on the comparison of Future Background and Future Total Conditions in 2029 and 2036 horizons, as presented in **Table 7-5** and **Table 7-6**, the traffic generated by the proposed development is expected to have minor impact on traffic movements within the study area intersections during the Weekday AM and Weekday PM peak hours.

In order to mitigate and improve instances of critical movements for study area signalized intersections, signal timing phase changes were considered and evaluated. Applying these signal timing plan changes was found to result in improvements to the critical operations at the various study area signalized intersections during both peak hour settings when compared to the unmitigated conditions.

11.2 Access Location Analysis

Based on the location of the proposed site access location, the observable stopping sight distances exceed the minimum distances required by TAC guidelines for vehicles approaching the Dundas Street West site access from both sides. The stopping sight distance and intersection sight distances were measured via Google Maps with street view from the approximate location of the proposed site access. However, a more detailed sightline analysis with accurate measurements and photographs can be provided once the precise access locations are confirmed. The corner clearances and clear throat length were measured on the proposed site plan for the proposed site access. It was concluded that all applicable minimum requirements from the TAC Manual are met.

11.3 Parking Analysis

The purpose of the parking study is to determine if the proposed parking supply of 223 vehicular parking spaces and 105 bicycle parking spaces is an appropriate supply to accommodate anticipated demand from the proposed development.

As shown in **Table 9-1**, the proposed development has a deficiency of 6 auto visitor parking spaces. According to Schedule 12 Planning Act 5(2) in *Bill 185, Cutting Red Tape to Build More Homes Act, 2024*, a zoning by-law may not require an owner or occupant of a building or structure to provide and maintain parking facilities, other than parking facilities for bicycles, on land that is not part of a highway and that is located within protected major transit station areas(MTSA). As the development site is in Winston Churchill MTSA and has immediate access to existing and future transit stations, the deficiency of parking spaces is minor (2.2% of total required parking spaces) and is acceptable. The proposed development is expected to have a surplus of 3 accessible parking spaces, with Zoning By-law 0225-2007.

As shown in **Table 9-2**, based on the requirements of Zoning By-law 0225-2007, the proposed development does not meet the minimum requirements of the City of Mississauga ZBL 0225-2007 by providing 105 bicycle parking spaces when a minimum of 106 spaces are required.

Transportation Demand Management (TDM) refers to policies, incentives, and design features which encourage sustainable transportation choices. As the proposed development is equipped with 105 secure bicycle parking spaces, and is proposed to be located near existing and future cycling and transit facilities, the following measures are recommended to better leverage these sustainable transportation opportunities:

- The provision of bicycle repair tools and stations, to be located within bicycle locker zones. This measure is expected to incentivize cycling as a more feasible means of transportation; and
- The addition of a real-time transit and transportation information screen, to be installed at an easily accessible area for residents.

11.4 Vehicle Swept Path Analysis

A vehicle swept path analysis was conducted using AutoTURN to demonstrate that vehicles can enter and exit the site in a forward motion, and that access to loading and waste collection areas are functional. The AutoTURN analysis concluded the following:

- Region of Peel Standard Front-end Waste Collection Vehicle and Medium Single Unit (MSU) Truck are able to ingress and egress the Type “G” loading area;
- A City of Mississauga Fire Truck and a Pumper Fire Truck is able to circulate the site; and,
- Passenger Cars can access critical parking spaces.

The vehicle swept path analysis is presented in **Appendix R**, and indicates that loading areas are functional, and the capability of waste collection from the site is established.

Appendix A

Terms of Reference Checklist

Appendix B

APPROVED
By Cyrus Hiranandani at 3:10 pm, Jul 25, 2024

Pre-Study Consultation Checklist

Description	Information	Section Reference
Development Information		
Development Description (land use, size, and number of phases of development)	• Phase 1: 166 unit residential apartment with ground floor retail and medical office. Right-in, right-out access to Dundas Street, with access protecting for conversion to north / south roadway as per MTSA study. • Phase 2: • Phase 3:	2.3.6
Transportation Impact Assessment		
Step 1 – Screening		
Type of Application (attach a drawing)	☑ Official Plan Amendment ☑ Zoning Amendment ☑ ~~Site Plan Control Application~~ ☐ Plan of Subdivision ☐ Other_____	2.3.5
Screening Criteria	☑ Trip Generation Trigger Satisfied ☐ Location Trigger Satisfied ☐ Operational/Safety Trigger Satisfied	2.2.1
Type of Study	☑ Transportation Impact Study ☐ Access Review ☐ No Additional Study Required	2.2.1
Step 2 – Scoping		
Study Area (intersections to be analyzed) Note: The Transportation Consultant is responsible to identify any further intersections impacted as the study progresses.	• 1. Dundas Street West & Winston Churchill Boulevard • 2. Dundas Street West & Proposed Site Access • 3. Dundas Street West & Hampshire Gate • Note: Study area approved by Region of Halton • Dundas Street West & Ridegway Dr/Winston Park Dr • Winston Churchill & Laird Rd • •	2.3.8

Description	Information	Section Reference
Horizon Years	☑ 5 years from date of TIS ☐ Interim years_____ ☑ Other 10 year after build-out, as per Halton Region	2.3.9
Analysis Periods	☑ AM weekday peak hour of adjacent roadway ☑ PM weekday peak hour of adjacent roadway ☐ Saturday peak hour of adjacent roadway ☐ AM weekday peak hour of development ☐ PM weekday peak hour of development ☐ Saturday peak hour of development ☐ Other _____	2.3.10
Input Parameters and Assumptions (potential deviations)	• Regard for Peel, Halton, and Mississauga TIS guidelines. • PHF / LUF / LTA calibration if appropriate. • •	2.3.13
Existing Transportation Conditions	☑ City data sources ☐ New data collection_____ ☐ Other _____	2.3.14
Planned Network Improvements (with timing)	• As per Halton and Peel capital plans • •	2.3.16
Other Planned Developments (per City's Website)	• As per Town of Oakville and City of Mississauga • records • • 3055 Vega Boulevard • •	2.3.17
Identification of Mitigation Improvement Measures	☐ Neighbourhood Traffic Management Plan ☑ Other Signal timing as required	2.3.23
Safety Analysis (any special issues)	• As required, if identified. • • •	2.3.25
Site Access and Circulation (design vehicles)	☑ Passenger Car (P) ☐ Light Single Unit Truck (LSU) ☑ Medium Single Unit Truck (MSU) ☐ Heavy Single Unit Truck (HSU) ☑ Pumper Fire Truck ☐ WB-20 Tractor Semi-Trailer Truck ☑ Other Peel standard waste collection	2.3.26
Impacts During Construction (any special issues)	• None identified • • •	2.3.27

Description	Information	Section Reference
Step 3 – Forecasting		
Growth Rate	☑ Obtained from City ☐ Historical traffic counts ☐ Travel demand forecasts ☐ Proposed Growth Rate: _____	2.3.15
Site Trip Generation	☑ ITE Trip Generation Manual ☐ "First Principles" ☐ Observed rates for similar developments in area ☐ Other _____	2.3.19
Trip Reductions	☑ Internal capture reductions for mixed-use developments ☐ Pass-by reductions ☐ Other Non Auto-Modal Split Reduction	2.3.19
Trip Distribution	☐ Local traffic patterns ☑ TTS ☐ Travel demand model ☐ Population and employment distribution ☐ Market analysis of catchment area ☐ Other _____	2.3.20
Trip Assignment	☑ Local traffic patterns ☐ Shortest distance ☑ Site layout, access design and logical routing ☐ Existing turning movements ☐ Other _____	2.3.21
Transportation Demand Management Plan		
Format	☑ Within a TIA Report ☐ Standalone	3.2.1
Type of Transportation Demand Management Plan	☐ TDM Statement ☑ TDM Scheme	3.2.2
Pedestrian Circulation Plan		
Format	☑ Within a TIA Report ☐ Standalone	4.2.1
Additional Comments		
Terms of reference has been reviewed and approved by Region of Halton and Region of Peel. Town of Oakville to be circulated for information purposes and to obtain other area developments. - Access Review: Ensure that the proposed site access conform to all TAC standards (e.g. corner clearances, clear throat lengths, veh & ped sight line distances for ingress/egress, proximity/alignment to other driveways/roads, etc.); Provide confirmation and technical justification of whether the site access location and design are safe for all roadway users and why. The proposed access shall be relocated to align, centreline to centreline, with the opposing road (Gulfstream Way) - Recommendations: Detailed Recommendations regarding on-site/off-site roadway improvements, site access, site circulation, and TDM measures shall be made. - Community Impacts: Any transportation related impacts on the existing community and comments from the public through the planning approvals process shall be addressed in the report.		

Appendix B

Turning Movement Counts

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Project #24-371 - Arcadis Professional Services (Canada)

Intersection Count Report

Intersection:	Winston Churchill Blvd & Laird Rd - Commercial Access
Municipality:	Mississauga
Count Date:	Tuesday, Sep 17, 2024
Site Code:	2437100001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

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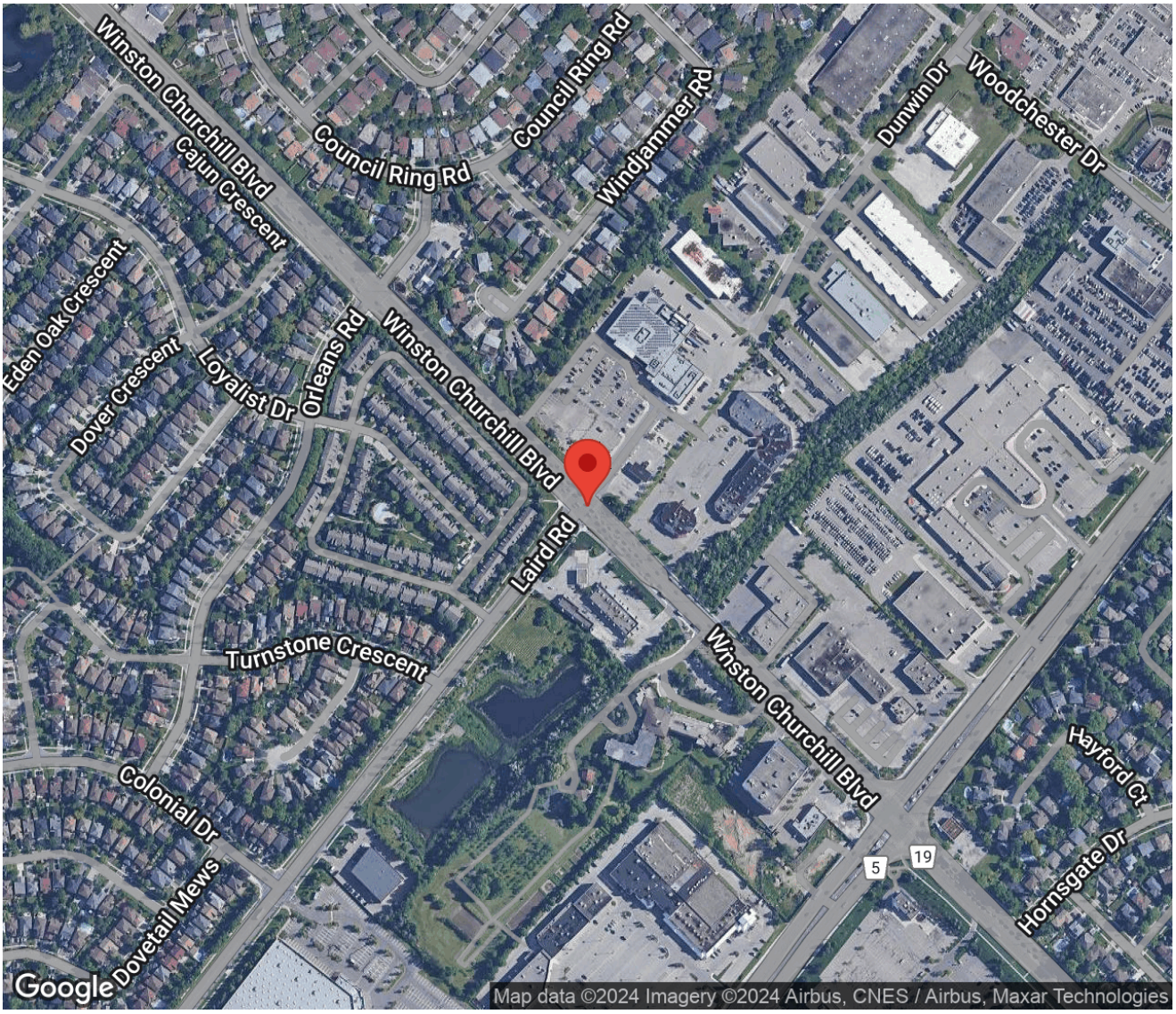
Traffic Count Map

Intersection:	Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code:	2437100001
Municipality:	Mississauga
Count Date:	Sep 17, 2024



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Traffic Count Summary

Intersection:	Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code:	2437100001
Municipality:	Mississauga
Count Date:	Sep 17, 2024

Winston Churchill Blvd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	18	886	71	0	975	4	55	426	27	1	509	6	1484
08:00 - 09:00	49	1104	116	0	1269	1	148	665	66	0	879	6	2148
BREAK													
16:00 - 17:00	90	588	150	0	828	0	208	825	121	0	1154	14	1982
17:00 - 18:00	109	571	168	0	848	12	199	711	86	2	998	12	1846
GRAND TOTAL	**266**	**3149**	**505**	**0**	**3920**	**17**	**610**	**2627**	**300**	**3**	**3540**	**38**	**7460**

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Traffic Count Summary

Intersection:	Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code:	2437100001
Municipality:	Mississauga
Count Date:	Sep 17, 2024

Commercial Access - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	**Left**	**Thru**	**Right**	**U-Turn**	**Total**	**Peds**	**Left**	**Thru**	**Right**	**U-Turn**	**Total**	**Peds**	**Total**
07:00 - 08:00	13	11	6	0	30	4	29	6	106	0	141	8	171
08:00 - 09:00	35	18	9	0	62	7	36	19	134	0	189	11	251
BREAK													
16:00 - 17:00	113	111	53	0	277	15	141	71	165	0	377	8	654
17:00 - 18:00	106	109	65	0	280	10	171	81	197	1	450	8	730
GRAND TOTAL	**267**	**249**	**133**	**0**	**649**	**36**	**377**	**177**	**602**	**1**	**1157**	**35**	**1806**

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Traffic Count Data

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Municipality: Mississauga
Count Date: Sep 17, 2024

North Approach - Winston Churchill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	6	164	7	0	177	0	4	1	0	5	0	0	0	0	0	0
07:15	5	195	14	0	214	0	7	0	0	7	0	0	0	0	0	0
07:30	6	248	25	0	279	0	10	0	0	10	0	0	0	0	0	0
07:45	1	253	22	0	276	0	5	2	0	7	0	0	0	0	0	4
08:00	11	305	21	0	337	0	10	0	0	10	0	1	0	0	1	0
08:15	5	291	23	0	319	0	15	0	0	15	0	0	0	0	0	1
08:30	13	240	34	0	287	0	11	0	0	11	0	0	0	0	0	0
08:45	20	222	38	0	280	0	9	0	0	9	0	0	0	0	0	0
SUBTOTAL	67	1918	184	0	2169	0	71	3	0	74	0	1	0	0	1	5

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Traffic Count Data

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Municipality: Mississauga
Count Date: Sep 17, 2024

North Approach - Winston Churchill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	25	138	38	0	201	0	7	1	0	8	0	0	0	0	0	0
16:15	17	147	31	0	195	1	5	0	0	6	0	0	0	0	0	0
16:30	18	134	46	0	198	0	3	1	0	4	0	0	0	0	0	0
16:45	29	148	32	0	209	0	6	1	0	7	0	0	0	0	0	0
17:00	25	128	44	0	197	0	3	0	0	3	0	0	0	0	0	6
17:15	34	122	43	0	199	0	3	0	0	3	0	0	0	0	0	3
17:30	17	172	45	0	234	0	2	0	0	2	0	0	0	0	0	3
17:45	33	138	36	0	207	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	198	1127	315	0	1640	1	32	3	0	36	0	0	0	0	0	12
GRAND TOTAL	**265**	**3045**	**499**	**0**	**3809**	**1**	**103**	**6**	**0**	**110**	**0**	**1**	**0**	**0**	**1**	**17**

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Traffic Count Data

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Municipality: Mississauga
Count Date: Sep 17, 2024

South Approach - Winston Churchill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	8	70	7	1	86	0	7	0	0	7	0	0	0	0	0	2
07:15	10	103	8	0	121	1	5	0	0	6	0	0	0	0	0	3
07:30	13	112	6	0	131	1	5	0	0	6	0	0	0	0	0	0
07:45	19	117	6	0	142	3	7	0	0	10	0	0	0	0	0	1
08:00	25	138	22	0	185	0	5	0	0	5	0	0	0	0	0	0
08:15	35	141	13	0	189	1	9	0	0	10	0	0	0	0	0	4
08:30	39	192	14	0	245	2	5	0	0	7	0	0	0	0	0	1
08:45	46	168	17	0	231	0	7	0	0	7	0	0	0	0	0	1
SUBTOTAL	195	1041	93	1	1330	8	50	0	0	58	0	0	0	0	0	12

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Traffic Count Data

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Municipality: Mississauga
Count Date: Sep 17, 2024

South Approach - Winston Churchill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	54	223	40	0	317	1	6	1	0	8	0	0	0	0	0	3
16:15	44	174	18	0	236	3	5	1	0	9	0	0	0	0	0	5
16:30	56	200	26	0	282	1	5	0	0	6	0	0	0	0	0	4
16:45	48	207	35	0	290	1	5	0	0	6	0	0	0	0	0	2
17:00	43	168	20	0	231	0	5	0	0	5	0	0	0	0	0	5
17:15	53	157	20	1	231	0	4	0	0	4	0	0	0	0	0	1
17:30	51	186	25	0	262	0	5	0	0	5	0	0	0	0	0	3
17:45	52	179	21	1	253	0	7	0	0	7	0	0	0	0	0	3
SUBTOTAL	401	1494	205	2	2102	6	42	2	0	50	0	0	0	0	0	26
GRAND TOTAL	**596**	**2535**	**298**	**3**	**3432**	**14**	**92**	**2**	**0**	**108**	**0**	**0**	**0**	**0**	**0**	**38**

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Traffic Count Data

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Municipality: Mississauga
Count Date: Sep 17, 2024

East Approach - Commercial Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	1	1	1	0	3	0	0	0	0	0	0	0	0	0	0	1
07:15	4	2	2	0	8	0	0	0	0	0	0	0	0	0	0	0
07:30	4	3	2	0	9	0	0	0	0	0	0	0	0	0	0	2
07:45	4	5	1	0	10	0	0	0	0	0	0	0	0	0	0	1
08:00	4	1	2	0	7	0	0	0	0	0	0	0	0	0	0	1
08:15	13	5	2	0	20	0	0	0	0	0	0	0	0	0	0	3
08:30	4	6	3	0	13	0	0	0	0	0	0	0	0	0	0	1
08:45	14	5	2	0	21	0	1	0	0	1	0	0	0	0	0	2
SUBTOTAL	48	28	15	0	91	0	1	0	0	1	0	0	0	0	0	11

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Traffic Count Data

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Municipality: Mississauga
Count Date: Sep 17, 2024

East Approach - Commercial Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	33	26	8	0	67	0	0	2	0	2	0	0	0	0	0	4
16:15	27	30	14	0	71	1	1	0	0	2	0	0	0	0	0	6
16:30	21	29	12	0	62	0	0	0	0	0	0	0	0	0	0	3
16:45	30	25	17	0	72	1	0	0	0	1	0	0	0	0	0	2
17:00	24	21	16	0	61	0	0	0	0	0	0	0	0	0	0	2
17:15	31	33	13	0	77	0	0	0	0	0	0	0	0	0	0	2
17:30	28	24	16	0	68	0	0	0	0	0	0	0	0	0	0	0
17:45	23	30	20	0	73	0	1	0	0	1	0	0	0	0	0	6
SUBTOTAL	217	218	116	0	551	2	2	2	0	6	0	0	0	0	0	25
GRAND TOTAL	265	246	131	0	642	2	3	2	0	7	0	0	0	0	0	36

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Municipality: Mississauga
Count Date: Sep 17, 2024

West Approach - Laird Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	9	0	17	0	26	3	0	2	0	5	0	0	0	0	0	1
07:15	4	2	10	0	16	0	0	2	0	2	0	0	0	0	0	3
07:30	3	1	24	0	28	3	0	1	0	4	0	0	0	0	0	2
07:45	7	3	49	0	59	0	0	1	0	1	0	0	0	0	0	2
08:00	9	4	28	0	41	1	0	2	0	3	0	0	0	0	0	2
08:15	7	2	30	0	39	0	1	3	0	4	0	0	0	0	0	2
08:30	11	4	25	0	40	0	0	2	0	2	0	0	0	0	0	1
08:45	8	8	42	0	58	0	0	2	0	2	0	0	0	0	0	6
SUBTOTAL	58	24	225	0	307	7	1	15	0	23	0	0	0	0	0	19

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Municipality: Mississauga
Count Date: Sep 17, 2024

West Approach - Laird Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	34	12	38	0	84	1	0	1	0	2	0	0	0	0	0	2
16:15	39	14	41	0	94	0	0	1	0	1	0	0	0	0	0	1
16:30	32	25	44	0	101	1	0	1	0	2	0	0	0	0	0	3
16:45	34	20	38	0	92	0	0	1	0	1	0	0	0	0	0	2
17:00	46	21	51	0	118	1	0	0	0	1	0	0	0	0	0	2
17:15	37	23	46	0	106	0	0	0	0	0	0	0	0	0	0	2
17:30	45	20	47	1	113	0	0	3	0	3	0	0	0	0	0	4
17:45	42	16	49	0	107	0	1	1	0	2	0	0	0	0	0	0
SUBTOTAL	309	151	354	1	815	3	1	8	0	12	0	0	0	0	0	16
GRAND TOTAL	**367**	**175**	**579**	**1**	**1122**	**10**	**2**	**23**	**0**	**35**	**0**	**0**	**0**	**0**	**0**	**35**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	09:00:00	To:	09:00:00

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Count Date: Sep 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Winston Churchill Blvd runs N/S

North Approach

	Out	In	Total
Cars	1223	683	1906
Trucks	45	27	72
Bicycles	1	0	1
	1269	**710**	**1979**

Winston Churchill Blvd

Bicycles	0	1	0	0
Trucks	0	45	0	0
Cars	116	1058	49	0
Totals	**116**	**1104**	**49**	**0**

East Approach

	Out	In	Total
Cars	61	133	194
Trucks	1	1	2
Bicycles	0	0	0
	62	**134**	**196**

Laird Rd

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	1	35	**36**
0	1	18	**19**
0	9	125	**134**

Peds: 11

Peds: 1

Peds: 7

Peds: 6

Commercial Access

Totals	Cars	Trucks	Bicycles
0	0	0	0
9	9	0	0
18	17	1	0
35	35	0	0

West Approach

	Out	In	Total
Cars	178	278	456
Trucks	11	4	15
Bicycles	0	0	0
	189	**282**	**471**

Totals	**148**	**665**	**66**	**0**
Cars	145	639	66	0
Trucks	3	26	0	0
Bicycles	0	0	0	0

Winston Churchill Blvd

South Approach

	Out	In	Total
Cars	850	1218	2068
Trucks	29	54	83
Bicycles	0	1	1
	879	**1273**	**2152**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Count Date: Sep 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Winston Churchill Blvd						South Approach Winston Churchill Blvd						East Approach Commercial Access						West Approach Laird Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	11	316	21	0	0	348	25	143	22	0	0	190	4	1	2	0	1	7	10	4	30	0	2	44	589
08:15	5	306	23	0	1	334	36	150	13	0	4	199	13	5	2	0	3	20	7	3	33	0	2	43	596
08:30	13	251	34	0	0	298	41	197	14	0	1	252	4	6	3	0	1	13	11	4	27	0	1	42	605
08:45	20	231	38	0	0	289	46	175	17	0	1	238	14	6	2	0	2	22	8	8	44	0	6	60	609
Grand Total	**49**	**1104**	**116**	**0**	**1**	**1269**	**148**	**665**	**66**	**0**	**6**	**879**	**35**	**18**	**9**	**0**	**7**	**62**	**36**	**19**	**134**	**0**	**11**	**189**	**2399**
Approach %	3.9	87	9.1	0		-	16.8	75.7	7.5	0		-	56.5	29	14.5	0		-	19	10.1	70.9	0		-	
Totals %	2	46	4.8	0		52.9	6.2	27.7	2.8	0		36.6	1.5	0.8	0.4	0		2.6	1.5	0.8	5.6	0		7.9	
PHF	**0.61**	**0.87**	**0.76**	**0**		**0.91**	**0.8**	**0.84**	**0.75**	**0**		**0.87**	**0.63**	**0.75**	**0.75**	**0**		**0.7**	**0.82**	**0.59**	**0.76**	**0**		**0.79**	**0.98**
Cars	49	1058	116	0		1223	145	639	66	0		850	35	17	9	0		61	35	18	125	0		178	2312
% Cars	100	95.8	100	0		96.4	98	96.1	100	0		96.7	100	94.4	100	0		98.4	97.2	94.7	93.3	0		94.2	96.4
Trucks	0	45	0	0		45	3	26	0	0		29	0	1	0	0		1	1	1	9	0		11	86
% Trucks	0	4.1	0	0		3.5	2	3.9	0	0		3.3	0	5.6	0	0		1.6	2.8	5.3	6.7	0		5.8	3.6
Bicycles	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
% Bicycles	0	0.1	0	0		0.1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					1	-					6	-					7	-					11	-	25
% Peds					4	-					24	-					28	-					44	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Count Date: Sep 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Winston Churchill Blvd runs N/S

North Approach

	Out	In	Total
Cars	803	994	1797
Trucks	25	25	50
Bicycles	0	0	0
	828	**1019**	**1847**

Winston Churchill Blvd

Bicycles	0	0	0	0
Trucks	3	21	1	0
Cars	147	567	89	0
Totals	**150**	**588**	**90**	**0**

East Approach

	Out	In	Total
Cars	272	279	551
Trucks	5	3	8
Bicycles	0	0	0
	277	**282**	**559**

Peds: 0

Laird Rd

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	2	139	**141**
0	0	71	**71**
0	4	161	**165**

Peds: 8

Peds: 15

Commercial Access

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	53	51	2	0
	111	110	1	0
	113	111	2	0

Peds: 14

West Approach

	Out	In	Total
Cars	371	459	830
Trucks	6	10	16
Bicycles	0	0	0
	377	**469**	**846**

Winston Churchill Blvd

Totals	**208**	**825**	**121**	**0**
Cars	202	804	119	0
Trucks	6	21	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	1125	839	1964
Trucks	29	27	56
Bicycles	0	0	0
	1154	**866**	**2020**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Winston Churchill Blvd & Laird Rd - Commercial Access
Site Code: 2437100001
Count Date: Sep 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Winston Churchill Blvd						South Approach Winston Churchill Blvd						East Approach Commercial Access						West Approach Laird Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:00	25	145	39	0	0	209	55	229	41	0	3	325	33	26	10	0	4	69	35	12	39	0	2	86	689
16:15	18	152	31	0	0	201	47	179	19	0	5	245	28	31	14	0	6	73	39	14	42	0	1	95	614
16:30	18	137	47	0	0	202	57	205	26	0	4	288	21	29	12	0	3	62	33	25	45	0	3	103	655
16:45	29	154	33	0	0	216	49	212	35	0	2	296	31	25	17	0	2	73	34	20	39	0	2	93	678
Grand Total	**90**	**588**	**150**	**0**	**0**	**828**	**208**	**825**	**121**	**0**	**14**	**1154**	**113**	**111**	**53**	**0**	**15**	**277**	**141**	**71**	**165**	**0**	**8**	**377**	**2636**
Approach %	10.9	71	18.1	0		-	18	71.5	10.5	0		-	40.8	40.1	19.1	0		-	37.4	18.8	43.8	0		-	
Totals %	3.4	22.3	5.7	0		31.4	7.9	31.3	4.6	0		43.8	4.3	4.2	2	0		10.5	5.3	2.7	6.3	0		14.3	
PHF	**0.78**	**0.95**	**0.8**	**0**		**0.96**	**0.91**	**0.9**	**0.74**	**0**		**0.89**	**0.86**	**0.9**	**0.78**	**0**		**0.95**	**0.9**	**0.71**	**0.92**	**0**		**0.92**	**0.96**
Cars	89	567	147	0		803	202	804	119	0		1125	111	110	51	0		272	139	71	161	0		371	2571
% Cars	98.9	96.4	98	0		97	97.1	97.5	98.3	0		97.5	98.2	99.1	96.2	0		98.2	98.6	100	97.6	0		98.4	97.5
Trucks	1	21	3	0		25	6	21	2	0		29	2	1	2	0		5	2	0	4	0		6	65
% Trucks	1.1	3.6	2	0		3	2.9	2.5	1.7	0		2.5	1.8	0.9	3.8	0		1.8	1.4	0	2.4	0		1.6	2.5
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					14	-					15	-					8	-	37
% Peds					0	-					37.8	-					40.5	-					21.6	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-371 - Arcadis Professional Services (Canada)

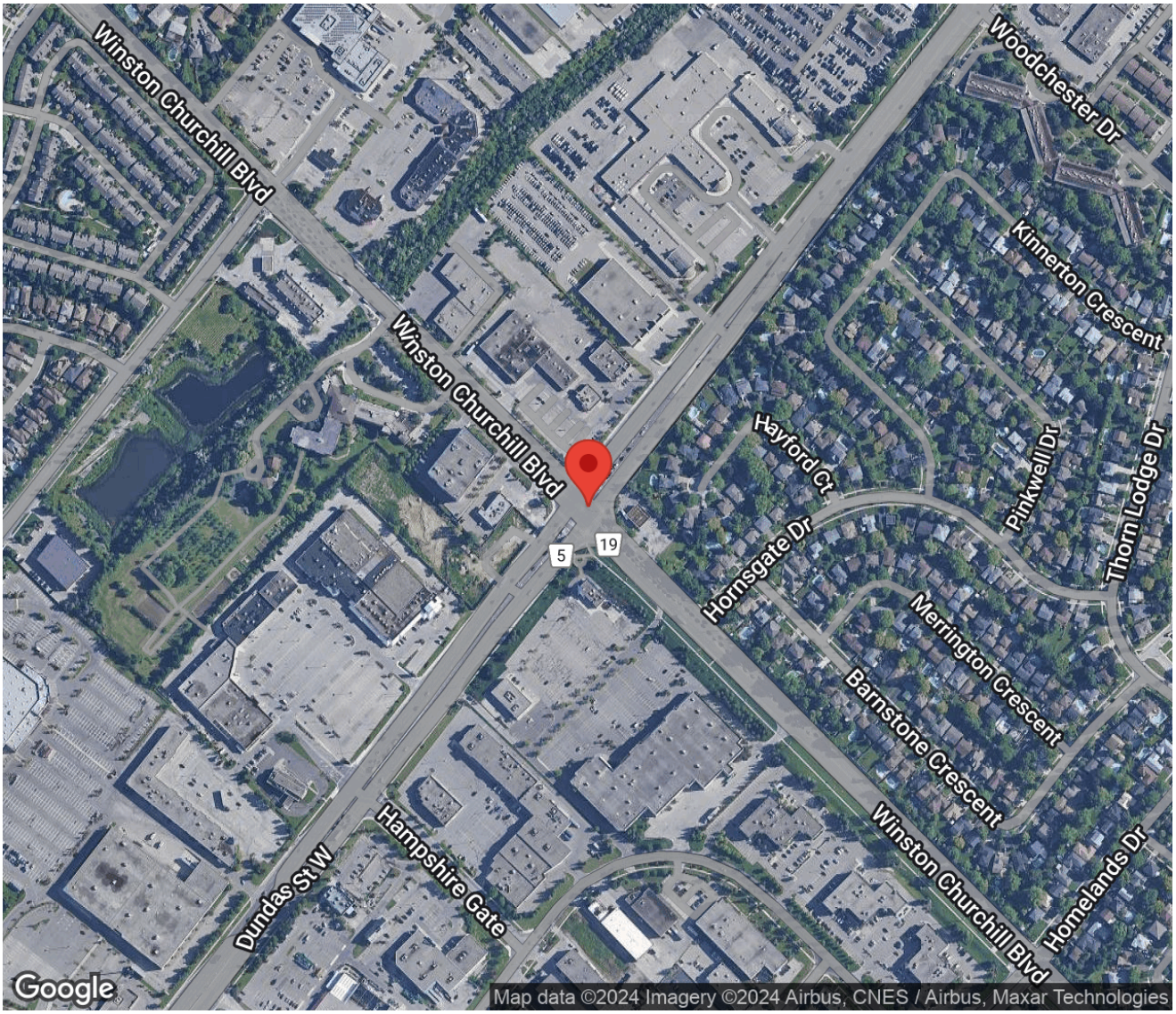
Intersection Count Report

Intersection:	Dundas St W & Winston Churchill Blvd
Municipality:	Mississauga
Count Date:	Tuesday, Sep 17, 2024
Site Code:	2437100002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Dundas St W & Winston Churchill Blvd
Site Code:	2437100002
Municipality:	Mississauga
Count Date:	Sep 17, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

Winston Churchill Blvd - Traffic Summary

Hour	North Approach Totals (Includes Cars, Trucks, Bicycles)						South Approach Totals (Includes Cars, Trucks, Bicycles)						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	123	853	70	0	1046	21	178	417	175	1	771	14	1817
08:00 - 09:00	175	1044	105	0	1324	24	194	665	245	0	1104	16	2428
BREAK													
16:00 - 17:00	236	476	180	2	894	31	186	691	295	0	1172	31	2066
17:00 - 18:00	237	536	185	1	959	25	238	676	288	0	1202	28	2161
GRAND TOTAL	**771**	**2909**	**540**	**3**	**4223**	**101**	**796**	**2449**	**1003**	**1**	**4249**	**89**	**8472**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Dundas St W & Winston Churchill Blvd
Site Code:	2437100002
Municipality:	Mississauga
Count Date:	Sep 17, 2024

Dundas St W - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	205	353	57	0	615	18	47	675	251	1	974	6	1589
08:00 - 09:00	272	636	134	0	1042	27	79	966	375	0	1420	12	2462
BREAK													
16:00 - 17:00	294	981	298	0	1573	28	288	1055	201	3	1547	20	3120
17:00 - 18:00	271	1002	271	4	1548	33	243	994	187	14	1438	29	2986
GRAND TOTAL	**1042**	**2972**	**760**	**4**	**4778**	**106**	**657**	**3690**	**1014**	**18**	**5379**	**67**	**10157**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

North Approach - Winston Churchill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	16	158	13	0	187	1	4	0	0	5	0	0	0	0	0	2
07:15	18	177	17	0	212	1	7	2	0	10	0	0	0	0	0	5
07:30	43	236	17	0	296	2	5	2	0	9	0	0	0	0	0	5
07:45	41	260	18	0	319	1	6	1	0	8	0	0	0	0	0	9
08:00	44	265	16	0	325	3	9	0	0	12	0	0	0	0	0	7
08:15	31	285	24	0	340	2	10	5	0	17	0	0	0	0	0	5
08:30	36	233	25	0	294	6	5	4	0	15	0	0	0	0	0	9
08:45	51	229	29	0	309	2	8	2	0	12	0	0	0	0	0	3
SUBTOTAL	280	1843	159	0	2282	18	54	16	0	88	0	0	0	0	0	45

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

North Approach - Winston Churchill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	55	121	40	0	216	2	3	4	0	9	0	0	0	0	0	6
16:15	67	118	46	0	231	1	4	2	0	7	0	0	0	0	0	14
16:30	59	116	40	2	217	2	1	1	0	4	0	0	0	0	0	6
16:45	49	109	46	0	204	1	4	1	0	6	0	0	0	0	0	5
17:00	73	130	33	0	236	0	2	1	0	3	0	0	0	0	0	3
17:15	61	106	48	0	215	0	3	0	0	3	0	0	0	0	0	9
17:30	41	152	48	1	242	2	2	2	0	6	0	0	0	0	0	6
17:45	58	139	51	0	248	2	2	2	0	6	0	0	0	0	0	7
SUBTOTAL	463	991	352	3	1809	10	21	13	0	44	0	0	0	0	0	56
GRAND TOTAL	**743**	**2834**	**511**	**3**	**4091**	**28**	**75**	**29**	**0**	**132**	**0**	**0**	**0**	**0**	**0**	**101**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

South Approach - Winston Churchill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	29	87	25	1	142	0	6	2	0	8	0	0	0	0	0	2
07:15	49	79	40	0	168	1	6	0	0	7	0	0	0	0	0	3
07:30	42	98	45	0	185	2	3	1	0	6	0	0	0	0	0	3
07:45	55	130	62	0	247	0	8	0	0	8	0	0	0	0	0	6
08:00	45	142	47	0	234	1	4	5	0	10	0	0	0	0	0	1
08:15	44	170	59	0	273	1	5	2	0	8	0	0	0	0	0	3
08:30	50	154	61	0	265	4	6	0	0	10	0	0	0	0	0	5
08:45	48	181	66	0	295	1	3	5	0	9	0	0	0	0	0	7
SUBTOTAL	362	1041	405	1	1809	10	41	15	0	66	0	0	0	0	0	30

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

South Approach - Winston Churchill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	55	177	77	0	309	2	3	0	0	5	0	0	0	0	0	8
16:15	36	148	51	0	235	1	6	1	0	8	0	0	0	0	0	4
16:30	50	163	84	0	297	1	3	2	0	6	0	0	0	0	0	11
16:45	40	187	78	0	305	1	4	2	0	7	0	0	0	0	0	8
17:00	54	152	85	0	291	1	5	2	0	8	0	0	0	0	0	9
17:15	56	135	59	0	250	0	0	4	0	4	0	0	0	0	0	7
17:30	59	181	67	0	307	1	4	1	0	6	0	0	0	0	0	8
17:45	66	194	70	0	330	1	5	0	0	6	0	0	0	0	0	4
SUBTOTAL	416	1337	571	0	2324	8	30	12	0	50	0	0	0	0	0	59
GRAND TOTAL	**778**	**2378**	**976**	**1**	**4133**	**18**	**71**	**27**	**0**	**116**	**0**	**0**	**0**	**0**	**0**	**89**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

East Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	37	48	8	0	93	0	3	0	0	3	0	0	0	0	0	3
07:15	35	86	10	0	131	2	5	0	0	7	0	0	0	0	0	1
07:30	57	67	15	0	139	3	5	1	0	9	0	0	0	0	0	8
07:45	71	134	20	0	225	0	4	3	0	7	0	1	0	0	1	6
08:00	72	135	26	0	233	3	6	1	0	10	0	0	0	0	0	4
08:15	58	127	37	0	222	3	3	4	0	10	0	0	0	0	0	2
08:30	68	194	36	0	298	0	5	1	0	6	0	0	0	0	0	13
08:45	66	162	27	0	255	2	4	2	0	8	0	0	0	0	0	8
SUBTOTAL	464	953	179	0	1596	13	35	12	0	60	0	1	0	0	1	45

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

East Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	77	245	81	0	403	0	9	3	0	12	0	0	0	0	0	7
16:15	70	214	65	0	349	1	3	2	0	6	0	0	0	0	0	11
16:30	71	276	79	0	426	0	4	1	0	5	0	0	0	0	0	4
16:45	75	228	67	0	370	0	2	0	0	2	0	0	0	0	0	6
17:00	69	248	62	2	381	2	0	0	0	2	0	0	0	0	0	6
17:15	70	244	78	1	393	1	7	0	0	8	0	0	0	0	0	4
17:30	66	219	62	0	347	0	3	1	0	4	0	0	0	0	0	8
17:45	63	276	68	1	408	0	5	0	0	5	0	0	0	0	0	15
SUBTOTAL	561	1950	562	4	3077	4	33	7	0	44	0	0	0	0	0	61
GRAND TOTAL	1025	2903	741	4	4673	17	68	19	0	104	0	1	0	0	1	106

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

West Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	7	109	41	1	158	2	2	4	0	8	0	0	0	0	0	0
07:15	14	144	36	0	194	0	6	5	0	11	0	0	0	0	0	2
07:30	15	171	58	0	244	1	10	3	0	14	0	0	0	0	0	0
07:45	7	226	102	0	335	1	7	2	0	10	0	0	0	0	0	4
08:00	11	212	104	0	327	1	4	1	0	6	0	0	0	0	0	0
08:15	12	236	87	0	335	1	4	2	0	7	0	0	0	0	0	2
08:30	27	265	94	0	386	2	9	2	0	13	0	0	0	0	0	6
08:45	22	230	83	0	335	3	6	2	0	11	0	0	0	0	0	4
SUBTOTAL	115	1593	605	1	2314	11	48	21	0	80	0	0	0	0	0	18

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Municipality: Mississauga
Count Date: Sep 17, 2024

West Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	76	262	55	0	393	1	3	3	0	7	0	0	0	0	0	0
16:15	65	252	41	2	360	1	6	1	0	8	0	0	0	0	0	10
16:30	76	275	48	1	400	3	7	0	0	10	0	0	0	0	0	2
16:45	65	249	51	0	365	1	1	2	0	4	0	0	0	0	0	8
17:00	60	257	53	6	376	2	3	0	0	5	0	0	0	0	0	8
17:15	58	278	52	1	389	0	1	0	0	1	0	0	0	0	0	13
17:30	66	199	52	6	323	3	3	1	0	7	0	0	0	0	0	7
17:45	52	251	29	1	333	2	2	0	0	4	0	0	0	0	0	1
SUBTOTAL	518	2023	381	17	2939	13	26	7	0	46	0	0	0	0	0	49
GRAND TOTAL	633	3616	986	18	5253	24	74	28	0	126	0	0	0	0	0	67

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 08:00:00
To: 09:00:00

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Count Date: Sep 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St W runs E/W

North Approach

	Out	In	Total
Cars	1268	845	2113
Trucks	56	33	89
Bicycles	0	0	0
	1324	**878**	**2202**

Winston Churchill Blvd

Bicycles	0	0	0	0
Trucks	11	32	13	0
Cars	94	1012	162	0
Totals	**105**	**1044**	**175**	**0**

East Approach

	Out	In	Total
Cars	1008	1338	2346
Trucks	34	48	82
Bicycles	0	0	0
	1042	**1386**	**2428**

Dundas St W

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	7	72	**79**	
0	23	943	**966**	
0	7	368	**375**	

Peds: 24
Peds: 12
Peds: 27
Peds: 16

Dundas St W

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	134	126	8	0
	636	618	18	0
	272	264	8	0

West Approach

	Out	In	Total
Cars	1383	899	2282
Trucks	37	36	73
Bicycles	0	0	0
	1420	**935**	**2355**

Winston Churchill Blvd

Totals	**194**	**665**	**245**	**0**
Cars	187	647	233	0
Trucks	7	18	12	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	1067	1644	2711
Trucks	37	47	84
Bicycles	0	0	0
	1104	**1691**	**2795**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Count Date: Sep 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Winston Churchill Blvd						South Approach Winston Churchill Blvd						East Approach Dundas St W						West Approach Dundas St W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	47	274	16	0	7	337	46	146	52	0	1	244	75	141	27	0	4	243	12	216	105	0	0	333	1157
08:15	33	295	29	0	5	357	45	175	61	0	3	281	61	130	41	0	2	232	13	240	89	0	2	342	1212
08:30	42	238	29	0	9	309	54	160	61	0	5	275	68	199	37	0	13	304	29	274	96	0	6	399	1287
08:45	53	237	31	0	3	321	49	184	71	0	7	304	68	166	29	0	8	263	25	236	85	0	4	346	1234
Grand Total	**175**	**1044**	**105**	**0**	**24**	**1324**	**194**	**665**	**245**	**0**	**16**	**1104**	**272**	**636**	**134**	**0**	**27**	**1042**	**79**	**966**	**375**	**0**	**12**	**1420**	**4890**
Approach %	13.2	78.9	7.9	0		-	17.6	60.2	22.2	0		-	26.1	61	12.9	0		-	5.6	68	26.4	0		-	
Totals %	3.6	21.3	2.1	0		27.1	4	13.6	5	0		22.6	5.6	13	2.7	0		21.3	1.6	19.8	7.7	0		29	
PHF	**0.83**	**0.88**	**0.85**	**0**		**0.93**	**0.9**	**0.9**	**0.86**	**0**		**0.91**	**0.91**	**0.8**	**0.82**	**0**		**0.86**	**0.68**	**0.88**	**0.89**	**0**		**0.89**	**0.95**
Cars	162	1012	94	0		1268	187	647	233	0		1067	264	618	126	0		1008	72	943	368	0		1383	4726
% Cars	92.6	96.9	89.5	0		95.8	96.4	97.3	95.1	0		96.6	97.1	97.2	94	0		96.7	91.1	97.6	98.1	0		97.4	96.6
Trucks	13	32	11	0		56	7	18	12	0		37	8	18	8	0		34	7	23	7	0		37	164
% Trucks	7.4	3.1	10.5	0		4.2	3.6	2.7	4.9	0		3.4	2.9	2.8	6	0		3.3	8.9	2.4	1.9	0		2.6	3.4
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					24	-					16	-					27	-					12	-	79
% Peds					30.4	-					20.3	-					34.2	-					15.2	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Count Date: Sep 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St W runs E/W

North Approach

	Out	In	Total
Cars	872	1184	2056
Trucks	16	19	35
Bicycles	0	0	0
	888	**1203**	**2091**

Winston Churchill Blvd

Bicycles	0	0	0	0
Trucks	3	10	3	0
Cars	167	461	242	2
Totals	**170**	**471**	**245**	**2**

East Approach

	Out	In	Total
Cars	1570	1610	3180
Trucks	17	25	42
Bicycles	0	0	0
	1587	**1635**	**3222**

Dundas St W

Bicycles	Trucks	Cars	Totals	
0	0	8	**8**	
0	6	259	**265**	
0	12	1059	**1071**	
0	2	204	**206**	

Peds: 23
Peds: 31
Peds: 20
Peds: 35

Dundas St W

	Totals	Cars	Trucks	Bicycles
	3	3	0	0
	287	286	1	0
	1009	996	13	0
	288	285	3	0

West Approach

	Out	In	Total
Cars	1530	1371	2901
Trucks	20	19	39
Bicycles	0	0	0
	1550	**1390**	**2940**

Winston Churchill Blvd

Totals	**203**	**649**	**316**	**0**
Cars	200	637	306	0
Trucks	3	12	10	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	1143	950	2093
Trucks	25	15	40
Bicycles	0	0	0
	1168	**965**	**2133**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Dundas St W & Winston Churchill Blvd
Site Code: 2437100002
Count Date: Sep 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Winston Churchill Blvd						South Approach Winston Churchill Blvd						East Approach Dundas St W						West Approach Dundas St W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:30	61	117	41	2	6	221	51	166	86	0	11	303	71	280	80	0	4	431	79	282	48	1	2	410	1365
16:45	50	113	47	0	5	210	41	191	80	0	8	312	75	230	67	0	6	372	66	250	53	0	8	369	1263
17:00	73	132	34	0	3	239	55	157	87	0	9	299	71	248	62	2	6	383	62	260	53	6	8	381	1302
17:15	61	109	48	0	9	218	56	135	63	0	7	254	71	251	78	1	4	401	58	279	52	1	13	390	1263
Grand Total	**245**	**471**	**170**	**2**	**23**	**888**	**203**	**649**	**316**	**0**	**35**	**1168**	**288**	**1009**	**287**	**3**	**20**	**1587**	**265**	**1071**	**206**	**8**	**31**	**1550**	**5193**
Approach %	27.6	53	19.1	0.2		-	17.4	55.6	27.1	0		-	18.1	63.6	18.1	0.2		-	17.1	69.1	13.3	0.5		-	
Totals %	4.7	9.1	3.3	0		17.1	3.9	12.5	6.1	0		22.5	5.5	19.4	5.5	0.1		30.6	5.1	20.6	4	0.2		29.8	
PHF	**0.84**	**0.89**	**0.89**	**0.25**		**0.93**	**0.91**	**0.85**	**0.91**	**0**		**0.94**	**0.96**	**0.9**	**0.9**	**0.38**		**0.92**	**0.84**	**0.95**	**0.97**	**0.33**		**0.95**	**0.95**
Cars	242	461	167	2		872	200	637	306	0		1143	285	996	286	3		1570	259	1059	204	8		1530	5115
% Cars	98.8	97.9	98.2	100		98.2	98.5	98.2	96.8	0		97.9	99	98.7	99.7	100		98.9	97.7	98.9	99	100		98.7	98.5
Trucks	3	10	3	0		16	3	12	10	0		25	3	13	1	0		17	6	12	2	0		20	78
% Trucks	1.2	2.1	1.8	0		1.8	1.5	1.8	3.2	0		2.1	1	1.3	0.3	0		1.1	2.3	1.1	1	0		1.3	1.5
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					23	-					35	-					20	-					31	-	109
% Peds					21.1	-					32.1	-					18.3	-					28.4	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-371 - Arcadis Professional Services (Canada)

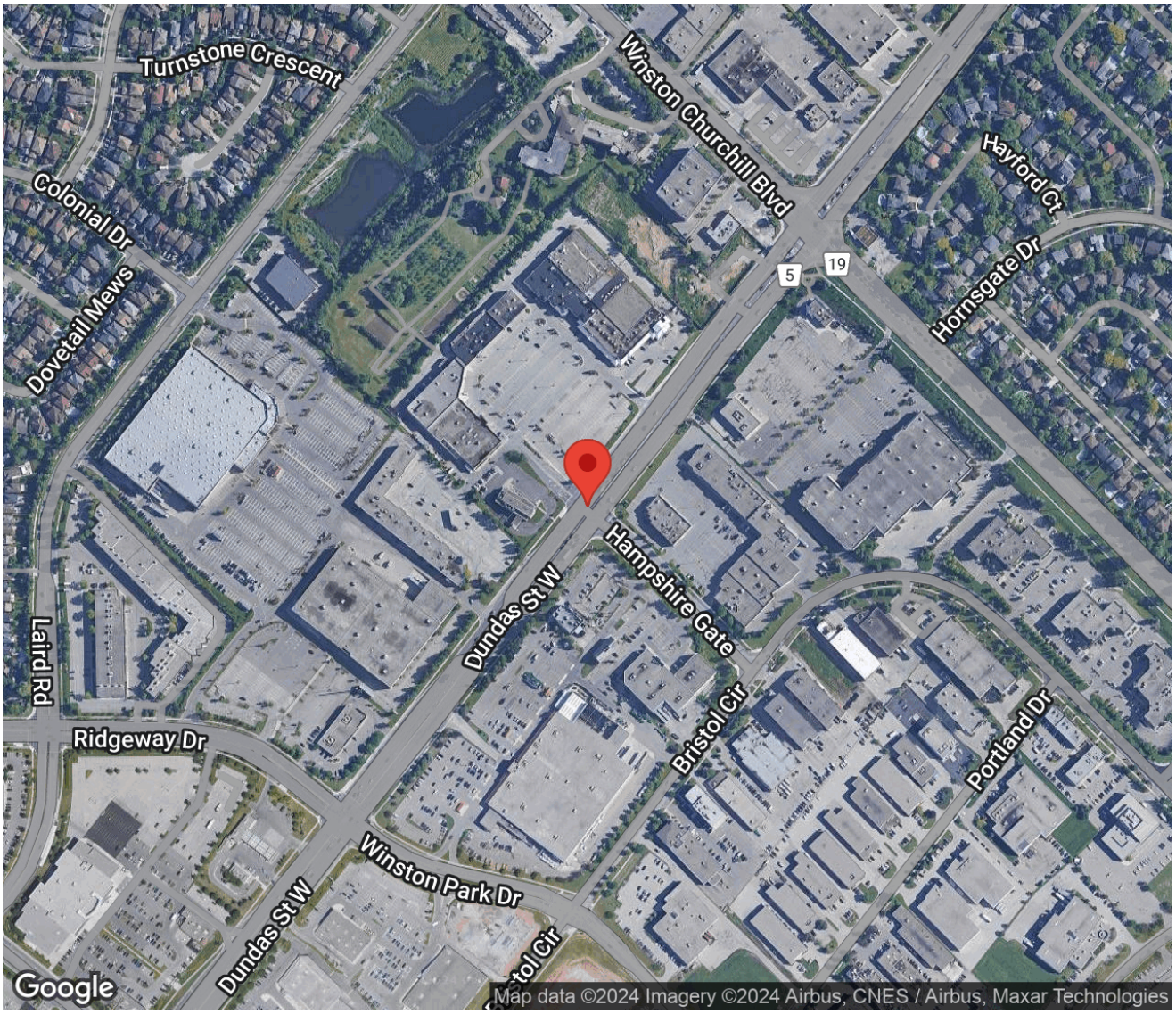
Intersection Count Report

Intersection:	Dundas St W & Hampshire Gate - Commercial Access
Municipality:	Mississauga
Count Date:	Tuesday, Sep 17, 2024
Site Code:	2437100003
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Dundas St W & Hampshire Gate - Commercial Access
Site Code:	2437100003
Municipality:	Mississauga
Count Date:	Sep 17, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Dundas St W & Hampshire Gate - Commercial Access
Site Code:	2437100003
Municipality:	Mississauga
Count Date:	Sep 17, 2024

Commercial Access - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	9	4	7	0	20	7	36	5	48	0	89	8	109
08:00 - 09:00	16	4	5	0	25	8	70	16	66	0	152	11	177
BREAK													
16:00 - 17:00	145	31	81	0	257	18	572	73	286	0	931	33	1188
17:00 - 18:00	133	38	91	0	262	8	494	65	272	0	831	21	1093
GRAND TOTAL	**303**	**77**	**184**	**0**	**564**	**41**	**1172**	**159**	**672**	**0**	**2003**	**73**	**2567**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Dundas St W & Hampshire Gate - Commercial Access
Site Code:	2437100003
Municipality:	Mississauga
Count Date:	Sep 17, 2024

Dundas St W - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	66	519	10	0	595	7	5	940	83	0	1028	7	1623
08:00 - 09:00	107	723	25	1	856	5	30	1450	148	0	1628	8	2484
BREAK													
16:00 - 17:00	151	1072	70	1	1294	19	70	1191	136	1	1398	15	2692
17:00 - 18:00	109	1217	63	4	1393	10	71	1088	142	3	1304	25	2697
GRAND TOTAL	**433**	**3531**	**168**	**6**	**4138**	**41**	**176**	**4669**	**509**	**4**	**5358**	**55**	**9496**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Municipality: Mississauga
Count Date: Sep 17, 2024

North Approach - Commercial Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	3
07:15	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0	2
07:30	0	2	3	0	5	0	0	0	0	0	0	0	0	0	0	1
07:45	5	1	2	0	8	0	0	0	0	0	0	0	0	0	0	1
08:00	2	1	1	0	4	0	0	0	0	0	0	0	0	0	0	2
08:15	3	2	1	0	6	0	0	0	0	0	0	0	0	0	0	2
08:30	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1
08:45	6	1	3	0	10	1	0	0	0	1	0	0	0	0	0	3
SUBTOTAL	24	8	12	0	44	1	0	0	0	1	0	0	0	0	0	15

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Municipality: Mississauga
Count Date: Sep 17, 2024

North Approach - Commercial Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	34	8	18	0	60	0	0	0	0	0	0	0	0	0	0	5
16:15	32	12	31	0	75	0	0	0	0	0	0	0	0	0	0	5
16:30	34	3	20	0	57	1	0	0	0	1	0	0	0	0	0	3
16:45	44	8	12	0	64	0	0	0	0	0	0	0	0	0	0	5
17:00	38	8	32	0	78	0	0	0	0	0	0	0	0	0	0	2
17:15	33	11	21	0	65	0	0	0	0	0	0	0	0	0	0	2
17:30	32	12	20	0	64	0	0	0	0	0	0	0	0	0	0	2
17:45	30	7	18	0	55	0	0	0	0	0	0	0	0	0	0	2
SUBTOTAL	277	69	172	0	518	1	0	0	0	1	0	0	0	0	0	26
GRAND TOTAL	**301**	**77**	**184**	**0**	**562**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**41**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Municipality: Mississauga
Count Date: Sep 17, 2024

South Approach - Hampshire Gate

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	10	1	14	0	25	0	0	1	0	1	0	0	0	0	0	1
07:15	9	0	10	0	19	0	0	0	0	0	0	0	0	0	0	2
07:30	11	1	10	0	22	1	2	0	0	3	0	0	0	0	0	1
07:45	4	1	12	0	17	1	0	1	0	2	0	0	0	0	0	4
08:00	7	3	13	0	23	0	0	0	0	0	0	0	0	0	0	0
08:15	14	1	9	0	24	0	0	0	0	0	0	0	0	0	0	1
08:30	16	1	20	0	37	2	0	0	0	2	0	0	0	0	0	6
08:45	31	11	24	0	66	0	0	0	0	0	0	0	0	0	0	4
SUBTOTAL	102	19	112	0	233	4	2	2	0	8	0	0	0	0	0	19

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Municipality: Mississauga
Count Date: Sep 17, 2024

South Approach - Hampshire Gate

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	144	12	82	0	238	4	0	0	0	4	0	0	0	0	0	9
16:15	111	13	70	0	194	2	0	1	0	3	0	0	0	0	0	8
16:30	153	26	69	0	248	1	0	0	0	1	0	0	0	0	0	12
16:45	155	22	64	0	241	2	0	0	0	2	0	0	0	0	0	4
17:00	125	23	77	0	225	0	0	0	0	0	0	0	0	0	0	5
17:15	158	13	68	0	239	0	0	0	0	0	0	0	0	0	0	6
17:30	106	15	62	0	183	0	0	0	0	0	0	0	0	0	0	4
17:45	103	14	65	0	182	2	0	0	0	2	0	0	0	0	0	6
SUBTOTAL	1055	138	557	0	1750	11	0	1	0	12	0	0	0	0	0	54
GRAND TOTAL	**1157**	**157**	**669**	**0**	**1983**	**15**	**2**	**3**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**73**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Municipality: Mississauga
Count Date: Sep 17, 2024

East Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	14	88	1	0	103	0	3	0	0	3	0	0	0	0	0	2
07:15	15	121	1	0	137	0	6	0	0	6	0	0	0	0	0	1
07:30	13	120	2	0	135	0	11	0	0	11	0	0	0	0	0	2
07:45	24	165	6	0	195	0	5	0	0	5	0	0	0	0	0	2
08:00	17	139	0	0	156	0	7	0	0	7	0	0	0	0	0	1
08:15	27	182	4	0	213	0	9	0	0	9	0	0	0	0	0	0
08:30	28	193	7	0	228	0	8	0	0	8	0	0	0	0	0	1
08:45	33	177	13	1	224	2	8	1	0	11	0	0	0	0	0	3
SUBTOTAL	171	1185	34	1	1391	2	57	1	0	60	0	0	0	0	0	12

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Municipality: Mississauga
Count Date: Sep 17, 2024

East Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	43	259	13	0	315	0	9	0	0	9	0	0	0	0	0	3
16:15	39	273	11	1	324	0	6	0	0	6	0	0	0	0	0	5
16:30	40	273	29	0	342	0	6	1	0	7	0	0	0	0	0	4
16:45	29	243	16	0	288	0	3	0	0	3	0	0	0	0	0	7
17:00	27	288	15	2	332	0	3	0	0	3	0	0	0	0	0	4
17:15	26	286	14	0	326	1	5	0	0	6	0	0	0	0	0	3
17:30	19	301	10	2	332	0	6	0	0	6	0	0	1	0	1	3
17:45	36	321	23	0	380	0	7	0	0	7	0	0	0	0	0	0
SUBTOTAL	259	2244	131	5	2639	1	45	1	0	47	0	0	1	0	1	29
GRAND TOTAL	**430**	**3429**	**165**	**6**	**4030**	**3**	**102**	**2**	**0**	**107**	**0**	**0**	**1**	**0**	**1**	**41**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Municipality: Mississauga
Count Date: Sep 17, 2024

West Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	1	148	9	0	158	0	7	1	0	8	0	0	0	0	0	1
07:15	0	183	13	0	196	0	12	1	0	13	0	0	0	0	0	3
07:30	1	239	20	0	260	0	15	2	0	17	0	0	0	0	0	2
07:45	2	326	36	0	364	1	10	1	0	12	0	0	0	0	0	1
08:00	4	339	42	0	385	0	5	0	0	5	0	0	0	0	0	1
08:15	4	353	34	0	391	0	7	2	0	9	0	0	0	0	0	4
08:30	6	397	36	0	439	1	11	1	0	13	0	0	0	0	0	2
08:45	15	327	32	0	374	0	11	1	0	12	0	0	0	0	0	1
SUBTOTAL	33	2312	222	0	2567	2	78	9	0	89	0	0	0	0	0	15

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Municipality: Mississauga
Count Date: Sep 17, 2024

West Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	14	300	33	0	347	1	8	2	0	11	0	0	0	0	0	3
16:15	15	282	33	1	331	0	8	0	0	8	0	0	0	0	0	1
16:30	22	317	32	0	371	0	8	1	0	9	0	0	0	0	0	3
16:45	18	264	34	0	316	0	4	1	0	5	0	0	0	0	0	8
17:00	24	280	32	1	337	0	4	1	0	5	0	0	0	0	0	5
17:15	20	277	37	1	335	0	2	0	0	2	0	0	0	0	0	4
17:30	12	249	37	1	299	0	6	1	0	7	0	0	0	0	0	10
17:45	15	266	33	0	314	0	4	1	0	5	0	0	0	0	0	6
SUBTOTAL	140	2235	271	4	2650	1	44	7	0	52	0	0	0	0	0	40
GRAND TOTAL	173	4547	493	4	5217	3	122	16	0	141	0	0	0	0	0	55

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 08:00:00
To: 09:00:00

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Count Date: Sep 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St W runs E/W

North Approach

	Out	In	Total
Cars	24	69	93
Trucks	1	2	3
Bicycles	0	0	0
	25	**71**	**96**

Commercial Access

Bicycles	0	0	0	0
Trucks	0	0	1	0
Cars	5	4	15	0
Totals	**5**	**4**	**16**	**0**

East Approach

	Out	In	Total
Cars	821	1498	2319
Trucks	35	35	70
Bicycles	0	0	0
	856	**1533**	**2389**

Peds: 8

Dundas St W

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	1	29	**30**	
0	34	1416	**1450**	
0	4	144	**148**	

Peds: 8

Peds: 5

Dundas St W

	Totals	Cars	Trucks	Bicycles
	1	1	0	0
	25	24	1	0
	723	691	32	0
	107	105	2	0

Peds: 11

West Approach

	Out	In	Total
Cars	1589	764	2353
Trucks	39	34	73
Bicycles	0	0	0
	1628	**798**	**2426**

Totals	**70**	**16**	**66**	**0**
Cars	68	16	66	0
Trucks	2	0	0	0
Bicycles	0	0	0	0

Hampshire Gate

South Approach

	Out	In	Total
Cars	150	253	403
Trucks	2	6	8
Bicycles	0	0	0
	152	**259**	**411**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Count Date: Sep 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Commercial Access						South Approach Hampshire Gate						East Approach Dundas St W						West Approach Dundas St W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	2	1	1	0	2	4	7	3	13	0	0	23	17	146	0	0	1	163	4	344	42	0	1	390	580
08:15	3	2	1	0	2	6	14	1	9	0	1	24	27	191	4	0	0	222	4	360	36	0	4	400	652
08:30	4	0	0	0	1	4	18	1	20	0	6	39	28	201	7	0	1	236	7	408	37	0	2	452	731
08:45	7	1	3	0	3	11	31	11	24	0	4	66	35	185	14	1	3	235	15	338	33	0	1	386	698
Grand Total	**16**	**4**	**5**	**0**	**8**	**25**	**70**	**16**	**66**	**0**	**11**	**152**	**107**	**723**	**25**	**1**	**5**	**856**	**30**	**1450**	**148**	**0**	**8**	**1628**	**2661**
Approach %	64	16	20	0		-	46.1	10.5	43.4	0		-	12.5	84.5	2.9	0.1		-	1.8	89.1	9.1	0		-	
Totals %	0.6	0.2	0.2	0		0.9	2.6	0.6	2.5	0		5.7	4	27.2	0.9	0		32.2	1.1	54.5	5.6	0		61.2	
PHF	**0.57**	**0.5**	**0.42**	**0**		**0.57**	**0.56**	**0.36**	**0.69**	**0**		**0.58**	**0.76**	**0.9**	**0.45**	**0.25**		**0.91**	**0.5**	**0.89**	**0.88**	**0**		**0.9**	**0.91**
Cars	15	4	5	0		24	68	16	66	0		150	105	691	24	1		821	29	1416	144	0		1589	2584
% Cars	93.8	100	100	0		96	97.1	100	100	0		98.7	98.1	95.6	96	100		95.9	96.7	97.7	97.3	0		97.6	97.1
Trucks	1	0	0	0		1	2	0	0	0		2	2	32	1	0		35	1	34	4	0		39	77
% Trucks	6.3	0	0	0		4	2.9	0	0	0		1.3	1.9	4.4	4	0		4.1	3.3	2.3	2.7	0		2.4	2.9
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					8	-					11	-					5	-					8	-	32
% Peds					25	-					34.4	-					15.6	-					25	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Count Date: Sep 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St W runs E/W

North Approach

	Out	In	Total
Cars	264	242	506
Trucks	1	1	2
Bicycles	0	0	0
	265	**243**	**508**

Commercial Access

Bicycles	0	0	0	0
Trucks	0	0	1	0
Cars	85	30	149	0
Totals	**85**	**30**	**150**	**0**

East Approach

	Out	In	Total
Cars	1288	1567	2855
Trucks	19	19	38
Bicycles	0	0	0
	1307	**1586**	**2893**

Dundas St W

Bicycles	Trucks	Cars	Totals	
0	0	2	**2**	
0	0	84	**84**	
0	18	1138	**1156**	
0	3	135	**138**	

Peds: 12

Peds: 20

Peds: 18

Peds: 27

Dundas St W

	Totals	Cars	Trucks	Bicycles
	2	2	0	0
	75	74	1	0
	1107	1090	17	0
	123	122	1	0

West Approach

	Out	In	Total
Cars	1359	1768	3127
Trucks	21	20	41
Bicycles	0	0	0
	1380	**1788**	**3168**

Totals	**594**	**84**	**278**	**0**
Cars	591	84	278	0
Trucks	3	0	0	0
Bicycles	0	0	0	0

Hampshire Gate

South Approach

	Out	In	Total
Cars	953	287	1240
Trucks	3	4	7
Bicycles	0	0	0
	956	**291**	**1247**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Dundas St W & Hampshire Gate - Commercial Access
Site Code: 2437100003
Count Date: Sep 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Commercial Access						South Approach Hampshire Gate						East Approach Dundas St W						West Approach Dundas St W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:30	35	3	20	0	3	58	154	26	69	0	12	249	40	279	30	0	4	349	22	325	33	0	3	380	1036
16:45	44	8	12	0	5	64	157	22	64	0	4	243	29	246	16	0	7	291	18	268	35	0	8	321	919
17:00	38	8	32	0	2	78	125	23	77	0	5	225	27	291	15	2	4	335	24	284	33	1	5	342	980
17:15	33	11	21	0	2	65	158	13	68	0	6	239	27	291	14	0	3	332	20	279	37	1	4	337	973
Grand Total	**150**	**30**	**85**	**0**	**12**	**265**	**594**	**84**	**278**	**0**	**27**	**956**	**123**	**1107**	**75**	**2**	**18**	**1307**	**84**	**1156**	**138**	**2**	**20**	**1380**	**3908**
Approach %	56.6	11.3	32.1	0		-	62.1	8.8	29.1	0		-	9.4	84.7	5.7	0.2		-	6.1	83.8	10	0.1		-	
Totals %	3.8	0.8	2.2	0		6.8	15.2	2.1	7.1	0		24.5	3.1	28.3	1.9	0.1		33.4	2.1	29.6	3.5	0.1		35.3	
PHF	**0.85**	**0.68**	**0.66**	**0**		**0.85**	**0.94**	**0.81**	**0.9**	**0**		**0.96**	**0.77**	**0.95**	**0.63**	**0.25**		**0.94**	**0.88**	**0.89**	**0.93**	**0.5**		**0.91**	**0.94**
Cars	149	30	85	0		264	591	84	278	0		953	122	1090	74	2		1288	84	1138	135	2		1359	3864
% Cars	99.3	100	100	0		99.6	99.5	100	100	0		99.7	99.2	98.5	98.7	100		98.5	100	98.4	97.8	100		98.5	98.9
Trucks	1	0	0	0		1	3	0	0	0		3	1	17	1	0		19	0	18	3	0		21	44
% Trucks	0.7	0	0	0		0.4	0.5	0	0	0		0.3	0.8	1.5	1.3	0		1.5	0	1.6	2.2	0		1.5	1.1
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					12	-					27	-					18	-					20	-	77
% Peds					15.6	-					35.1	-					23.4	-					26	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-371 - Arcadis Professional Services (Canada)

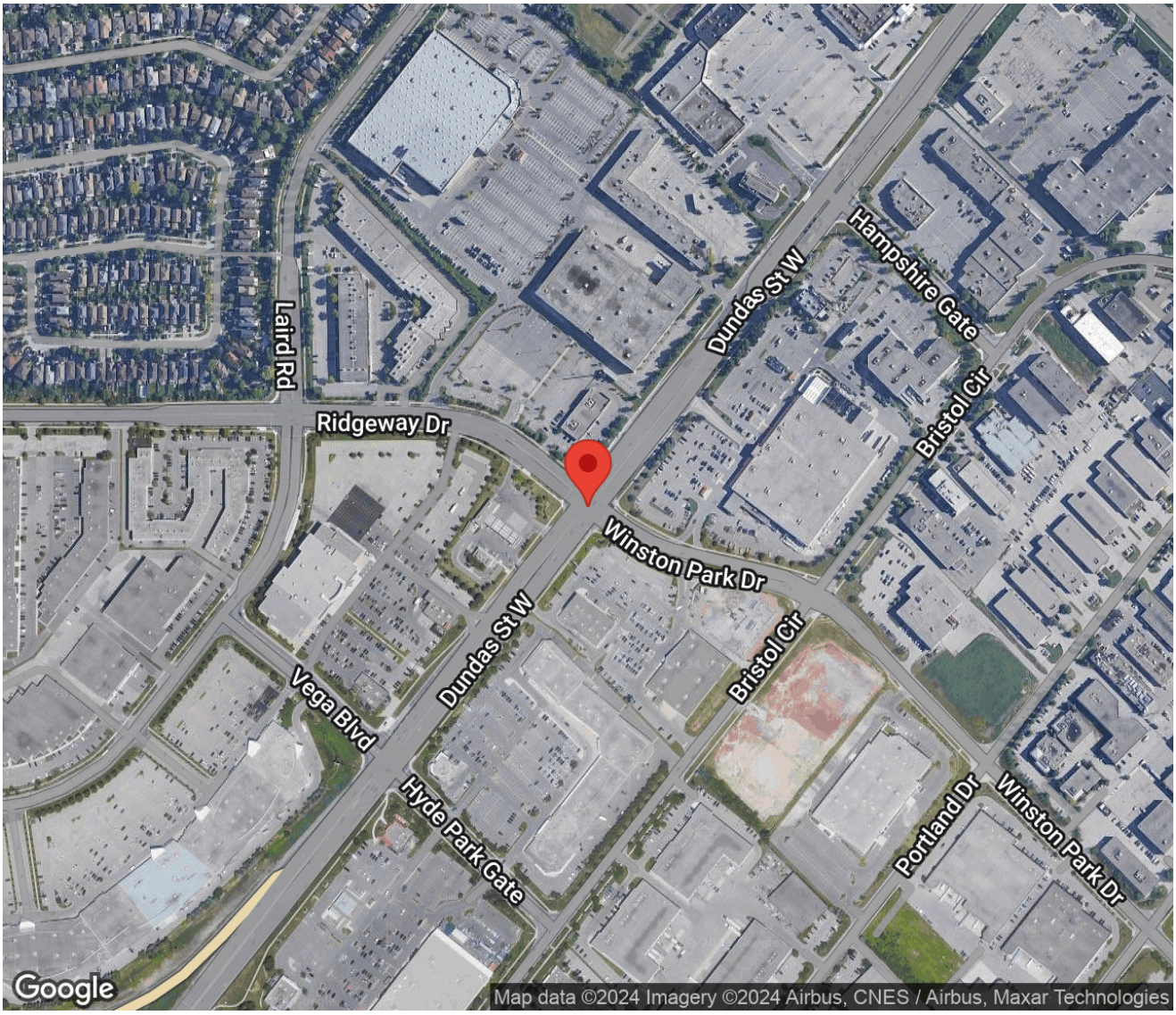
Intersection Count Report

Intersection:	Dundas St W & Ridgeway Dr - Winston Park Dr
Municipality:	Mississauga
Count Date:	Tuesday, Sep 17, 2024
Site Code:	2437100004
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code:	2437100004
Municipality:	Mississauga
Count Date:	Sep 17, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code:	2437100004
Municipality:	Mississauga
Count Date:	Sep 17, 2024

Ridgeway Dr - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	200	222	41	1	464	11	70	70	14	0	154	1	618
08:00 - 09:00	252	470	56	0	778	13	110	198	31	1	340	8	1118
BREAK													
16:00 - 17:00	214	235	153	0	602	17	328	648	93	0	1069	18	1671
17:00 - 18:00	211	248	180	0	639	11	316	676	57	2	1051	9	1690
GRAND TOTAL	**877**	**1175**	**430**	**1**	**2483**	**52**	**824**	**1592**	**195**	**3**	**2614**	**36**	**5097**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code:	2437100004
Municipality:	Mississauga
Count Date:	Sep 17, 2024

Dundas St W - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	39	371	137	0	547	9	68	824	177	14	1083	2	1630
08:00 - 09:00	55	531	177	2	765	13	198	1296	353	10	1857	4	2622
BREAK													
16:00 - 17:00	68	1313	374	0	1755	12	256	1112	113	18	1499	6	3254
17:00 - 18:00	90	1289	411	0	1790	13	248	1123	119	13	1503	15	3293
GRAND TOTAL	**252**	**3504**	**1099**	**2**	**4857**	**47**	**770**	**4355**	**762**	**55**	**5942**	**27**	**10799**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Municipality: Mississauga
Count Date: Sep 17, 2024

North Approach - Ridgeway Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	32	30	5	0	67	1	3	3	0	7	0	0	0	0	0	4
07:15	34	38	5	0	77	6	1	0	0	7	0	0	0	0	0	1
07:30	57	61	16	0	134	3	3	1	0	7	0	0	0	0	0	5
07:45	65	85	10	1	161	2	1	1	0	4	0	0	0	0	0	1
08:00	58	110	14	0	182	2	1	1	0	4	0	0	0	0	0	3
08:15	60	127	11	0	198	2	1	2	0	5	0	0	0	0	0	5
08:30	52	121	13	0	186	3	5	0	0	8	0	0	0	0	0	1
08:45	73	105	13	0	191	2	0	2	0	4	0	0	0	0	0	4
SUBTOTAL	431	677	87	1	1196	21	15	10	0	46	0	0	0	0	0	24

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Municipality: Mississauga
Count Date: Sep 17, 2024

North Approach - Ridgeway Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	45	42	38	0	125	5	1	1	0	7	0	0	0	0	0	5
16:15	49	45	42	0	136	1	3	0	0	4	0	0	0	0	0	5
16:30	51	66	31	0	148	2	2	0	0	4	0	0	0	0	0	1
16:45	61	74	41	0	176	0	2	0	0	2	0	0	0	0	0	6
17:00	58	59	45	0	162	2	5	1	0	8	0	0	0	0	0	2
17:15	52	67	38	0	157	0	1	0	0	1	0	0	0	0	0	2
17:30	50	61	51	0	162	3	2	1	0	6	0	0	0	0	0	3
17:45	45	51	43	0	139	1	2	1	0	4	0	0	0	0	0	4
SUBTOTAL	411	465	329	0	1205	14	18	4	0	36	0	0	0	0	0	28
GRAND TOTAL	**842**	**1142**	**416**	**1**	**2401**	**35**	**33**	**14**	**0**	**82**	**0**	**0**	**0**	**0**	**0**	**52**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Municipality: Mississauga
Count Date: Sep 17, 2024

South Approach - Winston Park Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	17	11	2	0	30	5	0	0	0	5	0	0	0	0	0	0
07:15	10	14	1	0	25	3	1	0	0	4	0	0	0	0	0	0
07:30	10	14	1	0	25	0	2	0	0	2	0	0	0	0	0	0
07:45	23	26	9	0	58	2	1	1	0	4	0	1	0	0	1	1
08:00	24	39	4	0	67	4	2	0	0	6	0	0	0	0	0	0
08:15	23	44	6	0	73	2	0	0	0	2	0	0	0	0	0	1
08:30	30	60	7	0	97	4	1	1	0	6	0	0	0	0	0	3
08:45	18	51	13	1	83	5	1	0	0	6	0	0	0	0	0	4
SUBTOTAL	155	259	43	1	458	25	8	2	0	35	0	1	0	0	1	9

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Municipality: Mississauga
Count Date: Sep 17, 2024

South Approach - Winston Park Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	83	142	25	0	250	2	5	0	0	7	0	0	0	0	0	4
16:15	87	161	31	0	279	6	2	1	0	9	0	0	0	0	0	8
16:30	82	164	20	0	266	0	2	1	0	3	0	0	0	0	0	5
16:45	65	172	15	0	252	3	0	0	0	3	0	0	0	0	0	1
17:00	88	167	20	2	277	1	2	0	0	3	0	0	0	0	0	4
17:15	78	162	13	0	253	1	2	0	0	3	0	0	0	0	0	2
17:30	62	195	13	0	270	3	1	0	0	4	0	0	0	0	0	2
17:45	81	144	11	0	236	2	3	0	0	5	0	0	0	0	0	1
SUBTOTAL	626	1307	148	2	2083	18	17	2	0	37	0	0	0	0	0	27
GRAND TOTAL	**781**	**1566**	**191**	**3**	**2541**	**43**	**25**	**4**	**0**	**72**	**0**	**1**	**0**	**0**	**1**	**36**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Municipality: Mississauga
Count Date: Sep 17, 2024

East Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	4	66	30	0	100	0	3	0	0	3	0	0	0	0	0	1
07:15	8	82	31	0	121	0	5	0	0	5	0	0	0	0	0	0
07:30	10	79	31	0	120	1	9	3	0	13	0	0	0	0	0	6
07:45	16	124	41	0	181	0	3	1	0	4	0	0	0	0	0	2
08:00	9	116	34	0	159	1	5	2	0	8	0	1	0	0	1	1
08:15	13	128	44	0	185	1	7	0	0	8	0	0	0	0	0	3
08:30	16	113	43	0	172	2	7	5	0	14	0	0	0	0	0	4
08:45	12	150	47	2	211	1	4	2	0	7	0	0	0	0	0	5
SUBTOTAL	88	858	301	2	1249	6	43	13	0	62	0	1	0	0	1	22

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Municipality: Mississauga
Count Date: Sep 17, 2024

East Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	12	351	90	0	453	0	9	2	0	11	0	0	0	0	0	3
16:15	17	277	91	0	385	0	8	2	0	10	0	0	0	0	0	3
16:30	18	330	93	0	441	0	4	3	0	7	0	0	0	0	0	2
16:45	21	328	92	0	441	0	6	1	0	7	0	0	0	0	0	4
17:00	18	283	103	0	404	1	0	1	0	2	0	0	0	0	0	4
17:15	26	351	106	0	483	0	8	0	0	8	0	0	0	0	0	3
17:30	22	354	105	0	481	0	5	0	0	5	0	0	0	0	0	5
17:45	22	282	93	0	397	1	6	3	0	10	0	0	0	0	0	1
SUBTOTAL	156	2556	773	0	3485	2	46	12	0	60	0	0	0	0	0	25
GRAND TOTAL	244	3414	1074	2	4734	8	89	25	0	122	0	1	0	0	1	47

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Municipality: Mississauga
Count Date: Sep 17, 2024

West Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	19	143	33	1	196	0	8	2	0	10	0	0	0	0	0	2
07:15	12	142	33	3	190	0	7	4	0	11	0	0	0	0	0	0
07:30	16	229	31	3	279	0	16	0	0	16	0	0	0	0	0	0
07:45	20	272	69	7	368	1	7	5	0	13	0	0	0	0	0	0
08:00	35	270	80	2	387	2	4	6	0	12	0	0	0	0	0	0
08:15	43	337	75	3	458	0	7	6	0	13	0	0	0	0	0	2
08:30	51	320	84	1	456	4	9	2	0	15	0	0	0	0	0	1
08:45	63	339	95	4	501	0	10	5	0	15	0	0	0	0	0	1
SUBTOTAL	259	2052	500	24	2835	7	68	30	0	105	0	0	0	0	0	6

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Municipality: Mississauga
Count Date: Sep 17, 2024

West Approach - Dundas St W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	61	283	31	7	382	1	7	1	0	9	0	0	0	0	0	0
16:15	66	238	20	7	331	1	5	1	0	7	0	0	0	0	0	0
16:30	65	286	28	0	379	0	8	1	0	9	0	0	0	0	0	3
16:45	60	280	31	4	375	2	5	0	0	7	0	0	0	0	0	3
17:00	59	277	28	3	367	0	3	7	0	10	0	0	0	0	0	4
17:15	68	297	20	0	385	1	2	2	0	5	0	0	0	0	0	0
17:30	53	283	31	6	373	1	3	2	0	6	0	0	0	0	0	2
17:45	66	255	27	4	352	0	3	2	0	5	0	0	0	0	0	9
SUBTOTAL	498	2199	216	31	2944	6	36	16	0	58	0	0	0	0	0	21
GRAND TOTAL	**757**	**4251**	**716**	**55**	**5779**	**13**	**104**	**46**	**0**	**163**	**0**	**0**	**0**	**0**	**0**	**27**

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 08:00:00
To: 09:00:00

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Count Date: Sep 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St W runs E/W

North Approach

	Out	In	Total
Cars	757	554	1311
Trucks	21	19	40
Bicycles	0	0	0
	778	**573**	**1351**

Ridgeway Dr

Bicycles	0	0	0	0
Trucks	5	7	9	0
Cars	51	463	243	0
Totals	**56**	**470**	**252**	**0**

East Approach

	Out	In	Total
Cars	727	1541	2268
Trucks	37	40	77
Bicycles	1	0	1
	765	**1581**	**2346**

Peds: 13

Dundas St W

Bicycles	Trucks	Cars	Totals	
0	0	10	**10**	
0	6	192	**198**	
0	30	1266	**1296**	
0	19	334	**353**	

Peds: 4

Peds: 13

Dundas St W

	Totals	Cars	Trucks	Bicycles
	2	2	0	0
	177	168	9	0
	531	507	23	1
	55	50	5	0

Peds: 8

West Approach

	Out	In	Total
Cars	1802	663	2465
Trucks	55	43	98
Bicycles	0	1	1
	1857	**707**	**2564**

Totals	**110**	**198**	**31**	**1**
Cars	95	194	30	1
Trucks	15	4	1	0
Bicycles	0	0	0	0

Winston Park Dr

South Approach

	Out	In	Total
Cars	320	848	1168
Trucks	20	31	51
Bicycles	0	0	0
	340	**879**	**1219**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Count Date: Sep 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Ridgeway Dr						South Approach Winston Park Dr						East Approach Dundas St W						West Approach Dundas St W						Total Vehicles
	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	
08:00	60	111	15	0	3	186	28	41	4	0	0	73	10	122	36	0	1	168	37	274	86	2	0	399	826
08:15	62	128	13	0	5	203	25	44	6	0	1	75	14	135	44	0	3	193	43	344	81	3	2	471	942
08:30	55	126	13	0	1	194	34	61	8	0	3	103	18	120	48	0	4	186	55	329	86	1	1	471	954
08:45	75	105	15	0	4	195	23	52	13	1	4	89	13	154	49	2	5	218	63	349	100	4	1	516	1018
Grand Total	**252**	**470**	**56**	**0**	**13**	**778**	**110**	**198**	**31**	**1**	**8**	**340**	**55**	**531**	**177**	**2**	**13**	**765**	**198**	**1296**	**353**	**10**	**4**	**1857**	**3740**
Approach %	32.4	60.4	7.2	0		-	32.4	58.2	9.1	0.3		-	7.2	69.4	23.1	0.3		-	10.7	69.8	19	0.5		-	
Totals %	6.7	12.6	1.5	0		20.8	2.9	5.3	0.8	0		9.1	1.5	14.2	4.7	0.1		20.5	5.3	34.7	9.4	0.3		49.7	
PHF	**0.84**	**0.92**	**0.93**	**0**		**0.96**	**0.81**	**0.81**	**0.6**	**0.25**		**0.83**	**0.76**	**0.86**	**0.9**	**0.25**		**0.88**	**0.79**	**0.93**	**0.88**	**0.63**		**0.9**	**0.92**
Cars	243	463	51	0		757	95	194	30	1		320	50	507	168	2		727	192	1266	334	10		1802	3606
% Cars	96.4	98.5	91.1	0		97.3	86.4	98	96.8	100		94.1	90.9	95.5	94.9	100		95	97	97.7	94.6	100		97	96.4
Trucks	9	7	5	0		21	15	4	1	0		20	5	23	9	0		37	6	30	19	0		55	133
% Trucks	3.6	1.5	8.9	0		2.7	13.6	2	3.2	0		5.9	9.1	4.3	5.1	0		4.8	3	2.3	5.4	0		3	3.6
Bicycles	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	1
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0.2	0	0		0.1	0	0	0	0		0	0
Peds					13	-					8	-					13	-					4	-	38
% Peds					34.2	-					21.1	-					34.2	-					10.5	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Count Date: Sep 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St W runs E/W

North Approach

	Out	In	Total
Cars	657	1342	1999
Trucks	17	11	28
Bicycles	0	0	0
	674	**1353**	**2027**

Ridgeway Dr

Bicycles	0	0	0	0
Trucks	2	10	5	0
Cars	175	261	221	0
Totals	**177**	**271**	**226**	**0**

East Approach

	Out	In	Total
Cars	1809	1419	3228
Trucks	22	18	40
Bicycles	0	0	0
	1831	**1437**	**3268**

Dundas St W

Bicycles	Trucks	Cars	Totals
0	0	13	**13**
0	4	240	**244**
0	13	1137	**1150**
0	11	110	**121**

Peds: 13

Peds: 9

Peds: 16

Peds: 9

Dundas St W

Totals	Cars	Trucks	Bicycles
0	0	0	0
408	406	2	0
1335	1316	19	0
88	87	1	0

West Approach

	Out	In	Total
Cars	1500	1797	3297
Trucks	28	29	57
Bicycles	0	0	0
	1528	**1826**	**3354**

Totals	**301**	**701**	**61**	**2**
Cars	293	696	61	2
Trucks	8	5	0	0
Bicycles	0	0	0	0

Winston Park Dr

South Approach

	Out	In	Total
Cars	1052	460	1512
Trucks	13	22	35
Bicycles	0	0	0
	1065	**482**	**1547**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Dundas St W & Ridgeway Dr - Winston Park Dr
Site Code: 2437100004
Count Date: Sep 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Ridgeway Dr						South Approach Winston Park Dr						East Approach Dundas St W						West Approach Dundas St W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:45	61	76	41	0	6	178	68	172	15	0	1	255	21	334	93	0	4	448	62	285	31	4	3	382	1263
17:00	60	64	46	0	2	170	89	169	20	2	4	280	19	283	104	0	4	406	59	280	35	3	4	377	1233
17:15	52	68	38	0	2	158	79	164	13	0	2	256	26	359	106	0	3	491	69	299	22	0	0	390	1295
17:30	53	63	52	0	3	168	65	196	13	0	2	274	22	359	105	0	5	486	54	286	33	6	2	379	1307
Grand Total	**226**	**271**	**177**	**0**	**13**	**674**	**301**	**701**	**61**	**2**	**9**	**1065**	**88**	**1335**	**408**	**0**	**16**	**1831**	**244**	**1150**	**121**	**13**	**9**	**1528**	**5098**
Approach %	33.5	40.2	26.3	0		-	28.3	65.8	5.7	0.2		-	4.8	72.9	22.3	0		-	16	75.3	7.9	0.9		-	
Totals %	4.4	5.3	3.5	0		13.2	5.9	13.8	1.2	0		20.9	1.7	26.2	8	0		35.9	4.8	22.6	2.4	0.3		30	
PHF	**0.93**	**0.89**	**0.85**	**0**		**0.95**	**0.85**	**0.89**	**0.76**	**0.25**		**0.95**	**0.85**	**0.93**	**0.96**	**0**		**0.93**	**0.88**	**0.96**	**0.86**	**0.54**		**0.98**	**0.98**
Cars	221	261	175	0		657	293	696	61	2		1052	87	1316	406	0		1809	240	1137	110	13		1500	5018
% Cars	97.8	96.3	98.9	0		97.5	97.3	99.3	100	100		98.8	98.9	98.6	99.5	0		98.8	98.4	98.9	90.9	100		98.2	98.4
Trucks	5	10	2	0		17	8	5	0	0		13	1	19	2	0		22	4	13	11	0		28	80
% Trucks	2.2	3.7	1.1	0		2.5	2.7	0.7	0	0		1.2	1.1	1.4	0.5	0		1.2	1.6	1.1	9.1	0		1.8	1.6
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					13	-					9	-					16	-					9	-	47
% Peds					27.7	-					19.1	-					34	-					19.1	-	

Appendix C

Signal Timing Plan

Intelight 2511 WINSTON CHURCHILL BOULEVARD N @ Laird Road

Phase - Parameter 1-16	Units	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Phase Description*	String								
Walk	Sec	0	10	0	10	0	10	0	10
Ped Clear	Sec	0	23	0	25	0	23	0	25
Min Green	Sec	7	10	0	10	7	10	0	10
Passage	Sec	2.0	3.0	0.0	3.0	2.0	3.0	0.0	3.0
Maximum 1	Sec	10	25	0	20	10	25	0	20
Maximum 2	Sec	10	25	0	20	10	25	0	20
Yellow Change	Sec	3.0	4.0	3.0	3.5	3.0	4.0	3.0	3.5
Red Clearance	Sec	0.0	2.5	0.0	3.0	0.0	2.5	0.0	3.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before Reduction	Sec	0	0	0	0	0	0	0	0
Cars Before Reduction	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	phaseNotOn	redClear	other	phaseNotOn	phaseNotOn	redClear	other	phaseNotOn
[P2] Options	Bit	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 3:Non-Actuated 1 7:Max Vehicle Recall 8:Ped. Recall 10:Dual Entry Phase 13:Actuated Rest In Walk		0:Enabled Phase 5:Non Lock Detector Memory 10:Dual Entry Phase	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 3:Non-Actuated 1 7:Max Vehicle Recall 8:Ped. Recall 10:Dual Entry Phase 13:Actuated Rest In Walk		0:Enabled Phase 5:Non Lock Detector Memory 10:Dual Entry Phase
[P2] Ring	Ring	1	1	0	1	2	2	0	2
[P2] Concurrency	Phase (,)	(5,6)	(5,6)	()	(8)	(1,2)	(1,2)	()	(4)

Coordination - Pattern 1-32	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	160	160	160	0	0	0	0	0
Offset	Sec	64	158	88	0	0	0	0	0
Split	Split	1	2	3	0	0	0	0	0
Sequence	Sequence	1	1	1	0	0	0	0	0
Phase Parameter Table*	Number	1	1	1	1	1	1	1	1
Coord Phase Reference Point*	Enum	green	green	green	green	green	green	green	green
Coord Mode*	Enum	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive

Coordination - Pattern 1-32	Units	9	10	11	12	13	14	15	16
Cycle Time	Sec	160	160	160	0	0	0	0	0
Offset	Sec	64	158	88	0	0	0	0	0
Split	Split	9	10	11	0	0	0	0	0
Sequence	Sequence	1	1	1	0	0	0	0	0
Phase Parameter Table*	Number	1	1	1	1	1	1	1	1
Coord Phase Reference Point*	Enum	green	green	green	green	green	green	green	green
Coord Mode*	Enum	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	standard

Coordination - Splits	Units	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Split 1 - Mode	Enum	phaseOmitted	none	none	none	phaseOmitted	none	none	none
Split 1 - Time	Sec	0	112	0	48	0	112	0	48
Split 1 - Coord	Enum	False	True	False	False	False	True	False	False
Split 1 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	26	72	0	62	26	72	0	62

Split 2 - Coord	Enum	False	True	False	False	False	True	False	False
Split 2 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	19	88	0	53	19	88	0	53
Split 3 - Coord	Enum	False	True	False	False	False	True	False	False
Split 3 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 9 - Mode	Enum	none	none	none	none	none	none	none	none
Split 9 - Time	Sec	0	115	0	45	0	115	0	45
Split 9 - Coord	Enum	False	True	False	False	False	True	False	False
Split 9 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 10 - Mode	Enum	none	none	none	none	none	none	none	none
Split 10 - Time	Sec	26	89	0	45	26	89	0	45
Split 10 - Coord	Enum	False	True	False	False	False	True	False	False
Split 10 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 11 - Mode	Enum	none	none	none	none	none	none	none	none
Split 11 - Time	Sec	19	96	0	45	19	96	0	45
Split 11 - Coord	Enum	False	True	False	False	False	True	False	False
Split 11 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		

Time Base - Schedule 1-16	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F----------	--M---------	----M-------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	---W---	-M-----	-----F-	-M-----	-M-----
Day of Month	Bit	12345678901234567 89012345678901	12345678901234567 89012345678901	12345678901234567 89012345678901	1---------- --	----------9--------- --	---------- 9--	----------0--------- --	1---------- --
Day Plan	Number	1	3	2	3	3	3	3	3

Time Base - Schedule 1-16	**Units**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	--------S---	----------
Day of Week	Bit	-M-----	-M-----	-M-----	---W---	----T--	--T----	-M-----	SMTWTFS
Day of Month	Bit	----5---------- --	-2---------- --	----------4---------- --	----------5--- --	----------6--- --	----------4---- --	---------- 0-	---------- --
Day Plan	Number	3	3	3	3	3	3	3	0

Time Base - Day Plans	**Units**	**Evt 1**	**Evt 2**	**Evt 3**	**Evt 4**	**Evt 5**	**Evt 6**
Plan 1 Hour	Hour	0	6	9	15	19	3
Plan 1 Minute	Min	0	0	30	0	30	0
Plan 1 Action	Number	8	1	2	3	2	7
Plan 2 Hour	Hour	0	7	0	0	0	3
Plan 2 Minute	Min	0	0	0	0	0	0
Plan 2 Action	Number	8	2	0	0	0	7
Plan 3 Hour	Hour	0	8	23	0	0	3
Plan 3 Minute	Min	0	0	0	0	0	0
Plan 3 Action	Number	8	2	8	0	0	7

Time Base - Action 1-32	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Free	Free
Aux. Functions	Bit								
Spec. Functions	Bit								

Time Base - Action 1-32	**Units**	**9**	**10**	**11**
Pattern	Enum	Pattern 9	Pattern 10	Pattern 11
Aux. Functions	Bit			
Spec. Functions	Bit			

Location	**Winston Churchill Boulevard @ Laird Road**
Phase 1	NBLT
Phase 2	SB
Phase 4	WB
Phase 5	SBLT
Phase 6	NB

Phase 8	EB

Intelight 5906 DUNDAS STREET E @ Ridgeway Drive

Phase - Parameter 1-16	Units	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Phase Description*	String								
Walk	Sec	0	10	0	10	0	10	0	10
Ped Clear	Sec	0	27	0	31	0	27	0	31
Min Green	Sec	7	10	7	10	7	10	7	10
Passage	Sec	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Maximum 1	Sec	10	40	10	25	10	40	10	25
Maximum 2	Sec	10	40	10	25	10	40	10	25
Yellow Change	Sec	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before Reduction	Sec	0	0	0	0	0	0	0	0
Cars Before Reduction	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	phaseNotOn	redClear	phaseNotOn	phaseNotOn	phaseNotOn	redClear	phaseNotOn	phaseNotOn
[P2] Options	Bit	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 3:Non-Actuated 1 7:Max Vehicle Recall 8:Ped. Recall 10:Dual Entry Phase 13:Actuated Rest In Walk	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 5:Non Lock Detector Memory 10:Dual Entry Phase	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 3:Non-Actuated 1 7:Max Vehicle Recall 8:Ped. Recall 10:Dual Entry Phase 13:Actuated Rest In Walk	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 5:Non Lock Detector Memory 10:Dual Entry Phase
[P2] Ring	Ring	1	1	1	1	2	2	2	2
[P2] Concurrency	Phase (,)	(5,6)	(5,6)	(7,8)	(7,8)	(1,2)	(1,2)	(3,4)	(3,4)

Coordination - Pattern 1-32	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	160	160	160	160	0	0	0	0
Offset	Sec	118	83	33	137	0	0	0	0
Split	Split	1	2	3	4	0	0	0	0
Sequence	Sequence	1	1	1	1	0	0	0	0
Phase Parameter Table*	Number	1	1	1	1	1	1	1	1
Coord Phase Reference Point*	Enum	green	green	green	green	green	green	green	green
Coord Mode*	Enum	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive

Coordination - Pattern 1-32	Units	9	10	11	12	13	14	15	16
Cycle Time	Sec	0	0	0	0	160	160	160	0
Offset	Sec	0	0	0	0	72	72	76	0
Split	Split	0	0	0	0	13	14	15	0
Sequence	Sequence	0	0	0	0	1	1	1	0
Phase Parameter Table*	Number	1	1	1	1	1	1	1	1
Coord Phase Reference Point*	Enum	green	green	green	green	green	green	green	green
Coord Mode*	Enum	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	standard

Coordination - Splits	Units	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	12	81	14	53	12	81	14	53
Split 1 - Coord	Enum	False	True	False	False	False	True	False	False
Split 1 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	21	67	19	53	19	69	19	53

Split 2 - Coord	Enum	False	True	False	False	False	True	False	False
Split 2 - Coord Phase Options*	Bit		0: Reference Point						
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	20	70	17	53	15	75	17	53
Split 3 - Coord	Enum	False	True	False	False	False	True	False	False
Split 3 - Coord Phase Options*	Bit		0: Reference Point						
Split 4 - Mode	Enum	none	none	none	none	none	none	none	none
Split 4 - Time	Sec	16	73	18	53	14	75	16	55
Split 4 - Coord	Enum	False	True	False	False	False	True	False	False
Split 4 - Coord Phase Options*	Bit		0: Reference Point						
Split 13 - Mode	Enum	none	none	none	none	none	none	none	none
Split 13 - Time	Sec	17	49	38	56	10	56	41	53
Split 13 - Coord	Enum	False	True	False	False	False	True	False	False
Split 13 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 14 - Mode	Enum	none	none	none	none	none	none	none	none
Split 14 - Time	Sec	22	49	34	55	10	61	36	53
Split 14 - Coord	Enum	False	True	False	False	False	True	False	False
Split 14 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 15 - Mode	Enum	none	none	none	none	none	none	none	none
Split 15 - Time	Sec	16	49	36	59	10	55	42	53
Split 15 - Coord	Enum	False	True	False	False	False	True	False	False
Split 15 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		

Time Base - Schedule 1-16	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F----------	--M---------	----M-------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	---W---	-M-----	-----F-	-M-----	-M-----
Day of Month	Bit	12345678901234567 89012345678901	12345678901234567 89012345678901	12345678901234567 89012345678901	1---------- --	----------9--------- --	---------- 9--	----------0--------- --	1---------- --
Day Plan	Number	1	3	2	3	3	3	3	3

Time Base - Schedule 1-16	**Units**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	--------S---	----------
Day of Week	Bit	-M-----	-M-----	-M-----	---W---	----T--	--T----	-M-----	SMTWTFS
Day of Month	Bit	----5---------- --	-2---------- --	----------4---------- --	----------5---- --	----------6--- --	----------4---- --	---------- 0-	---------- --
Day Plan	Number	3	3	3	3	3	3	3	0

Time Base - Day Plans	**Units**	**Evt 1**	**Evt 2**	**Evt 3**	**Evt 4**	**Evt 5**	**Evt 6**
Plan 1 Hour	Hour	0	3	6	9	15	19
Plan 1 Minute	Min	0	0	0	30	0	30
Plan 1 Action	Number	8	7	1	2	3	2
Plan 2 Hour	Hour	0	7	3	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0
Plan 2 Action	Number	8	4	7	0	0	0
Plan 3 Hour	Hour	0	8	23	3	0	0
Plan 3 Minute	Min	0	0	0	0	0	0
Plan 3 Action	Number	8	4	8	7	0	0

Time Base - Action 1-32	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Free	Free
Aux. Functions	Bit								
Spec. Functions	Bit								

Time Base - Action 1-32	**Units**	**9**	**10**
Pattern	Enum	Pattern 9	Pattern 10
Aux. Functions	Bit		
Spec. Functions	Bit		

Location	Dundas Street W @ Ridgeway Drive / Winston Park Drive
Phase 1	EBLT
Phase 2	WB
Phase 3	NBLT
Phase 4	SB
Phase 5	WBLT
Phase 6	EB
Phase 7	SBLT
Phase 8	NB

Intelight 5907 DUNDAS STREET E @ Hampshire Gate

Phase - Parameter 1-16	Units	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Phase Description*	String								
Walk	Sec	0	10	10	10	0	10	0	0
Ped Clear	Sec	0	26	30	30	0	26	0	0
Min Green	Sec	7	10	10	10	7	10	0	0
Passage	Sec	2.0	3.0	3.0	3.0	2.0	3.0	0.0	0.0
Maximum 1	Sec	15	40	25	25	15	40	0	0
Maximum 2	Sec	15	40	25	25	15	40	0	0
Yellow Change	Sec	3.0	4.0	3.5	3.5	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	3.0	3.5	3.5	0.0	3.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before Reduction	Sec	0	0	0	0	0	0	0	0
Cars Before Reduction	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	phaseNotOn	redClear	phaseNotOn	phaseNotOn	phaseNotOn	redClear	other	other
[P2] Options	Bit	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 3:Non-Actuated 1 7:Max Vehicle Recall 8:Ped. Recall 10:Dual Entry Phase 13:Actuated Rest In Walk	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 5:Non Lock Detector Memory	0:Enabled Phase 3:Non-Actuated 1 7:Max Vehicle Recall 8:Ped. Recall 10:Dual Entry Phase 13:Actuated Rest In Walk		
[P2] Ring	Ring	1	1	1	1	2	2	0	0
[P2] Concurrency	Phase (,)	(5,6)	(5,6)	()	()	(1,2)	(1,2)	()	()

Coordination - Pattern 1-32	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	160	160	160	160	0	0	0	0
Offset	Sec	157	88	15	159	0	0	0	0
Split	Split	1	2	3	4	0	0	0	0
Sequence	Sequence	1	1	1	1	0	0	0	0
Phase Parameter Table*	Number	1	1	1	1	1	1	1	1
Coord Phase Reference Point*	Enum	green	green	green	green	green	green	green	green
Coord Mode*	Enum	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive

Coordination - Pattern 1-32	Units	9	10	11	12	13	14	15	16
Cycle Time	Sec	0	0	0	0	160	160	160	0
Offset	Sec	0	0	0	0	45	47	48	0
Split	Split	0	0	0	0	13	14	15	0
Sequence	Sequence	0	0	0	0	1	1	1	0
Phase Parameter Table*	Number	1	1	1	1	1	1	1	1
Coord Phase Reference Point*	Enum	green	green	green	green	green	green	green	green
Coord Mode*	Enum	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	standard

Coordination - Splits	Units	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	10	79	48	23	10	79	0	0
Split 1 - Coord	Enum	False	True	False	False	False	True	False	False
Split 1 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	10	72	48	30	10	72	0	0

Split 2 - Coord	Enum	False	True	False	False	False	True	False	False
Split 2 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	10	64	48	38	10	64	0	0
Split 3 - Coord	Enum	False	True	False	False	False	True	False	False
Split 3 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 4 - Mode	Enum	none	none	none	none	none	none	none	none
Split 4 - Time	Sec	14	64	48	34	12	66	0	0
Split 4 - Coord	Enum	False	True	False	False	False	True	False	False
Split 4 - Coord Phase Options*	Bit		0: Reference Point						
Split 13 - Mode	Enum	none	none	none	none	none	none	none	none
Split 13 - Time	Sec	10	48	51	51	10	48	0	0
Split 13 - Coord	Enum	False	True	False	False	False	True	False	False
Split 13 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 14 - Mode	Enum	none	none	none	none	none	none	none	none
Split 14 - Time	Sec	10	48	51	51	10	48	0	0
Split 14 - Coord	Enum	False	True	False	False	False	True	False	False
Split 14 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		
Split 15 - Mode	Enum	none	none	none	none	none	none	none	none
Split 15 - Time	Sec	10	48	51	51	10	48	0	0
Split 15 - Coord	Enum	False	True	False	False	False	True	False	False
Split 15 - Coord Phase Options*	Bit		0: Reference Point				0: Reference Point		

Time Base - Schedule 1-16	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F----------	--M---------	----M-------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	---W---	-M-----	-----F-	-M-----	-M-----
Day of Month	Bit	123456789012345678901	123456789012345678901	123456789012345678901	1---------- --	----------9--------- --	---------- 9--	----------0--------- --	1---------- --
Day Plan	Number	1	3	2	3	3	3	3	3

Time Base - Schedule 1-16	**Units**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	--------S---	----------
Day of Week	Bit	-M-----	-M-----	-M-----	---W---	----T--	--T----	-M-----	SMTWTFS
Day of Month	Bit	----5---------- --	-2---------- --	----------4---------- --	----------5---- --	----------6-- --	----------4---- --	---------- 0-	---------- --
Day Plan	Number	3	3	3	3	3	3	3	0

Time Base - Day Plans	**Units**	**Evt 1**	**Evt 2**	**Evt 3**	**Evt 4**	**Evt 5**	**Evt 6**
Plan 1 Hour	Hour	0	6	9	15	19	3
Plan 1 Minute	Min	0	0	30	0	30	0
Plan 1 Action	Number	8	1	2	3	2	7
Plan 2 Hour	Hour	0	7	3	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0
Plan 2 Action	Number	8	4	7	0	0	0
Plan 3 Hour	Hour	0	8	23	3	0	0
Plan 3 Minute	Min	0	0	0	0	0	0
Plan 3 Action	Number	8	4	8	7	0	0

Time Base - Action 1-32	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Free	Free
Aux. Functions	Bit								
Spec. Functions	Bit								

Time Base - Action 1-32	**Units**	**9**	**10**
Pattern	Enum	Pattern 9	Pattern 10
Aux. Functions	Bit		
Spec. Functions	Bit		

Location	Dundas Street W @ Hampshire Gate / Private Access
Phase 1	WBLT
Phase 2	EB
Phase 3	SB (Split Phase)
Phase 4	NB (Split Phase)
Phase 5	EBLT
Phase 6	WB
Phase 8	Dummy Phase

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**July 25, 2024**		**Prepared Date**	**July 25, 2024**
Database Rev	**iNET**		**Completed By**	**N.R.L**
Timing Card / Field rev	**-**		**Checked By**	**JV**

Location — **Dundas Street and Winston Churchill Boulevard**

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Dundas Street - WBLT Prot. Perm.	7	0	0	3.0	0.0	22	20	25
2	Dundas Street - Eastbound	10	10	23	4.0	3.0	51	54	53
3	Winston Churchill Boulevard - SBLT Prot. Perm.	7	0	0	3.0	0.0	22	21	16
4	Winston Churchill Boulevard - Northbound	10	10	32	4.0	3.5	65	65	66
5	Dundas Street -EBLT PROT.	7	0	0	3.0	2.0	17	22	25
6	Dundas Street- Westbound	10	10	23	4.0	3.0	56	52	53
7	Winston Churchill Boulevard - NBLT Prot. Perm.	7	0	0	3.0	0.0	16	20	23
8	Winston Churchill Boulevard - Southbound	10	10	32	4.0	3.5	71	66	59

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
06:00 - 09:30	AM	160	18
09:30 - 15:00 19:30 - 00:00	OFF	160	129
15:00 - 19:30	PM	160	6

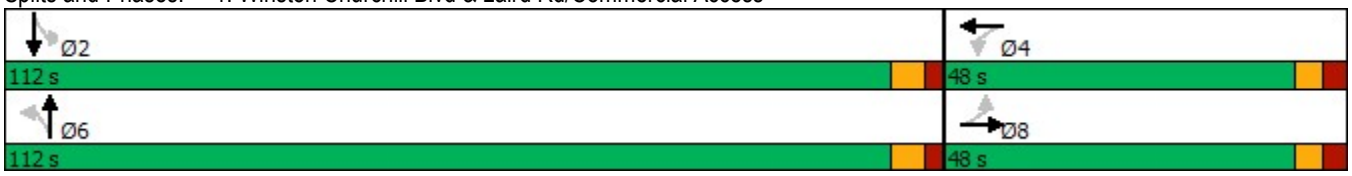
Appendix D

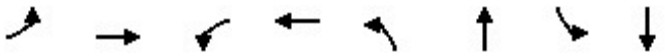
2024 Existing Conditions - Synchro HCM Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	36	19	35	18	148	665	49	1104
Future Volume (vph)	36	19	35	18	148	665	49	1104
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	39.5	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	112.0	112.0	112.0	112.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	10.7	10.7	10.7	10.7	105.5	105.5	105.5	105.5
Actuated g/C Ratio	0.08	0.08	0.08	0.08	0.82	0.82	0.82	0.82
v/c Ratio	0.32	0.45	0.35	0.18	0.47	0.26	0.09	0.44
Control Delay	63.9	22.1	65.7	43.8	9.1	3.0	2.8	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.9	22.1	65.7	43.8	9.1	3.0	2.8	3.9
LOS	E	C	E	D	A	A	A	A
Approach Delay		30.1		56.3		4.0		3.9
Approach LOS		C		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 129.2	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 7.4	Intersection LOS: A
Intersection Capacity Utilization 80.9%	ICU Level of Service D
Analysis Period (min) 15	

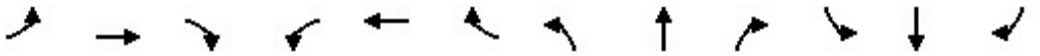
Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	156	36	27	151	746	50	1245
v/c Ratio	0.32	0.45	0.35	0.18	0.47	0.26	0.09	0.44
Control Delay	63.9	22.1	65.7	43.8	9.1	3.0	2.8	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.9	22.1	65.7	43.8	9.1	3.0	2.8	3.9
Queue Length 50th (m)	9.0	5.3	8.8	4.3	8.8	17.5	2.0	36.0
Queue Length 95th (m)	20.2	16.1	20.0	13.8	23.4	25.5	4.9	50.6
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	443	1030	402	569	321	2841	577	2839
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	0.15	0.09	0.05	0.47	0.26	0.09	0.44

Intersection Summary



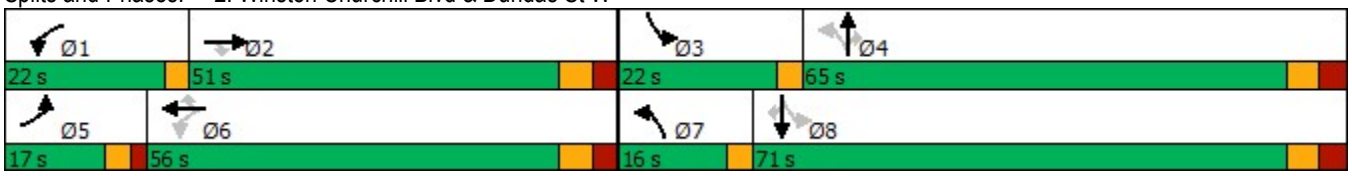
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	19	134	35	18	9	148	665	66	49	1104	116
Future Volume (vph)	36	19	134	35	18	9	148	665	66	49	1104	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	2969		1825	1755		1789	3474		1825	3472	
Flt Permitted	0.74	1.00		0.65	1.00		0.21	1.00		0.37	1.00	
Satd. Flow (perm)	1380	2969		1255	1755		394	3474		707	3472	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	37	19	137	36	18	9	151	679	67	50	1127	118
RTOR Reduction (vph)	0	105	0	0	8	0	0	3	0	0	3	0
Lane Group Flow (vph)	37	51	0	36	19	0	151	743	0	50	1242	0
Heavy Vehicles (%)	3%	5%	7%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	10.7	10.7		10.7	10.7		105.5	105.5		105.5	105.5	
Effective Green, g (s)	10.7	10.7		10.7	10.7		105.5	105.5		105.5	105.5	
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.82	0.82		0.82	0.82	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	114	245		103	145		321	2836		577	2835	
v/s Ratio Prot		0.02			0.01			0.21			0.36	
v/s Ratio Perm	0.03			c0.03			c0.38			0.07		
v/c Ratio	0.32	0.21		0.35	0.13		0.47	0.26		0.09	0.44	
Uniform Delay, d1	55.8	55.3		56.0	54.9		3.5	2.8		2.3	3.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.4		2.1	0.4		4.9	0.2		0.3	0.5	
Delay (s)	57.5	55.7		58.0	55.3		8.4	3.0		2.6	3.9	
Level of Service	E	E		E	E		A	A		A	A	
Approach Delay (s)		56.1			56.9			3.9			3.8	
Approach LOS		E			E			A			A	

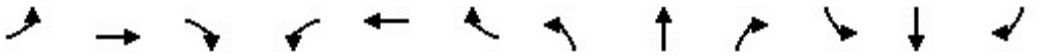
Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	129.2	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	966	375	272	636	134	194	665	245	175	1044	105
Future Volume (vph)	79	966	375	272	636	134	194	665	245	175	1044	105
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	51.0	51.0	22.0	56.0	56.0	16.0	65.0	65.0	22.0	71.0	71.0
Total Split (%)	10.6%	31.9%	31.9%	13.8%	35.0%	35.0%	10.0%	40.6%	40.6%	13.8%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.3	44.1	44.1	70.2	51.9	51.9	71.9	52.5	52.5	72.4	54.0	54.0
Actuated g/C Ratio	0.06	0.29	0.29	0.47	0.34	0.34	0.48	0.35	0.35	0.48	0.36	0.36
v/c Ratio	0.41	0.68	0.65	0.93	0.38	0.23	0.92	0.57	0.36	0.55	0.87	0.19
Control Delay	75.8	50.6	29.1	69.3	39.4	6.6	81.3	42.1	5.2	27.8	52.9	7.2
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	75.8	50.6	29.1	69.3	39.4	6.6	81.3	42.1	5.2	27.8	52.9	7.2
LOS	E	D	C	E	D	A	F	D	A	C	D	A
Approach Delay		46.3			43.0			40.8			46.0	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 150.8	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 44.3	Intersection LOS: D
Intersection Capacity Utilization 92.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W

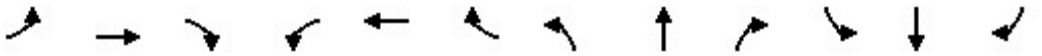




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	83	1017	395	286	669	141	204	700	258	184	1099	111
v/c Ratio	0.41	0.68	0.65	0.93	0.38	0.23	0.92	0.57	0.36	0.55	0.87	0.19
Control Delay	75.8	50.6	29.1	69.3	39.4	6.6	81.3	42.1	5.2	27.8	52.9	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.8	50.6	29.1	69.3	39.4	6.6	81.3	42.1	5.2	27.8	52.9	7.2
Queue Length 50th (m)	12.6	99.3	53.0	59.2	55.7	0.0	43.0	89.2	0.0	30.5	160.2	1.7
Queue Length 95th (m)	22.4	124.5	96.5	#126.4	75.2	16.3	#97.7	113.5	18.8	45.6	187.5	14.5
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	259	1504	607	307	1751	622	221	1359	755	379	1496	685
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	0.32	0.68	0.65	0.93	0.38	0.23	0.92	0.52	0.34	0.49	0.73	0.16

Intersection Summary

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



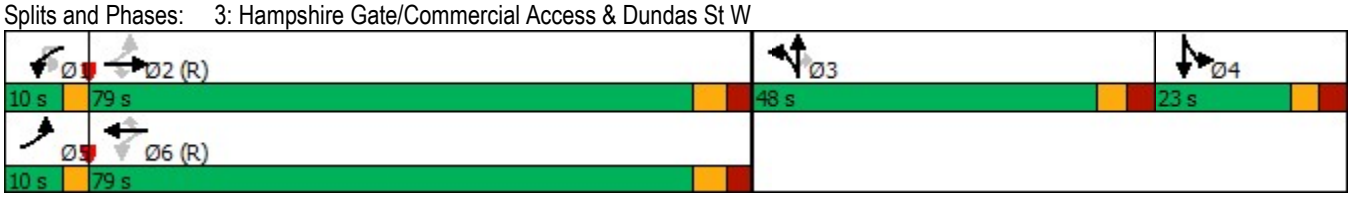
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	966	375	272	636	134	194	665	245	175	1044	105
Future Volume (vph)	79	966	375	272	636	134	194	665	245	175	1044	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	3544	1555	1706	3544	1484
Flt Permitted	0.95	1.00	1.00	0.13	1.00	1.00	0.08	1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	248	5092	1541	150	3544	1555	445	3544	1484
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	83	1017	395	286	669	141	204	700	258	184	1099	111
RTOR Reduction (vph)	0	0	139	0	0	92	0	0	168	0	0	65
Lane Group Flow (vph)	83	1017	256	286	669	49	204	700	90	184	1099	46
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	7%	3%	10%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.3	44.1	44.1	66.2	51.9	51.9	65.5	52.5	52.5	68.5	54.0	54.0
Effective Green, g (s)	9.3	44.1	44.1	66.2	51.9	51.9	67.5	52.5	52.5	68.5	54.0	54.0
Actuated g/C Ratio	0.06	0.29	0.29	0.44	0.34	0.34	0.45	0.35	0.35	0.45	0.36	0.36
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	1504	468	302	1753	530	216	1234	541	323	1269	531
v/s Ratio Prot	0.03	0.20		c0.12	0.13		c0.09	0.20		c0.05	0.31	
v/s Ratio Perm			0.16	c0.30		0.03	c0.34		0.06	0.20		0.03
v/c Ratio	0.41	0.68	0.55	0.95	0.38	0.09	0.94	0.57	0.17	0.57	0.87	0.09
Uniform Delay, d1	68.1	47.0	44.9	36.6	37.3	33.4	42.3	39.9	34.0	26.8	45.0	32.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	2.5	4.5	37.5	0.6	0.3	45.4	0.6	0.1	2.3	6.4	0.1
Delay (s)	69.5	49.5	49.4	74.1	37.9	33.8	87.7	40.5	34.1	29.1	51.4	32.1
Level of Service	E	D	D	E	D	C	F	D	C	C	D	C
Approach Delay (s)		50.6			46.8			47.4			46.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	150.7	Sum of lost time (s)	22.5
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	30	1450	148	1	107	723	25	70	16	66	16	4
Future Volume (vph)	30	1450	148	1	107	723	25	70	16	66	16	4
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	121.6	110.6	110.6		128.5	116.7	116.7	11.1	11.1	11.1	10.0	10.0
Actuated g/C Ratio	0.76	0.69	0.69		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.06	0.45	0.14		0.41	0.22	0.02	0.41	0.40	0.36	0.17	0.08
Control Delay	2.9	10.6	1.5		8.6	8.2	0.0	81.5	81.0	10.6	75.0	50.0
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	2.9	10.6	1.5		8.6	8.2	0.0	81.5	81.0	10.6	75.0	50.0
LOS	A	B	A		A	A	A	F	F	B	E	D
Approach Delay		9.7				8.1			50.6			66.7
Approach LOS		A				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	33	1593	163	119	795	27	47	48	73	18	9
v/c Ratio	0.06	0.45	0.14	0.41	0.22	0.02	0.41	0.40	0.36	0.17	0.08
Control Delay	2.9	10.6	1.5	8.6	8.2	0.0	81.5	81.0	10.6	75.0	50.0
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	2.9	10.6	1.5	8.6	8.2	0.0	81.5	81.0	10.6	75.0	50.0
Queue Length 50th (m)	0.6	121.9	7.1	8.4	32.8	0.0	15.4	15.7	0.0	5.5	1.2
Queue Length 95th (m)	m2.1	156.5	m9.1	15.1	42.2	0.0	29.6	30.3	9.4	14.4	7.4
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	530	3553	1145	289	3678	1170	431	445	489	172	180
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	0.06	0.45	0.14	0.41	0.22	0.02	0.11	0.11	0.15	0.10	0.05

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	30	1450	148	1	107	723	25	70	16	66	16	4
Future Volume (vph)	30	1450	148	1	107	723	25	70	16	66	16	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1737	1633	1722	1761
Flt Permitted	0.34	1.00	1.00		0.12	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	633	5142	1585		224	5043	1570	1683	1737	1633	1722	1761
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	33	1593	163	1	118	795	27	77	18	73	18	4
RTOR Reduction (vph)	0	0	53	0	0	0	8	0	0	68	0	5
Lane Group Flow (vph)	33	1593	110	0	119	795	19	47	48	5	18	4
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	113.3	107.7	107.7		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Effective Green, g (s)	113.3	107.7	107.7		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Actuated g/C Ratio	0.71	0.67	0.67		0.76	0.71	0.71	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	488	3461	1066		280	3571	1111	116	120	113	64	66
v/s Ratio Prot	0.00	c0.31			c0.03	0.16		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.05		0.07		0.29		0.01			0.00		
v/c Ratio	0.07	0.46	0.10		0.42	0.22	0.02	0.41	0.40	0.04	0.28	0.06
Uniform Delay, d1	6.9	12.4	9.2		7.3	8.1	6.9	71.3	71.3	69.5	74.9	74.3
Progression Factor	0.55	0.82	0.75		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.4	0.2		1.0	0.1	0.0	2.3	2.2	0.2	2.4	0.4
Delay (s)	3.9	10.5	7.0		8.3	8.2	6.9	73.6	73.4	69.7	77.3	74.7
Level of Service	A	B	A		A	A	A	E	E	E	E	E
Approach Delay (s)		10.1				8.2			71.8			76.4
Approach LOS		B				A			E			E

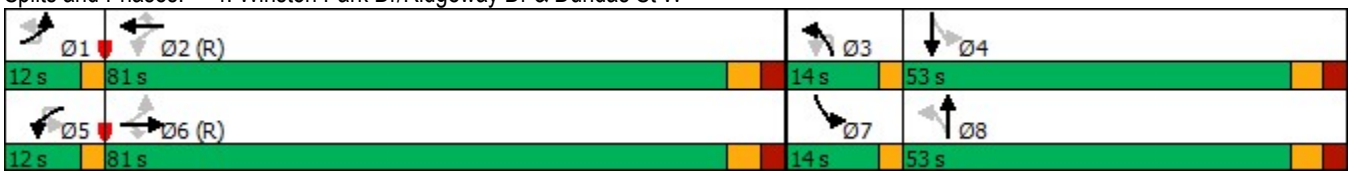
Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	10	198	1296	353	2	55	531	177	1	110	198	252
Future Volume (vph)	10	198	1296	353	2	55	531	177	1	110	198	252
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	81.0	81.0	12.0	12.0	81.0	81.0	14.0	14.0	53.0	14.0
Total Split (%)	7.5%	7.5%	50.6%	50.6%	7.5%	7.5%	50.6%	50.6%	8.8%	8.8%	33.1%	8.8%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		104.3	91.3	91.3		96.1	84.1	84.1		46.4	31.7	47.0
Actuated g/C Ratio		0.65	0.57	0.57		0.60	0.53	0.53		0.29	0.20	0.29
v/c Ratio		0.40	0.48	0.38		0.27	0.22	0.21		0.69	0.35	0.80
Control Delay		14.1	22.2	7.0		15.4	19.3	2.3		60.8	53.3	65.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		14.1	22.2	7.0		15.4	19.3	2.3		60.8	53.3	65.9
LOS		B	C	A		B	B	A		E	D	E
Approach Delay			18.4				15.1				55.7	
Approach LOS			B				B				E	

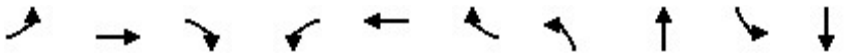
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 33 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 31.5	Intersection LOS: C
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	470
Future Volume (vph)	470
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	33.1%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	32.0
Actuated g/C Ratio	0.20
v/c Ratio	0.81
Control Delay	69.2
Queue Delay	0.0
Total Delay	69.2
LOS	E
Approach Delay	68.1
Approach LOS	E

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	226	1409	384	62	577	192	121	249	274	572
v/c Ratio	0.40	0.48	0.38	0.27	0.22	0.21	0.69	0.35	0.80	0.81
Control Delay	14.1	22.2	7.0	15.4	19.3	2.3	60.8	53.3	65.9	69.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	22.2	7.0	15.4	19.3	2.3	60.8	53.3	65.9	69.2
Queue Length 50th (m)	27.3	96.9	15.7	6.1	30.9	0.0	28.7	34.6	71.3	91.2
Queue Length 95th (m)	45.3	125.0	41.6	13.9	44.2	8.4	43.0	45.6	93.6	106.7
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	565	2934	1006	240	2649	908	178	1014	342	1019
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.48	0.38	0.26	0.22	0.21	0.68	0.25	0.80	0.56

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	10	198	1296	353	2	55	531	177	1	110	198	31
Future Volume (vph)	10	198	1296	353	2	55	531	177	1	110	198	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1679	5043	1555		1603	3501	
Flt Permitted		0.39	1.00	1.00		0.15	1.00	1.00		0.18	1.00	
Satd. Flow (perm)		737	5142	1555		262	5043	1555		309	3501	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	215	1409	384	2	60	577	192	1	120	215	34
RTOR Reduction (vph)	0	0	0	120	0	0	0	91	0	0	9	0
Lane Group Flow (vph)	0	226	1409	264	0	62	577	101	0	121	240	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	5%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		100.3	90.7	90.7		90.7	84.1	84.1		42.4	31.7	
Effective Green, g (s)		100.3	90.7	90.7		90.7	84.1	84.1		42.4	31.7	
Actuated g/C Ratio		0.63	0.57	0.57		0.57	0.53	0.53		0.26	0.20	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		547	2914	881		206	2650	817		168	693	
v/s Ratio Prot		c0.03	c0.27			0.01	0.11			0.05	0.07	
v/s Ratio Perm		0.22		0.17		0.16		0.06		0.14		
v/c Ratio		0.41	0.48	0.30		0.30	0.22	0.12		0.72	0.35	
Uniform Delay, d1		12.9	20.7	18.1		16.4	20.3	19.3		48.0	55.2	
Progression Factor		1.00	1.00	1.00		1.07	0.89	0.59		1.00	1.00	
Incremental Delay, d2		0.5	0.6	0.9		0.8	0.2	0.3		14.1	0.3	
Delay (s)		13.4	21.3	19.0		18.3	18.3	11.7		62.1	55.5	
Level of Service		B	C	B		B	B	B		E	E	
Approach Delay (s)			19.9				16.8				57.7	
Approach LOS			B				B				E	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

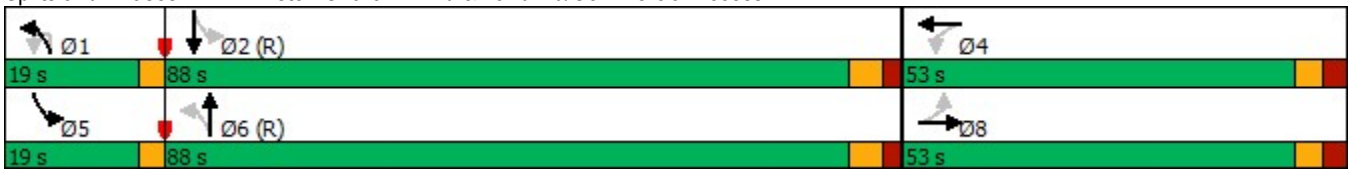
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	252	470	56
Future Volume (vph)	252	470	56
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.53	1.00	
Satd. Flow (perm)	987	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	274	511	61
RTOR Reduction (vph)	0	6	0
Lane Group Flow (vph)	274	566	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	43.0	32.0	
Effective Green, g (s)	43.0	32.0	
Actuated g/C Ratio	0.27	0.20	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	318	705	
v/s Ratio Prot	c0.06	0.16	
v/s Ratio Perm	c0.17		
v/c Ratio	0.86	0.80	
Uniform Delay, d1	53.9	61.0	
Progression Factor	1.00	1.00	
Incremental Delay, d2	20.6	6.6	
Delay (s)	74.4	67.5	
Level of Service	E	E	
Approach Delay (s)		69.8	
Approach LOS		E	

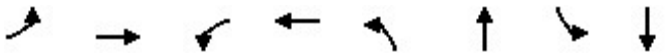
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	151	89	107	108	1	202	751	106	547
Future Volume (vph)	151	89	107	108	1	202	751	106	547
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	53.0	53.0	53.0	53.0	19.0	19.0	88.0	19.0	88.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	11.9%	11.9%	55.0%	11.9%	55.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	29.4	29.4	29.4	29.4		120.4	106.2	115.4	103.5
Actuated g/C Ratio	0.18	0.18	0.18	0.18		0.75	0.66	0.72	0.65
v/c Ratio	0.95	0.38	0.69	0.50		0.39	0.39	0.24	0.34
Control Delay	121.4	18.6	80.4	56.3		8.5	13.7	7.6	13.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	121.4	18.6	80.4	56.3		8.5	13.7	7.6	13.9
LOS	F	B	F	E		A	B	A	B
Approach Delay		55.4		65.7			12.7		13.1
Approach LOS		E		E			B		B

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 19 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 25.5	Intersection LOS: C
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	159	285	113	175	214	897	112	752
v/c Ratio	0.95	0.38	0.69	0.50	0.39	0.39	0.24	0.34
Control Delay	121.4	18.6	80.4	56.3	8.5	13.7	7.6	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	121.4	18.6	80.4	56.3	8.5	13.7	7.6	13.9
Queue Length 50th (m)	50.7	13.4	34.1	45.8	16.7	62.2	8.2	50.3
Queue Length 95th (m)	73.7	24.6	52.2	64.2	33.2	97.5	18.4	82.2
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	265	1082	260	541	585	2322	542	2236
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	0.60	0.26	0.43	0.32	0.37	0.39	0.21	0.34

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	151	89	181	107	108	58	1	202	751	101	106	547
Future Volume (vph)	151	89	181	107	108	58	1	202	751	101	106	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.95		1.00	0.95
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3261		1807	1821			1807	3493		1825	3435
Flt Permitted	0.48	1.00		0.47	1.00			0.32	1.00		0.29	1.00
Satd. Flow (perm)	914	3261		897	1821			617	3493		551	3435
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	159	94	191	113	114	61	1	213	791	106	112	576
RTOR Reduction (vph)	0	156	0	0	14	0	0	0	4	0	0	13
Lane Group Flow (vph)	159	129	0	113	161	0	0	214	893	0	112	739
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	29.4	29.4		29.4	29.4			117.3	106.2		111.9	103.5
Effective Green, g (s)	29.4	29.4		29.4	29.4			117.3	106.2		111.9	103.5
Actuated g/C Ratio	0.18	0.18		0.18	0.18			0.73	0.66		0.70	0.65
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	167	599		164	334			534	2318		452	2222
v/s Ratio Prot		0.04			0.09			c0.03	0.26		0.01	0.22
v/s Ratio Perm	c0.17			0.13				c0.27			0.16	
v/c Ratio	0.95	0.22		0.69	0.48			0.40	0.39		0.25	0.33
Uniform Delay, d1	64.6	55.5		61.0	58.5			7.1	12.2		8.1	12.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	55.3	0.2		11.4	1.1			0.5	0.5		0.3	0.4
Delay (s)	119.9	55.7		72.4	59.6			7.6	12.6		8.4	13.1
Level of Service	F	E		E	E			A	B		A	B
Approach Delay (s)		78.7			64.6				11.7			12.5
Approach LOS		E			E				B			B

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

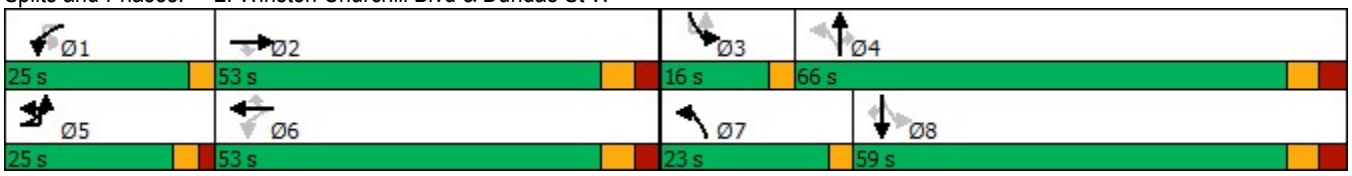
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	167
Future Volume (vph)	167
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	176
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	265	1071	206	3	288	1009	287	203	649	316	2	245
Future Volume (vph)	265	1071	206	3	288	1009	287	203	649	316	2	245
Turn Type	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt
Protected Phases	5	2			1	6		7	4			3
Permitted Phases			2	1	6		6	4		4	3	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	53.0	53.0	25.0	25.0	53.0	53.0	23.0	66.0	66.0	16.0	16.0
Total Split (%)	15.6%	33.1%	33.1%	15.6%	15.6%	33.1%	33.1%	14.4%	41.3%	41.3%	10.0%	10.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	16.0	46.1	46.1		74.4	50.1	50.1	53.2	34.0	34.0		50.5
Actuated g/C Ratio	0.12	0.34	0.34		0.55	0.37	0.37	0.39	0.25	0.25		0.37
v/c Ratio	0.70	0.64	0.31		0.79	0.55	0.40	0.59	0.76	0.54		0.88
Control Delay	67.5	40.4	5.5		42.0	36.5	11.0	34.3	53.0	10.0		60.6
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	67.5	40.4	5.5		42.0	36.5	11.0	34.3	53.0	10.0		60.6
LOS	E	D	A		D	D	B	C	D	B		E
Approach Delay		40.6				32.9			38.1			
Approach LOS		D				C			D			

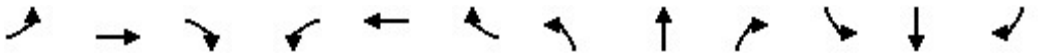
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 135.7	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 38.8	Intersection LOS: D
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	471	170
Future Volume (vph)	471	170
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	31.0	31.0
Actuated g/C Ratio	0.23	0.23
v/c Ratio	0.61	0.39
Control Delay	50.6	17.9
Queue Delay	0.0	0.0
Total Delay	50.6	17.9
LOS	D	B
Approach Delay	47.1	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	1127	217	306	1062	302	214	683	333	260	496	179
v/c Ratio	0.70	0.64	0.31	0.79	0.55	0.40	0.59	0.76	0.54	0.88	0.61	0.39
Control Delay	67.5	40.4	5.5	42.0	36.5	11.0	34.3	53.0	10.0	60.6	50.6	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.5	40.4	5.5	42.0	36.5	11.0	34.3	53.0	10.0	60.6	50.6	17.9
Queue Length 50th (m)	38.6	92.9	0.0	50.4	82.3	13.2	38.4	89.5	7.6	47.5	63.2	12.4
Queue Length 95th (m)	55.7	119.7	18.0	#107.7	111.5	41.1	57.2	110.6	33.5	#88.1	83.9	33.8
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	513	1764	692	388	1917	746	405	1546	852	294	1361	684
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	0.56	0.64	0.31	0.79	0.55	0.40	0.53	0.44	0.39	0.88	0.36	0.26

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	8	265	1071	206	3	288	1009	287	203	649	316	2
Future Volume (vph)	8	265	1071	206	3	288	1009	287	203	649	316	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.95	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	3579	1585	
Flt Permitted		0.95	1.00	1.00		0.13	1.00	1.00	0.29	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		246	5193	1633	546	3579	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	279	1127	217	3	303	1062	302	214	683	333	2
RTOR Reduction (vph)	0	0	0	143	0	0	0	143	0	0	222	0
Lane Group Flow (vph)	0	287	1127	74	0	306	1062	159	214	683	111	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom
Protected Phases	5	5	2			1	6		7	4		
Permitted Phases				2	1	6		6	4		4	3
Actuated Green, G (s)		16.0	46.1	46.1		71.1	50.1	50.1	50.0	34.0	34.0	
Effective Green, g (s)		16.0	46.1	46.1		71.1	50.1	50.1	50.0	34.0	34.0	
Actuated g/C Ratio		0.12	0.34	0.34		0.52	0.37	0.37	0.37	0.25	0.25	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		409	1765	549		382	1918	603	350	897	397	
v/s Ratio Prot		0.08	0.22			c0.13	0.20		c0.07	0.19		
v/s Ratio Perm				0.05		c0.29		0.10	0.15		0.07	
v/c Ratio		0.70	0.64	0.13		0.80	0.55	0.26	0.61	0.76	0.28	
Uniform Delay, d1		57.5	37.7	31.0		29.0	33.9	29.9	31.5	47.0	40.9	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		5.4	1.8	0.5		11.4	1.2	1.1	3.1	3.9	0.4	
Delay (s)		62.9	39.5	31.5		40.5	35.0	30.9	34.6	50.9	41.3	
Level of Service		E	D	C		D	D	C	C	D	D	
Approach Delay (s)			42.5				35.3			45.5		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	135.6	Sum of lost time (s)	22.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

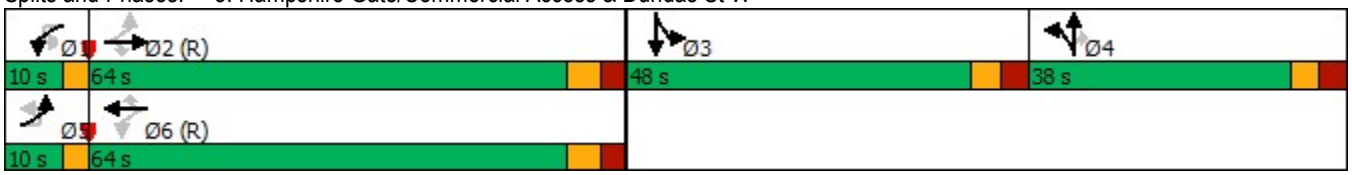
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	245	471	170
Future Volume (vph)	245	471	170
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	3579	1601
Flt Permitted	0.21	1.00	1.00
Satd. Flow (perm)	399	3579	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	258	496	179
RTOR Reduction (vph)	0	0	94
Lane Group Flow (vph)	260	496	85
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	44.0	31.0	31.0
Effective Green, g (s)	46.0	31.0	31.0
Actuated g/C Ratio	0.34	0.23	0.23
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	280	818	366
v/s Ratio Prot	c0.10	0.14	
v/s Ratio Perm	c0.22		0.05
v/c Ratio	0.93	0.61	0.23
Uniform Delay, d1	36.9	46.8	42.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	34.9	1.3	0.3
Delay (s)	71.9	48.1	42.9
Level of Service	E	D	D
Approach Delay (s)		53.7	
Approach LOS		D	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	84	1156	138	2	123	1107	75	594	84	278	150
Future Volume (vph)	2	84	1156	138	2	123	1107	75	594	84	278	150
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	64.0	64.0	10.0	10.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	40.0%	40.0%	6.3%	6.3%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		70.8	58.9	58.9		74.1	60.6	60.6	47.9	47.9	47.9	19.6
Actuated g/C Ratio		0.44	0.37	0.37		0.46	0.38	0.38	0.30	0.30	0.30	0.12
v/c Ratio		0.47	0.65	0.22		0.68	0.60	0.12	0.70	0.69	0.45	0.73
Control Delay		25.7	29.5	2.1		46.7	42.1	4.3	58.4	57.8	12.7	85.6
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.7	29.5	2.1		46.7	42.1	4.3	58.4	57.8	12.7	85.6
LOS		C	C	A		D	D	A	E	E	B	F
Approach Delay			26.6				40.4			44.9		
Approach LOS			C				D			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 37.9	Intersection LOS: D
Intersection Capacity Utilization 75.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



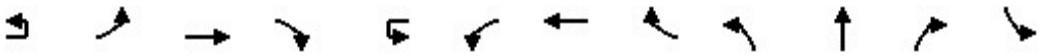
Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	30
Future Volume (vph)	30
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	19.6
Actuated g/C Ratio	0.12
v/c Ratio	0.43
Control Delay	26.2
Queue Delay	0.0
Total Delay	26.2
LOS	C
Approach Delay	59.9
Approach LOS	E

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	91	1230	147	133	1178	80	360	361	296	160	122
v/c Ratio	0.47	0.65	0.22	0.68	0.60	0.12	0.70	0.69	0.45	0.73	0.43
Control Delay	25.7	29.5	2.1	46.7	42.1	4.3	58.4	57.8	12.7	85.6	26.2
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	25.7	29.5	2.1	46.7	42.1	4.3	58.4	57.8	12.7	85.6	26.2
Queue Length 50th (m)	6.5	129.2	7.2	23.6	111.6	0.0	108.2	108.2	14.6	49.8	10.7
Queue Length 95th (m)	m10.7	m144.6	m1.7	#53.6	130.6	8.4	150.0	149.5	42.1	72.0	29.7
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	195	1893	682	195	1948	671	514	522	652	463	500
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	0.47	0.65	0.22	0.68	0.60	0.12	0.70	0.69	0.45	0.35	0.24

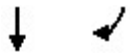
Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	84	1156	138	2	123	1107	75	594	84	278	150
Future Volume (vph)	2	84	1156	138	2	123	1107	75	594	84	278	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.14	1.00	1.00		0.11	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		269	5142	1601		218	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	89	1230	147	2	131	1178	80	632	89	296	160
RTOR Reduction (vph)	0	0	0	93	0	0	0	50	0	0	164	0
Lane Group Flow (vph)	0	91	1230	54	0	133	1178	30	360	361	132	160
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		66.8	58.9	58.9		70.2	60.6	60.6	47.9	47.9	47.9	19.6
Effective Green, g (s)		66.8	58.9	58.9		70.2	60.6	60.6	47.9	47.9	47.9	19.6
Actuated g/C Ratio		0.42	0.37	0.37		0.44	0.38	0.38	0.30	0.30	0.30	0.12
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		189	1892	589		190	1947	612	514	522	488	221
v/s Ratio Prot		0.02	0.24			c0.04	0.23		c0.21	0.21		c0.09
v/s Ratio Perm		0.18		0.03		c0.26		0.02			0.08	
v/c Ratio		0.48	0.65	0.09		0.70	0.61	0.05	0.70	0.69	0.27	0.72
Uniform Delay, d1		30.6	42.0	33.1		30.9	40.1	31.5	49.7	49.5	42.7	67.6
Progression Factor		0.77	0.66	0.30		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.6	1.5	0.3		10.7	1.4	0.2	4.3	3.9	0.3	11.1
Delay (s)		25.0	29.2	10.3		41.7	41.5	31.6	54.0	53.5	43.0	78.7
Level of Service		C	C	B		D	D	C	D	D	D	E
Approach Delay (s)			27.1				40.9			50.6		
Approach LOS			C				D			D		

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



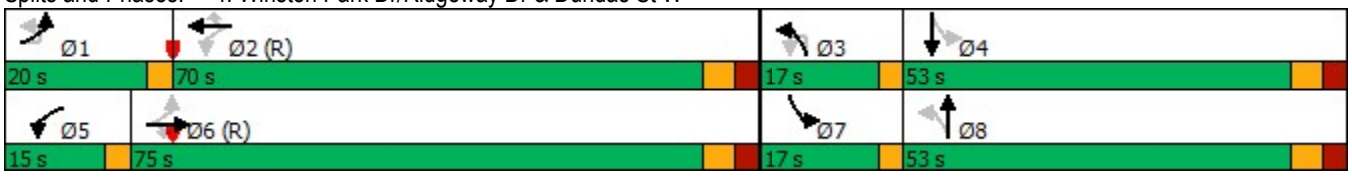
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	30	85
Future Volume (vph)	30	85
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1709	
Flt Permitted	1.00	
Satd. Flow (perm)	1709	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	32	90
RTOR Reduction (vph)	75	0
Lane Group Flow (vph)	47	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	19.6	
Effective Green, g (s)	19.6	
Actuated g/C Ratio	0.12	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	209	
v/s Ratio Prot	0.03	
v/s Ratio Perm		
v/c Ratio	0.23	
Uniform Delay, d1	63.4	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	63.9	
Level of Service	E	
Approach Delay (s)	72.3	
Approach LOS	E	

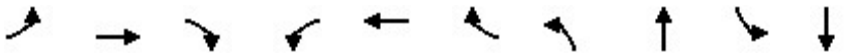
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	255	1158	117	84	1310	399	2	318	671	226	276
Future Volume (vph)	7	255	1158	117	84	1310	399	2	318	671	226	276
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt	NA
Protected Phases		1	6		5	2			3	8	7	4
Permitted Phases	1	6		6	2		2	3	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	20.0	20.0	75.0	75.0	15.0	70.0	70.0	17.0	17.0	53.0	17.0	53.0
Total Split (%)	12.5%	12.5%	46.9%	46.9%	9.4%	43.8%	43.8%	10.6%	10.6%	33.1%	10.6%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		92.6	76.5	76.5	78.2	65.1	65.1		60.4	40.4	62.4	40.4
Actuated g/C Ratio		0.58	0.48	0.48	0.49	0.41	0.41		0.38	0.25	0.39	0.25
v/c Ratio		0.85	0.49	0.16	0.33	0.64	0.51		0.91	0.84	0.94	0.50
Control Delay		55.9	30.0	7.8	19.9	36.0	15.3		69.7	65.5	79.0	44.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		55.9	30.0	7.8	19.9	36.0	15.3		69.7	65.5	79.0	44.2
LOS		E	C	A	B	D	B		E	E	E	D
Approach Delay			32.8			30.6				66.7		56.1
Approach LOS			C			C				E		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 137 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 42.2	Intersection LOS: D
Intersection Capacity Utilization 91.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	1194	121	87	1351	411	330	763	233	446
v/c Ratio	0.85	0.49	0.16	0.33	0.64	0.51	0.91	0.84	0.94	0.50
Control Delay	55.9	30.0	7.8	19.9	36.0	15.3	69.7	65.5	79.0	44.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	30.0	7.8	19.9	36.0	15.3	69.7	65.5	79.0	44.2
Queue Length 50th (m)	55.0	93.4	4.2	7.3	109.4	28.8	77.9	120.9	51.0	54.1
Queue Length 95th (m)	#117.3	117.5	17.3	m16.4	136.7	55.0	#117.5	139.2	#97.7	68.4
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	318	2458	766	295	2112	808	361	1029	249	1013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.49	0.16	0.29	0.64	0.51	0.91	0.74	0.94	0.44

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	7	255	1158	117	84	1310	399	2	318	671	69	226
Future Volume (vph)	7	255	1158	117	84	1310	399	2	318	671	69	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3564		1789
Flt Permitted		0.10	1.00	1.00	0.20	1.00	1.00		0.36	1.00		0.13
Satd. Flow (perm)		192	5142	1498	371	5193	1617		685	3564		242
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	7	263	1194	121	87	1351	411	2	328	692	71	233
RTOR Reduction (vph)	0	0	0	50	0	0	151	0	0	5	0	0
Lane Group Flow (vph)	0	270	1194	71	87	1351	260	0	330	758	0	233
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA		pm+pt
Protected Phases		1	6		5	2			3	8		7
Permitted Phases	1	6		6	2		2	3	8			4
Actuated Green, G (s)		88.6	76.5	76.5	74.2	65.1	65.1		54.4	40.4		54.4
Effective Green, g (s)		88.6	76.5	76.5	74.2	65.1	65.1		56.4	40.4		58.4
Actuated g/C Ratio		0.55	0.48	0.48	0.46	0.41	0.41		0.35	0.25		0.36
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		313	2458	716	253	2112	657		344	899		243
v/s Ratio Prot		c0.11	0.23		0.02	0.26			0.09	c0.21		c0.10
v/s Ratio Perm		c0.37		0.05	0.14		0.16		0.25			0.25
v/c Ratio		0.86	0.49	0.10	0.34	0.64	0.40		0.96	0.84		0.96
Uniform Delay, d1		38.4	28.4	22.9	24.4	38.0	33.6		47.1	56.8		40.6
Progression Factor		1.00	1.00	1.00	1.03	0.90	1.03		1.00	1.00		1.00
Incremental Delay, d2		20.9	0.7	0.3	0.6	1.2	1.4		37.3	7.2		45.8
Delay (s)		59.3	29.1	23.1	25.8	35.4	35.9		84.4	64.0		86.4
Level of Service		E	C	C	C	D	D		F	E		F
Approach Delay (s)			33.8			35.1				70.2		
Approach LOS			C			D				E		

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	276	156
Future Volume (vph)	276	156
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3355	
Flt Permitted	1.00	
Satd. Flow (perm)	3355	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	285	161
RTOR Reduction (vph)	52	0
Lane Group Flow (vph)	394	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	40.4	
Effective Green, g (s)	40.4	
Actuated g/C Ratio	0.25	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	847	
v/s Ratio Prot	0.12	
v/s Ratio Perm		
v/c Ratio	0.47	
Uniform Delay, d1	50.7	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	51.1	
Level of Service	D	
Approach Delay (s)	63.2	
Approach LOS	E	

Intersection Summary

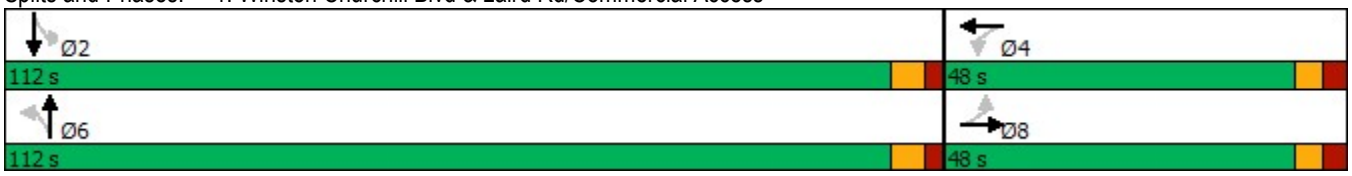
Appendix E

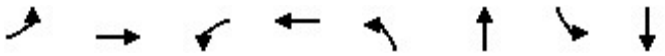
2029 Future Background Conditions – Synchro HCM Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	42	20	38	19	152	682	51	1160
Future Volume (vph)	42	20	38	19	152	682	51	1160
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	39.5	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	112.0	112.0	112.0	112.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	10.9	10.9	10.9	10.9	105.5	105.5	105.5	105.5
Actuated g/C Ratio	0.08	0.08	0.08	0.08	0.82	0.82	0.82	0.82
v/c Ratio	0.37	0.49	0.38	0.19	0.52	0.27	0.09	0.46
Control Delay	65.5	28.5	66.6	43.2	11.4	3.1	2.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.5	28.5	66.6	43.2	11.4	3.1	2.9	4.2
LOS	E	C	E	D	B	A	A	A
Approach Delay		36.0		56.6		4.5		4.1
Approach LOS		D		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 129.4	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 8.3	Intersection LOS: A
Intersection Capacity Utilization 82.8%	ICU Level of Service E
Analysis Period (min) 15	

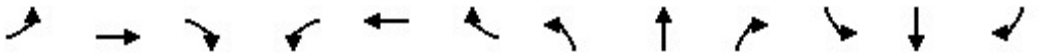
Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	167	39	29	155	765	52	1312
v/c Ratio	0.37	0.49	0.38	0.19	0.52	0.27	0.09	0.46
Control Delay	65.5	28.5	66.6	43.2	11.4	3.1	2.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.5	28.5	66.6	43.2	11.4	3.1	2.9	4.2
Queue Length 50th (m)	10.6	8.4	9.6	4.6	9.7	18.0	2.0	39.3
Queue Length 95th (m)	22.6	19.6	21.4	14.3	29.1	27.2	5.3	56.7
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	441	1020	397	568	296	2833	564	2831
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	0.10	0.16	0.10	0.05	0.52	0.27	0.09	0.46

Intersection Summary



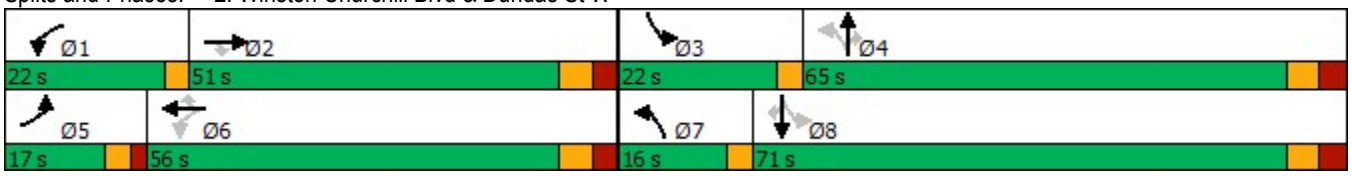
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	20	144	38	19	10	152	682	68	51	1160	125
Future Volume (vph)	42	20	144	38	19	10	152	682	68	51	1160	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	2968		1825	1753		1789	3474		1825	3471	
Flt Permitted	0.74	1.00		0.65	1.00		0.19	1.00		0.36	1.00	
Satd. Flow (perm)	1377	2968		1242	1753		364	3474		692	3471	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	43	20	147	39	19	10	155	696	69	52	1184	128
RTOR Reduction (vph)	0	92	0	0	9	0	0	3	0	0	3	0
Lane Group Flow (vph)	43	75	0	39	20	0	155	762	0	52	1309	0
Heavy Vehicles (%)	3%	5%	7%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	10.9	10.9		10.9	10.9		105.5	105.5		105.5	105.5	
Effective Green, g (s)	10.9	10.9		10.9	10.9		105.5	105.5		105.5	105.5	
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.82	0.82		0.82	0.82	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	115	250		104	147		296	2832		564	2829	
v/s Ratio Prot		0.03			0.01			0.22			0.38	
v/s Ratio Perm	0.03			c0.03			c0.43			0.08		
v/c Ratio	0.37	0.30		0.38	0.13		0.52	0.27		0.09	0.46	
Uniform Delay, d1	56.0	55.7		56.0	54.9		3.9	2.8		2.4	3.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.7		2.3	0.4		6.5	0.2		0.3	0.5	
Delay (s)	58.1	56.3		58.3	55.3		10.3	3.1		2.7	4.1	
Level of Service	E	E		E	E		B	A		A	A	
Approach Delay (s)		56.7			57.0			4.3			4.0	
Approach LOS		E			E			A			A	

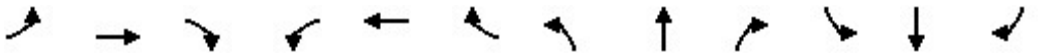
Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	129.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1044	406	293	691	144	203	682	251	184	1097	110
Future Volume (vph)	85	1044	406	293	691	144	203	682	251	184	1097	110
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	51.0	51.0	22.0	56.0	56.0	16.0	65.0	65.0	22.0	71.0	71.0
Total Split (%)	10.6%	31.9%	31.9%	13.8%	35.0%	35.0%	10.0%	40.6%	40.6%	13.8%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.5	44.1	44.1	70.1	51.6	51.6	74.3	54.9	54.9	75.5	56.8	56.8
Actuated g/C Ratio	0.06	0.29	0.29	0.46	0.34	0.34	0.48	0.36	0.36	0.49	0.37	0.37
v/c Ratio	0.44	0.74	0.72	1.09	0.42	0.25	1.01	0.57	0.36	0.58	0.88	0.19
Control Delay	77.4	54.0	35.3	117.0	41.5	6.6	105.3	41.9	5.1	28.3	53.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	54.0	35.3	117.0	41.5	6.6	105.3	41.9	5.1	28.3	53.9	7.8
LOS	E	D	D	F	D	A	F	D	A	C	D	A
Approach Delay		50.4			56.6			45.1			46.8	
Approach LOS		D			E			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 153.5	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 49.6	Intersection LOS: D
Intersection Capacity Utilization 96.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



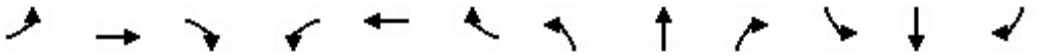


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	89	1099	427	308	727	152	214	718	264	194	1155	116
v/c Ratio	0.44	0.74	0.72	1.09	0.42	0.25	1.01	0.57	0.36	0.58	0.88	0.19
Control Delay	77.4	54.0	35.3	117.0	41.5	6.6	105.3	41.9	5.1	28.3	53.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	54.0	35.3	117.0	41.5	6.6	105.3	41.9	5.1	28.3	53.9	7.8
Queue Length 50th (m)	13.9	114.3	69.5	~87.6	64.5	0.0	~51.0	92.7	0.0	32.4	172.2	2.7
Queue Length 95th (m)	23.8	136.4	114.7	#155.1	82.0	16.5	#109.6	117.0	19.0	48.0	201.1	15.7
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	254	1476	593	283	1711	618	212	1337	751	376	1468	674
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	0.35	0.74	0.72	1.09	0.42	0.25	1.01	0.54	0.35	0.52	0.79	0.17

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.



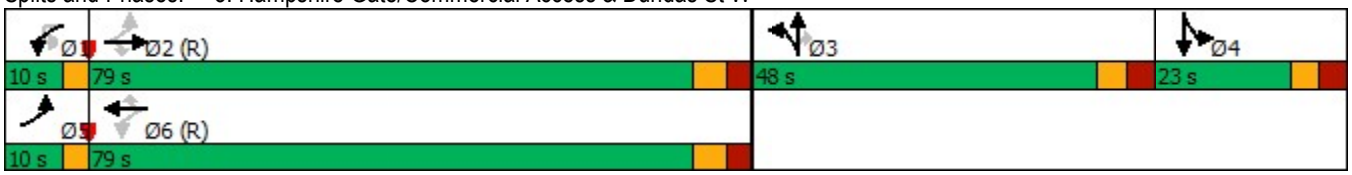
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1044	406	293	691	144	203	682	251	184	1097	110
Future Volume (vph)	85	1044	406	293	691	144	203	682	251	184	1097	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	3544	1555	1706	3544	1484
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.07	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	192	5092	1541	132	3544	1555	433	3544	1484
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	1099	427	308	727	152	214	718	264	194	1155	116
RTOR Reduction (vph)	0	0	134	0	0	101	0	0	170	0	0	64
Lane Group Flow (vph)	89	1099	293	308	727	51	214	718	94	194	1155	52
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	7%	3%	10%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.5	44.1	44.1	66.1	51.6	51.6	67.9	54.9	54.9	71.9	56.9	56.9
Effective Green, g (s)	9.5	44.1	44.1	66.1	51.6	51.6	69.9	54.9	54.9	71.9	56.9	56.9
Actuated g/C Ratio	0.06	0.29	0.29	0.43	0.34	0.34	0.46	0.36	0.36	0.47	0.37	0.37
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	1477	459	278	1711	518	208	1267	556	327	1313	550
v/s Ratio Prot	0.03	0.21		c0.14	0.14		c0.09	0.20		c0.06	0.33	
v/s Ratio Perm			0.18	c0.34		0.03	c0.37		0.06	0.22		0.03
v/c Ratio	0.44	0.74	0.64	1.11	0.42	0.10	1.03	0.57	0.17	0.59	0.88	0.09
Uniform Delay, d1	69.4	49.6	47.7	44.6	39.5	35.0	46.9	39.7	33.7	26.4	45.1	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	3.4	6.7	86.1	0.8	0.4	70.1	0.6	0.1	2.9	7.0	0.1
Delay (s)	71.0	53.0	54.4	130.7	40.2	35.4	117.0	40.3	33.9	29.3	52.1	31.6
Level of Service	E	D	D	F	D	D	F	D	C	C	D	C
Approach Delay (s)		54.4			63.1			52.6			47.5	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	54.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	153.5	Sum of lost time (s)	22.5
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	1562	159	1	115	779	27	72	16	68	17	4
Future Volume (vph)	32	1562	159	1	115	779	27	72	16	68	17	4
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	117.9	106.9	106.9		128.7	116.7	116.7	11.1	11.1	11.1	10.0	10.0
Actuated g/C Ratio	0.74	0.67	0.67		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.07	0.50	0.16		0.43	0.23	0.03	0.41	0.41	0.37	0.18	0.08
Control Delay	3.5	12.0	1.5		10.1	8.4	0.0	81.7	81.3	11.6	75.3	50.0
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	3.5	12.0	1.5		10.1	8.4	0.0	81.7	81.3	11.6	75.3	50.0
LOS	A	B	A		B	A	A	F	F	B	E	D
Approach Delay		10.9				8.4			51.0			67.2
Approach LOS		B				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 12.8	Intersection LOS: B
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	1716	175	127	856	30	48	49	75	19	9
v/c Ratio	0.07	0.50	0.16	0.43	0.23	0.03	0.41	0.41	0.37	0.18	0.08
Control Delay	3.5	12.0	1.5	10.1	8.4	0.0	81.7	81.3	11.6	75.3	50.0
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	3.5	12.0	1.5	10.1	8.4	0.0	81.7	81.3	11.6	75.3	50.0
Queue Length 50th (m)	1.1	142.4	8.4	9.0	35.8	0.0	15.7	16.1	0.0	5.8	1.2
Queue Length 95th (m)	m2.6	177.3	m9.1	18.7	46.0	0.0	30.3	30.9	10.3	15.0	7.4
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	488	3435	1117	295	3677	1170	431	444	489	172	180
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	0.50	0.16	0.43	0.23	0.03	0.11	0.11	0.15	0.11	0.05

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	1562	159	1	115	779	27	72	16	68	17	4
Future Volume (vph)	32	1562	159	1	115	779	27	72	16	68	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1736	1633	1722	1761
Flt Permitted	0.32	1.00	1.00		0.10	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	594	5142	1585		184	5043	1570	1683	1736	1633	1722	1761
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	35	1716	175	1	126	856	30	79	18	75	19	4
RTOR Reduction (vph)	0	0	61	0	0	0	9	0	0	70	0	5
Lane Group Flow (vph)	35	1716	114	0	127	856	21	48	49	5	19	4
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	109.7	104.1	104.1		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Effective Green, g (s)	109.7	104.1	104.1		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Actuated g/C Ratio	0.69	0.65	0.65		0.76	0.71	0.71	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	448	3345	1031		288	3571	1111	116	120	113	64	66
v/s Ratio Prot	0.00	c0.33			c0.04	0.17		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.05		0.07		0.30		0.01			0.00		
v/c Ratio	0.08	0.51	0.11		0.44	0.24	0.02	0.41	0.41	0.05	0.30	0.06
Uniform Delay, d1	8.1	14.7	10.5		9.3	8.2	6.9	71.3	71.3	69.5	74.9	74.3
Progression Factor	0.64	0.79	0.68		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.2		1.1	0.2	0.0	2.4	2.3	0.2	2.6	0.4
Delay (s)	5.2	12.0	7.4		10.4	8.4	6.9	73.7	73.6	69.7	77.5	74.7
Level of Service	A	B	A		B	A	A	E	E	E	E	E
Approach Delay (s)		11.5				8.6			71.9			76.6
Approach LOS		B				A			E			E

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

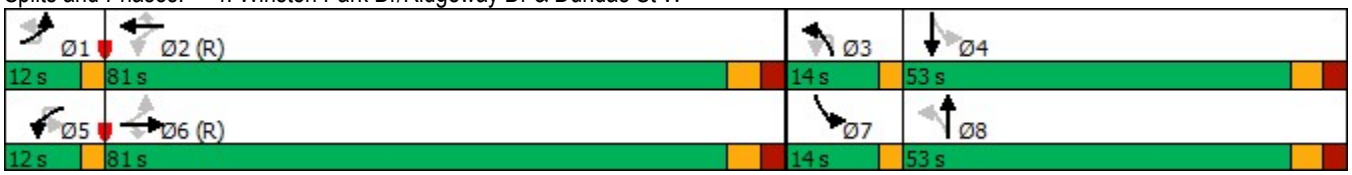
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	11	215	1396	380	2	59	572	191	1	113	203	265
Future Volume (vph)	11	215	1396	380	2	59	572	191	1	113	203	265
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	81.0	81.0	12.0	12.0	81.0	81.0	14.0	14.0	53.0	14.0
Total Split (%)	7.5%	7.5%	50.6%	50.6%	7.5%	7.5%	50.6%	50.6%	8.8%	8.8%	33.1%	8.8%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		102.7	87.5	87.5		94.1	81.9	81.9		48.1	33.3	48.5
Actuated g/C Ratio		0.64	0.55	0.55		0.59	0.51	0.51		0.30	0.21	0.30
v/c Ratio		0.46	0.54	0.42		0.33	0.24	0.23		0.71	0.35	0.82
Control Delay		15.7	25.0	8.5		21.3	20.5	2.3		61.9	52.0	66.6
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		15.7	25.0	8.5		21.3	20.5	2.3		61.9	52.0	66.6
LOS		B	C	A		C	C	A		E	D	E
Approach Delay			20.8				16.4				55.2	
Approach LOS			C				B				E	

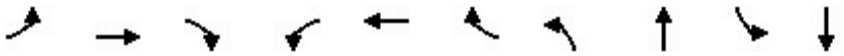
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 33 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 32.6	Intersection LOS: C
Intersection Capacity Utilization 74.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	497
Future Volume (vph)	497
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	33.1%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	33.5
Actuated g/C Ratio	0.21
v/c Ratio	0.81
Control Delay	68.3
Queue Delay	0.0
Total Delay	68.3
LOS	E
Approach Delay	67.7
Approach LOS	E

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	246	1517	413	66	622	208	124	256	288	605
v/c Ratio	0.46	0.54	0.42	0.33	0.24	0.23	0.71	0.35	0.82	0.81
Control Delay	15.7	25.0	8.5	21.3	20.5	2.3	61.9	52.0	66.6	68.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	25.0	8.5	21.3	20.5	2.3	61.9	52.0	66.6	68.3
Queue Length 50th (m)	31.1	110.3	21.2	6.8	33.4	0.0	29.1	35.3	74.6	96.4
Queue Length 95th (m)	50.6	141.3	51.8	19.2	46.9	8.9	43.3	46.2	96.8	111.8
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	536	2813	976	211	2582	897	177	1013	351	1019
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.54	0.42	0.31	0.24	0.23	0.70	0.25	0.82	0.59

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	11	215	1396	380	2	59	572	191	1	113	203	32
Future Volume (vph)	11	215	1396	380	2	59	572	191	1	113	203	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1679	5043	1555		1603	3500	
Flt Permitted		0.37	1.00	1.00		0.12	1.00	1.00		0.17	1.00	
Satd. Flow (perm)		692	5142	1555		214	5043	1555		285	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	234	1517	413	2	64	622	208	1	123	221	35
RTOR Reduction (vph)	0	0	0	125	0	0	0	101	0	0	9	0
Lane Group Flow (vph)	0	246	1517	288	0	66	622	107	0	124	247	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	5%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		98.7	87.6	87.6		90.1	82.0	82.0		44.1	33.3	
Effective Green, g (s)		98.7	87.6	87.6		90.1	82.0	82.0		44.1	33.3	
Actuated g/C Ratio		0.62	0.55	0.55		0.56	0.51	0.51		0.28	0.21	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		519	2815	851		194	2584	796		167	728	
v/s Ratio Prot		c0.04	c0.30			0.02	0.12			0.05	0.07	
v/s Ratio Perm		0.25		0.18		0.17		0.07		0.15		
v/c Ratio		0.47	0.54	0.34		0.34	0.24	0.13		0.74	0.34	
Uniform Delay, d1		13.9	23.2	20.1		17.5	21.7	20.4		47.0	54.0	
Progression Factor		1.00	1.00	1.00		1.37	0.89	0.59		1.00	1.00	
Incremental Delay, d2		0.7	0.7	1.1		1.0	0.2	0.3		16.2	0.3	
Delay (s)		14.6	24.0	21.2		25.0	19.6	12.4		63.3	54.3	
Level of Service		B	C	C		C	B	B		E	D	
Approach Delay (s)			22.4				18.3				57.2	
Approach LOS			C				B				E	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

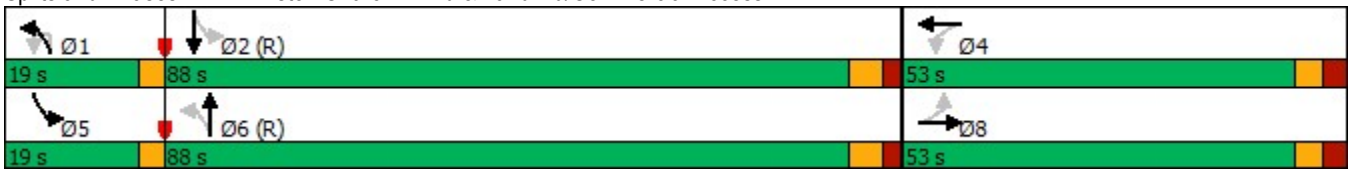
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	265	497	60
Future Volume (vph)	265	497	60
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.53	1.00	
Satd. Flow (perm)	983	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	288	540	65
RTOR Reduction (vph)	0	6	0
Lane Group Flow (vph)	288	599	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	44.5	33.5	
Effective Green, g (s)	44.5	33.5	
Actuated g/C Ratio	0.28	0.21	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	326	738	
v/s Ratio Prot	c0.06	0.17	
v/s Ratio Perm	c0.18		
v/c Ratio	0.88	0.81	
Uniform Delay, d1	53.4	60.2	
Progression Factor	1.00	1.00	
Incremental Delay, d2	23.4	6.8	
Delay (s)	76.8	67.0	
Level of Service	E	E	
Approach Delay (s)		70.2	
Approach LOS		E	

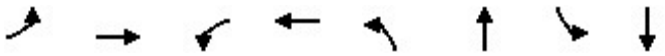
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	168	96	115	116	1	207	770	109	561
Future Volume (vph)	168	96	115	116	1	207	770	109	561
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	53.0	53.0	53.0	53.0	19.0	19.0	88.0	19.0	88.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	11.9%	11.9%	55.0%	11.9%	55.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	33.1	33.1	33.1	33.1		116.8	102.1	111.3	99.1
Actuated g/C Ratio	0.21	0.21	0.21	0.21		0.73	0.64	0.70	0.62
v/c Ratio	0.94	0.37	0.66	0.48		0.42	0.41	0.26	0.36
Control Delay	111.7	17.2	74.2	52.9		10.2	16.0	9.1	16.3
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	111.7	17.2	74.2	52.9		10.2	16.0	9.1	16.3
LOS	F	B	E	D		B	B	A	B
Approach Delay		51.9		61.3			14.9		15.4
Approach LOS		D		E			B		B

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 19 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	177	306	121	187	219	920	115	776
v/c Ratio	0.94	0.37	0.66	0.48	0.42	0.41	0.26	0.36
Control Delay	111.7	17.2	74.2	52.9	10.2	16.0	9.1	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.7	17.2	74.2	52.9	10.2	16.0	9.1	16.3
Queue Length 50th (m)	55.8	13.9	35.7	48.0	19.5	70.7	9.6	57.8
Queue Length 95th (m)	79.8	24.8	53.8	66.0	37.7	109.5	20.7	92.8
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	265	1093	256	541	552	2234	511	2140
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	0.67	0.28	0.47	0.35	0.40	0.41	0.23	0.36

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	168	96	195	115	116	62	1	207	770	104	109	561
Future Volume (vph)	168	96	195	115	116	62	1	207	770	104	109	561
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.95		1.00	0.95
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3261		1807	1821			1807	3493		1825	3433
Flt Permitted	0.48	1.00		0.46	1.00			0.31	1.00		0.27	1.00
Satd. Flow (perm)	915	3261		882	1821			585	3493		525	3433
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	177	101	205	121	122	65	1	218	811	109	115	591
RTOR Reduction (vph)	0	163	0	0	13	0	0	0	5	0	0	14
Lane Group Flow (vph)	177	143	0	121	174	0	0	219	915	0	115	762
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	33.1	33.1		33.1	33.1			113.9	102.2		107.9	99.2
Effective Green, g (s)	33.1	33.1		33.1	33.1			113.9	102.2		107.9	99.2
Actuated g/C Ratio	0.21	0.21		0.21	0.21			0.71	0.64		0.67	0.62
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	189	674		182	376			505	2231		424	2128
v/s Ratio Prot		0.04			0.10			c0.03	0.26		0.01	0.22
v/s Ratio Perm	c0.19			0.14				c0.28			0.17	
v/c Ratio	0.94	0.21		0.66	0.46			0.43	0.41		0.27	0.36
Uniform Delay, d1	62.4	52.6		58.3	55.6			8.5	14.1		9.6	14.8
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	47.1	0.2		8.8	0.9			0.6	0.6		0.3	0.5
Delay (s)	109.5	52.8		67.2	56.5			9.1	14.7		9.9	15.3
Level of Service	F	D		E	E			A	B		A	B
Approach Delay (s)		73.6			60.7				13.6			14.6
Approach LOS		E			E				B			B

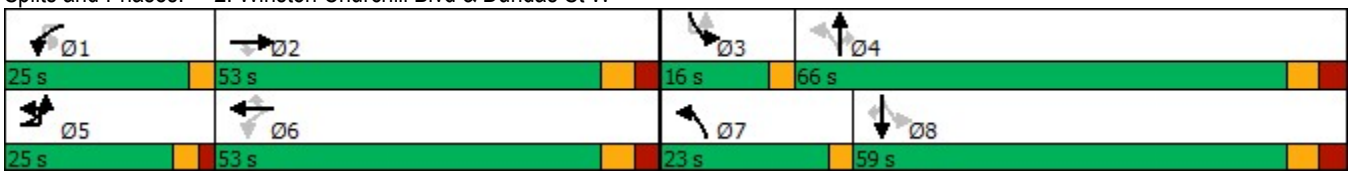
Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	176
Future Volume (vph)	176
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	185
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	285	1159	226	3	310	1097	309	214	665	324	2	251
Future Volume (vph)	285	1159	226	3	310	1097	309	214	665	324	2	251
Turn Type	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt
Protected Phases	5	2			1	6		7	4			3
Permitted Phases			2	1	6		6	4		4	3	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	53.0	53.0	25.0	25.0	53.0	53.0	23.0	66.0	66.0	16.0	16.0
Total Split (%)	15.6%	33.1%	33.1%	15.6%	15.6%	33.1%	33.1%	14.4%	41.3%	41.3%	10.0%	10.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	16.7	46.1	46.1		74.1	49.4	49.4	54.3	34.9	34.9		50.9
Actuated g/C Ratio	0.12	0.34	0.34		0.54	0.36	0.36	0.40	0.26	0.26		0.37
v/c Ratio	0.73	0.70	0.34		0.90	0.62	0.44	0.62	0.77	0.55		0.91
Control Delay	68.7	42.5	5.5		61.7	38.8	13.6	35.1	53.0	10.7		65.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	68.7	42.5	5.5		61.7	38.8	13.6	35.1	53.0	10.7		65.8
LOS	E	D	A		E	D	B	D	D	B		E
Approach Delay		42.1				38.5			38.4			
Approach LOS		D				D			D			

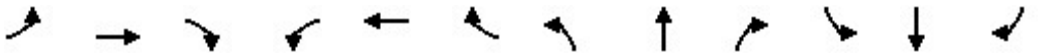
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 136.6	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 41.3	Intersection LOS: D
Intersection Capacity Utilization 92.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	483	174
Future Volume (vph)	483	174
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	31.4	31.4
Actuated g/C Ratio	0.23	0.23
v/c Ratio	0.62	0.40
Control Delay	51.0	18.6
Queue Delay	0.0	0.0
Total Delay	51.0	18.6
LOS	D	B
Approach Delay	48.9	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	309	1220	238	329	1155	325	225	700	341	266	508	183
v/c Ratio	0.73	0.70	0.34	0.90	0.62	0.44	0.62	0.77	0.55	0.91	0.62	0.40
Control Delay	68.7	42.5	5.5	61.7	38.8	13.6	35.1	53.0	10.7	65.8	51.0	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	42.5	5.5	61.7	38.8	13.6	35.1	53.0	10.7	65.8	51.0	18.6
Queue Length 50th (m)	41.7	103.8	0.0	65.2	93.3	19.1	40.7	92.3	10.0	48.8	65.4	13.6
Queue Length 95th (m)	60.6	134.3	19.1	#137.2	125.8	51.5	59.8	113.5	36.6	#92.9	85.8	35.2
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	509	1752	703	366	1877	731	402	1536	847	291	1352	680
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	0.61	0.70	0.34	0.90	0.62	0.44	0.56	0.46	0.40	0.91	0.38	0.27

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	9	285	1159	226	3	310	1097	309	214	665	324	2
Future Volume (vph)	9	285	1159	226	3	310	1097	309	214	665	324	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.95	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	3579	1585	
Flt Permitted		0.95	1.00	1.00		0.10	1.00	1.00	0.28	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		196	5193	1633	528	3579	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	300	1220	238	3	326	1155	325	225	700	341	2
RTOR Reduction (vph)	0	0	0	158	0	0	0	141	0	0	218	0
Lane Group Flow (vph)	0	309	1220	80	0	329	1155	184	225	700	123	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom
Protected Phases	5	5	2			1	6		7	4		
Permitted Phases				2	1	6		6	4		4	3
Actuated Green, G (s)		16.8	46.1	46.1		71.2	49.4	49.4	50.9	34.9	34.9	
Effective Green, g (s)		16.8	46.1	46.1		71.2	49.4	49.4	50.9	34.9	34.9	
Actuated g/C Ratio		0.12	0.34	0.34		0.52	0.36	0.36	0.37	0.26	0.26	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		427	1752	545		362	1877	590	351	914	404	
v/s Ratio Prot		0.09	0.23			c0.15	0.22		c0.08	0.20		
v/s Ratio Perm				0.05		c0.33		0.11	0.16		0.08	
v/c Ratio		0.72	0.70	0.15		0.91	0.62	0.31	0.64	0.77	0.30	
Uniform Delay, d1		57.7	39.2	31.5		37.4	35.8	31.4	31.6	47.1	41.0	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.0	2.3	0.6		25.6	1.5	1.4	4.0	3.9	0.4	
Delay (s)		63.6	41.5	32.1		63.0	37.3	32.7	35.6	50.9	41.5	
Level of Service		E	D	C		E	D	C	D	D	D	
Approach Delay (s)			44.1				41.2			45.7		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	136.6	Sum of lost time (s)	22.5
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

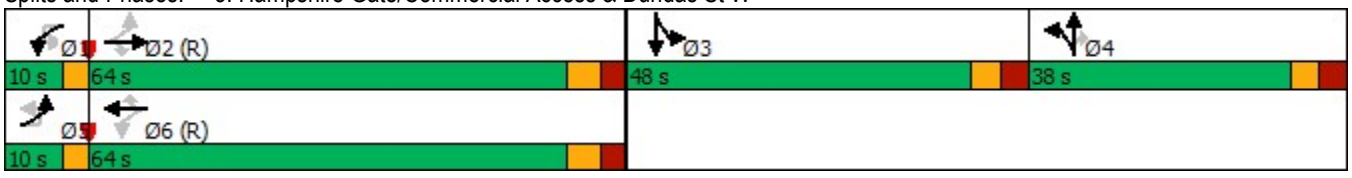
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	251	483	174
Future Volume (vph)	251	483	174
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	3579	1601
Flt Permitted	0.20	1.00	1.00
Satd. Flow (perm)	390	3579	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	264	508	183
RTOR Reduction (vph)	0	0	93
Lane Group Flow (vph)	266	508	90
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	44.4	31.4	31.4
Effective Green, g (s)	46.4	31.4	31.4
Actuated g/C Ratio	0.34	0.23	0.23
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	277	822	368
v/s Ratio Prot	c0.10	0.14	
v/s Ratio Perm	c0.23		0.06
v/c Ratio	0.96	0.62	0.24
Uniform Delay, d1	37.9	47.2	42.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	43.1	1.4	0.3
Delay (s)	81.1	48.6	43.3
Level of Service	F	D	D
Approach Delay (s)		56.6	
Approach LOS		E	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	90	1245	149	2	133	1193	81	609	86	285	154
Future Volume (vph)	2	90	1245	149	2	133	1193	81	609	86	285	154
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	64.0	64.0	10.0	10.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	40.0%	40.0%	6.3%	6.3%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		69.0	57.0	57.0		71.8	58.7	58.7	49.4	49.4	49.4	19.9
Actuated g/C Ratio		0.43	0.36	0.36		0.45	0.37	0.37	0.31	0.31	0.31	0.12
v/c Ratio		0.57	0.72	0.24		0.83	0.67	0.13	0.70	0.69	0.46	0.73
Control Delay		40.3	31.1	2.1		65.9	45.0	5.2	57.5	56.9	13.4	85.5
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.3	31.1	2.1		65.9	45.0	5.2	57.5	56.9	13.4	85.5
LOS		D	C	A		E	D	A	E	E	B	F
Approach Delay			28.7				44.7			44.4		
Approach LOS			C				D			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 40.0	Intersection LOS: D
Intersection Capacity Utilization 78.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



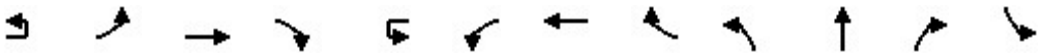
Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	31
Future Volume (vph)	31
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	19.9
Actuated g/C Ratio	0.12
v/c Ratio	0.44
Control Delay	27.3
Queue Delay	0.0
Total Delay	27.3
LOS	C
Approach Delay	60.2
Approach LOS	E

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	98	1324	159	143	1269	86	369	370	303	164	126
v/c Ratio	0.57	0.72	0.24	0.83	0.67	0.13	0.70	0.69	0.46	0.73	0.44
Control Delay	40.3	31.1	2.1	65.9	45.0	5.2	57.5	56.9	13.4	85.5	27.3
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	40.3	31.1	2.1	65.9	45.0	5.2	57.5	56.9	13.4	85.5	27.3
Queue Length 50th (m)	6.7	141.1	6.1	26.4	126.4	0.0	109.1	109.0	16.2	51.1	11.9
Queue Length 95th (m)	m21.0	m156.4	m1.7	#72.0	143.2	9.9	155.1	154.6	45.2	73.6	31.5
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	171	1831	672	173	1884	653	530	539	665	463	500
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	0.57	0.72	0.24	0.83	0.67	0.13	0.70	0.69	0.46	0.35	0.25

Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	90	1245	149	2	133	1193	81	609	86	285	154
Future Volume (vph)	2	90	1245	149	2	133	1193	81	609	86	285	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.11	1.00	1.00		0.09	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		212	5142	1601		166	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	96	1324	159	2	141	1269	86	648	91	303	164
RTOR Reduction (vph)	0	0	0	102	0	0	0	54	0	0	161	0
Lane Group Flow (vph)	0	98	1324	57	0	143	1269	32	369	370	142	164
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		65.1	57.1	57.1		68.3	58.7	58.7	49.4	49.4	49.4	19.9
Effective Green, g (s)		65.1	57.1	57.1		68.3	58.7	58.7	49.4	49.4	49.4	19.9
Actuated g/C Ratio		0.41	0.36	0.36		0.43	0.37	0.37	0.31	0.31	0.31	0.12
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		166	1835	571		169	1886	593	530	539	504	224
v/s Ratio Prot		0.03	0.26			c0.05	0.25		c0.21	0.21		c0.09
v/s Ratio Perm		0.21		0.04		c0.31		0.02			0.09	
v/c Ratio		0.59	0.72	0.10		0.85	0.67	0.05	0.70	0.69	0.28	0.73
Uniform Delay, d1		32.7	44.6	34.3		33.9	42.6	32.7	48.7	48.5	41.9	67.5
Progression Factor		1.11	0.65	0.31		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		4.4	2.0	0.3		30.3	1.9	0.2	4.0	3.6	0.3	11.7
Delay (s)		40.9	30.8	10.9		64.2	44.5	32.9	52.7	52.1	42.2	79.1
Level of Service		D	C	B		E	D	C	D	D	D	E
Approach Delay (s)			29.5				45.7			49.4		
Approach LOS			C				D			D		

Intersection Summary			
HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

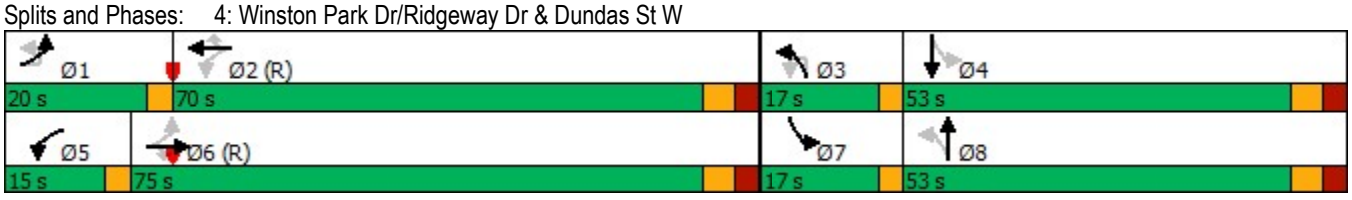
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	31	87
Future Volume (vph)	31	87
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1708	
Flt Permitted	1.00	
Satd. Flow (perm)	1708	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	33	93
RTOR Reduction (vph)	74	0
Lane Group Flow (vph)	52	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	19.9	
Effective Green, g (s)	19.9	
Actuated g/C Ratio	0.12	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	212	
v/s Ratio Prot	0.03	
v/s Ratio Perm		
v/c Ratio	0.24	
Uniform Delay, d1	63.3	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	63.9	
Level of Service	E	
Approach Delay (s)	72.5	
Approach LOS	E	

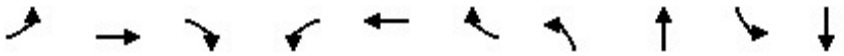
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	279	1247	126	90	1411	430	2	326	688	232	289
Future Volume (vph)	8	279	1247	126	90	1411	430	2	326	688	232	289
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt	NA
Protected Phases		1	6		5	2			3	8	7	4
Permitted Phases	1	6		6	2		2	3	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	20.0	20.0	75.0	75.0	15.0	70.0	70.0	17.0	17.0	53.0	17.0	53.0
Total Split (%)	12.5%	12.5%	46.9%	46.9%	9.4%	43.8%	43.8%	10.6%	10.6%	33.1%	10.6%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		92.0	75.7	75.7	76.3	63.0	63.0		61.0	41.0	63.0	41.0
Actuated g/C Ratio		0.58	0.47	0.47	0.48	0.39	0.39		0.38	0.26	0.39	0.26
v/c Ratio		0.95	0.53	0.17	0.39	0.71	0.57		0.95	0.85	0.97	0.51
Control Delay		83.0	31.5	8.9	23.6	43.0	21.0		76.8	65.6	87.9	44.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		83.0	31.5	8.9	23.6	43.0	21.0		76.8	65.6	87.9	44.5
LOS		F	C	A	C	D	C		E	E	F	D
Approach Delay			38.6			37.2				69.0		59.2
Approach LOS			D			D				E		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 137 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 46.9	Intersection LOS: D
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	296	1286	130	93	1455	443	338	782	239	467
v/c Ratio	0.95	0.53	0.17	0.39	0.71	0.57	0.95	0.85	0.97	0.51
Control Delay	83.0	31.5	8.9	23.6	43.0	21.0	76.8	65.6	87.9	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.0	31.5	8.9	23.6	43.0	21.0	76.8	65.6	87.9	44.5
Queue Length 50th (m)	73.8	104.4	5.8	10.1	129.6	52.2	79.5	123.8	53.7	57.2
Queue Length 95th (m)	#151.1	129.0	19.7	m17.6	148.9	72.8	#127.2	143.3	#105.3	72.2
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	311	2431	758	270	2044	784	356	1029	246	1013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.53	0.17	0.34	0.71	0.57	0.95	0.76	0.97	0.46

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	279	1247	126	90	1411	430	2	326	688	71	232
Future Volume (vph)	8	279	1247	126	90	1411	430	2	326	688	71	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3563		1789
Flt Permitted		0.08	1.00	1.00	0.17	1.00	1.00		0.35	1.00		0.12
Satd. Flow (perm)		143	5142	1498	324	5193	1617		655	3563		229
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	288	1286	130	93	1455	443	2	336	709	73	239
RTOR Reduction (vph)	0	0	0	51	0	0	148	0	0	5	0	0
Lane Group Flow (vph)	0	296	1286	79	93	1455	295	0	338	777	0	239
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA		pm+pt
Protected Phases		1	6		5	2			3	8		7
Permitted Phases	1	6		6	2		2	3	8			4
Actuated Green, G (s)		88.0	75.7	75.7	72.3	63.0	63.0		55.0	41.0		55.0
Effective Green, g (s)		88.0	75.7	75.7	72.3	63.0	63.0		57.0	41.0		59.0
Actuated g/C Ratio		0.55	0.47	0.47	0.45	0.39	0.39		0.36	0.26		0.37
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		307	2432	708	232	2044	636		339	913		240
v/s Ratio Prot		c0.13	0.25		0.02	0.28			c0.09	c0.22		0.10
v/s Ratio Perm		c0.40		0.05	0.16		0.18		0.26			0.27
v/c Ratio		0.96	0.53	0.11	0.40	0.71	0.46		1.00	0.85		1.00
Uniform Delay, d1		49.1	29.6	23.5	25.8	40.9	36.0		47.8	56.6		41.9
Progression Factor		1.00	1.00	1.00	1.17	1.01	1.17		1.00	1.00		1.00
Incremental Delay, d2		41.4	0.8	0.3	0.8	1.6	1.8		47.8	7.7		56.6
Delay (s)		90.5	30.4	23.8	30.9	42.7	43.9		95.5	64.3		98.5
Level of Service		F	C	C	C	D	D		F	E		F
Approach Delay (s)			40.3			42.4				73.7		
Approach LOS			D			D				E		

Intersection Summary			
HCM 2000 Control Delay	51.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	289	164
Future Volume (vph)	289	164
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3354	
Flt Permitted	1.00	
Satd. Flow (perm)	3354	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	298	169
RTOR Reduction (vph)	51	0
Lane Group Flow (vph)	416	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	41.0	
Effective Green, g (s)	41.0	
Actuated g/C Ratio	0.26	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	859	
v/s Ratio Prot	0.12	
v/s Ratio Perm		
v/c Ratio	0.48	
Uniform Delay, d1	50.5	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	50.9	
Level of Service	D	
Approach Delay (s)	67.1	
Approach LOS	E	

Intersection Summary

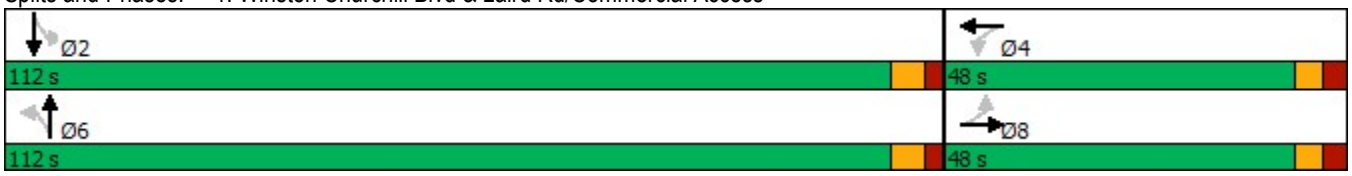
Appendix F

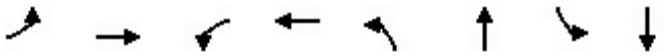
2036 Future Background Conditions – Synchro HCM Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	44	21	39	20	169	760	57	1306
Future Volume (vph)	44	21	39	20	169	760	57	1306
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	39.5	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	112.0	112.0	112.0	112.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	11.0	11.0	11.0	11.0	105.5	105.5	105.5	105.5
Actuated g/C Ratio	0.08	0.08	0.08	0.08	0.81	0.81	0.81	0.81
v/c Ratio	0.39	0.55	0.38	0.19	0.70	0.21	0.12	0.36
Control Delay	66.0	39.5	67.1	43.7	24.2	2.8	3.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	39.5	67.1	43.7	24.2	2.8	3.2	3.4
LOS	E	D	E	D	C	A	A	A
Approach Delay		44.9		57.1		6.4		3.4
Approach LOS		D		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 129.5	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 76.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access

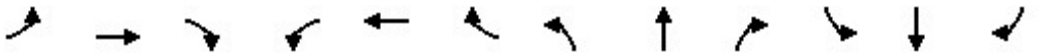




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	176	40	30	172	854	58	1476
v/c Ratio	0.39	0.55	0.38	0.19	0.70	0.21	0.12	0.36
Control Delay	66.0	39.5	67.1	43.7	24.2	2.8	3.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	39.5	67.1	43.7	24.2	2.8	3.2	3.4
Queue Length 50th (m)	11.1	13.2	9.8	4.8	14.4	13.1	2.3	27.0
Queue Length 95th (m)	23.7	25.1	21.7	14.5	#74.0	19.3	5.9	37.7
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	441	1001	394	569	245	4069	499	4066
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	0.10	0.18	0.10	0.05	0.70	0.21	0.12	0.36

Intersection Summary

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



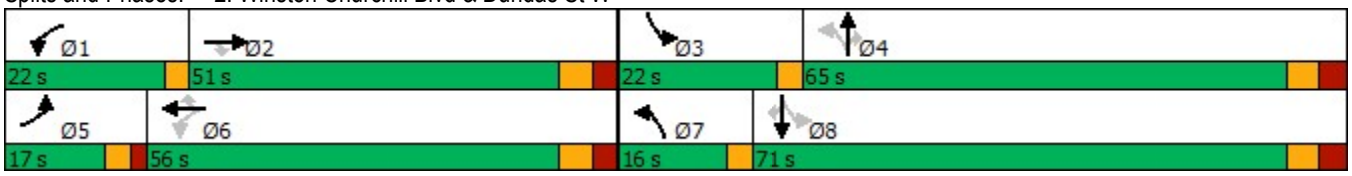
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	21	152	39	20	10	169	760	76	57	1306	140
Future Volume (vph)	44	21	152	39	20	10	169	760	76	57	1306	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	2967		1825	1755		1789	4991		1825	4988	
Flt Permitted	0.74	1.00		0.64	1.00		0.16	1.00		0.32	1.00	
Satd. Flow (perm)	1376	2967		1231	1755		302	4991		613	4988	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	45	21	155	40	20	10	172	776	78	58	1333	143
RTOR Reduction (vph)	0	68	0	0	9	0	0	4	0	0	4	0
Lane Group Flow (vph)	45	108	0	40	21	0	172	850	0	58	1472	0
Heavy Vehicles (%)	3%	5%	7%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	11.0	11.0		11.0	11.0		105.5	105.5		105.5	105.5	
Effective Green, g (s)	11.0	11.0		11.0	11.0		105.5	105.5		105.5	105.5	
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.81	0.81		0.81	0.81	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	252		104	149		246	4066		499	4063	
v/s Ratio Prot		c0.04			0.01			0.17			0.30	
v/s Ratio Perm	0.03			0.03			c0.57			0.09		
v/c Ratio	0.39	0.43		0.38	0.14		0.70	0.21		0.12	0.36	
Uniform Delay, d1	56.1	56.3		56.0	54.9		5.2	2.7		2.5	3.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	1.2		2.4	0.4		15.3	0.1		0.5	0.3	
Delay (s)	58.2	57.4		58.4	55.3		20.4	2.8		2.9	3.4	
Level of Service	E	E		E	E		C	A		A	A	
Approach Delay (s)		57.6			57.1			5.8			3.4	
Approach LOS		E			E			A			A	

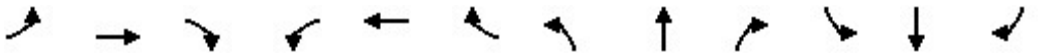
Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	129.5	Sum of lost time (s)	13.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1103	429	302	712	148	226	760	280	207	1235	124
Future Volume (vph)	90	1103	429	302	712	148	226	760	280	207	1235	124
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	51.0	51.0	22.0	56.0	56.0	16.0	65.0	65.0	22.0	71.0	71.0
Total Split (%)	10.6%	31.9%	31.9%	13.8%	35.0%	35.0%	10.0%	40.6%	40.6%	13.8%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.5	44.1	44.1	70.2	51.7	51.7	64.5	44.9	44.9	67.2	47.9	47.9
Actuated g/C Ratio	0.07	0.30	0.30	0.49	0.36	0.36	0.45	0.31	0.31	0.46	0.33	0.33
v/c Ratio	0.45	0.74	0.74	1.07	0.41	0.24	1.03	0.51	0.44	0.65	0.77	0.23
Control Delay	73.1	49.5	35.5	107.6	37.2	6.2	105.0	42.0	7.5	32.2	46.7	10.3
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	73.1	49.5	35.5	107.6	37.2	6.2	105.0	42.0	7.5	32.2	46.7	10.3
LOS	E	D	D	F	D	A	F	D	A	C	D	B
Approach Delay		47.1			51.5			45.6			41.9	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 144.7	
Natural Cycle: 125	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 46.2	Intersection LOS: D
Intersection Capacity Utilization 93.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



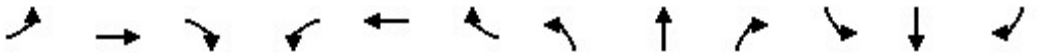


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	95	1161	452	318	749	156	238	800	295	218	1300	131
v/c Ratio	0.45	0.74	0.74	1.07	0.41	0.24	1.03	0.51	0.44	0.65	0.77	0.23
Control Delay	73.1	49.5	35.5	107.6	37.2	6.2	105.0	42.0	7.5	32.2	46.7	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	49.5	35.5	107.6	37.2	6.2	105.0	42.0	7.5	32.2	46.7	10.3
Queue Length 50th (m)	13.6	108.9	71.7	~79.7	58.7	0.0	~54.5	69.0	4.4	36.9	122.1	5.7
Queue Length 95th (m)	24.6	141.8	126.8	#158.8	82.6	16.5	#116.1	83.9	26.4	54.0	138.6	19.9
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	270	1568	614	298	1819	650	230	2029	784	367	2241	710
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	0.35	0.74	0.74	1.07	0.41	0.24	1.03	0.39	0.38	0.59	0.58	0.18

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.



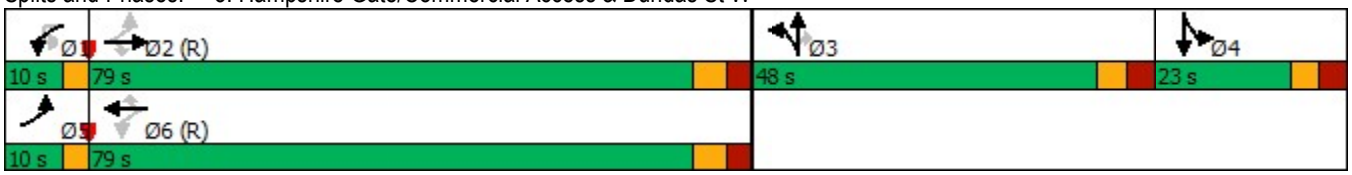
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1103	429	302	712	148	226	760	280	207	1235	124
Future Volume (vph)	90	1103	429	302	712	148	226	760	280	207	1235	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	5092	1555	1706	5092	1484
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.09	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	184	5092	1541	174	5092	1555	418	5092	1484
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	1161	452	318	749	156	238	800	295	218	1300	131
RTOR Reduction (vph)	0	0	126	0	0	100	0	0	188	0	0	68
Lane Group Flow (vph)	95	1161	326	318	749	56	238	800	107	218	1300	63
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	7%	3%	10%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.5	44.1	44.1	66.2	51.7	51.7	57.9	44.9	44.9	63.9	47.9	47.9
Effective Green, g (s)	9.5	44.1	44.1	66.2	51.7	51.7	59.9	44.9	44.9	63.9	47.9	47.9
Actuated g/C Ratio	0.07	0.30	0.30	0.46	0.36	0.36	0.41	0.31	0.31	0.44	0.33	0.33
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	213	1568	488	293	1820	550	225	1581	482	327	1686	491
v/s Ratio Prot	0.03	0.23		c0.14	0.15		c0.10	0.16		c0.07	0.26	
v/s Ratio Perm			0.20	c0.35		0.04	c0.33		0.07	0.22		0.04
v/c Ratio	0.45	0.74	0.67	1.09	0.41	0.10	1.06	0.51	0.22	0.67	0.77	0.13
Uniform Delay, d1	65.0	45.1	43.9	42.7	35.0	31.0	40.1	40.8	36.9	27.0	43.4	33.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	3.2	7.1	77.2	0.7	0.4	76.1	0.3	0.2	5.1	2.2	0.1
Delay (s)	66.5	48.3	51.0	120.0	35.7	31.3	116.1	41.0	37.1	32.1	45.7	33.9
Level of Service	E	D	D	F	D	C	F	D	D	C	D	C
Approach Delay (s)		50.0			57.0			53.6			42.9	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	144.6	Sum of lost time (s)	22.5
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	34	1650	168	1	118	803	28	80	18	76	19	5
Future Volume (vph)	34	1650	168	1	118	803	28	80	18	76	19	5
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	116.6	105.5	105.5		128.3	116.2	116.2	11.5	11.5	11.5	10.0	10.0
Actuated g/C Ratio	0.73	0.66	0.66		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.08	0.53	0.17		0.46	0.24	0.03	0.45	0.44	0.41	0.20	0.10
Control Delay	3.4	11.8	1.0		13.8	8.6	0.0	82.6	81.6	15.2	75.8	48.2
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	3.4	11.8	1.0		13.8	8.6	0.0	82.6	81.6	15.2	75.8	48.2
LOS	A	B	A		B	A	A	F	F	B	E	D
Approach Delay		10.7				9.0			52.8			65.8
Approach LOS		B				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 76.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	37	1813	185	131	882	31	54	54	84	21	12
v/c Ratio	0.08	0.53	0.17	0.46	0.24	0.03	0.45	0.44	0.41	0.20	0.10
Control Delay	3.4	11.8	1.0	13.8	8.6	0.0	82.6	81.6	15.2	75.8	48.2
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	3.4	11.8	1.0	13.8	8.6	0.0	82.6	81.6	15.2	75.8	48.2
Queue Length 50th (m)	1.2	159.5	5.7	9.4	37.6	0.0	17.7	17.7	0.0	6.5	1.5
Queue Length 95th (m)	m1.9	194.5	m5.7	26.4	48.4	0.0	32.8	32.8	13.6	16.0	8.7
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	473	3390	1107	287	3663	1166	431	444	489	172	181
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	0.08	0.53	0.17	0.46	0.24	0.03	0.13	0.12	0.17	0.12	0.07

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	34	1650	168	1	118	803	28	80	18	76	19	5
Future Volume (vph)	34	1650	168	1	118	803	28	80	18	76	19	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1737	1633	1722	1753
Flt Permitted	0.31	1.00	1.00		0.08	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	578	5142	1585		157	5043	1570	1683	1737	1633	1722	1753
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	37	1813	185	1	130	882	31	88	20	84	21	5
RTOR Reduction (vph)	0	0	66	0	0	0	9	0	0	78	0	7
Lane Group Flow (vph)	37	1813	119	0	131	882	22	54	54	6	21	5
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	108.4	102.7	102.7		121.5	112.8	112.8	11.5	11.5	11.5	6.0	6.0
Effective Green, g (s)	108.4	102.7	102.7		121.5	112.8	112.8	11.5	11.5	11.5	6.0	6.0
Actuated g/C Ratio	0.68	0.64	0.64		0.76	0.70	0.70	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	434	3300	1017		280	3555	1106	120	124	117	64	65
v/s Ratio Prot	0.00	c0.35			c0.05	0.17		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.05		0.08		0.31		0.01			0.00		
v/c Ratio	0.09	0.55	0.12		0.47	0.25	0.02	0.45	0.44	0.05	0.33	0.08
Uniform Delay, d1	8.5	15.8	11.1		11.8	8.4	7.1	71.2	71.1	69.2	75.0	74.3
Progression Factor	0.60	0.72	0.39		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.2		1.2	0.2	0.0	2.7	2.4	0.2	3.0	0.5
Delay (s)	5.1	11.9	4.5		13.0	8.6	7.1	73.9	73.6	69.4	78.0	74.9
Level of Service	A	B	A		B	A	A	E	E	E	E	E
Approach Delay (s)		11.1				9.1			71.8			76.9
Approach LOS		B				A			E			E

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

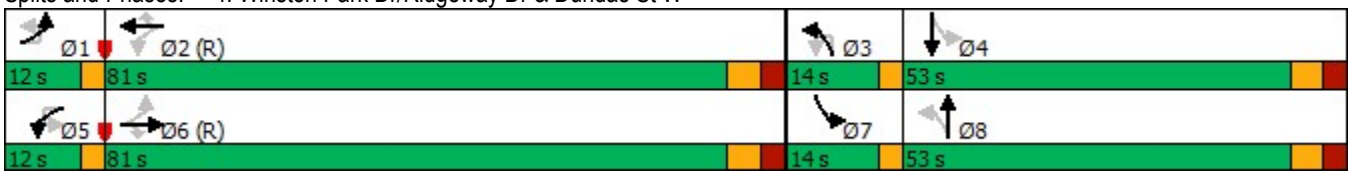
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	12	227	1475	401	2	61	589	197	1	126	226	298
Future Volume (vph)	12	227	1475	401	2	61	589	197	1	126	226	298
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	81.0	81.0	12.0	12.0	81.0	81.0	14.0	14.0	53.0	14.0
Total Split (%)	7.5%	7.5%	50.6%	50.6%	7.5%	7.5%	50.6%	50.6%	8.8%	8.8%	33.1%	8.8%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		98.1	83.5	83.5		91.0	78.7	78.7		52.2	37.3	52.3
Actuated g/C Ratio		0.61	0.52	0.52		0.57	0.49	0.49		0.33	0.23	0.33
v/c Ratio		0.52	0.60	0.46		0.39	0.26	0.25		0.80	0.35	0.89
Control Delay		19.6	28.6	10.5		29.6	21.9	2.2		69.1	49.5	72.8
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		19.6	28.6	10.5		29.6	21.9	2.2		69.1	49.5	72.8
LOS		B	C	B		C	C	A		E	D	E
Approach Delay			24.2				17.9				55.9	
Approach LOS			C				B				E	

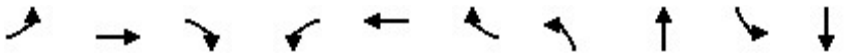
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 33 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 35.3	Intersection LOS: D
Intersection Capacity Utilization 77.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	559
Future Volume (vph)	559
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	33.1%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	37.3
Actuated g/C Ratio	0.23
v/c Ratio	0.82
Control Delay	66.0
Queue Delay	0.0
Total Delay	66.0
LOS	E
Approach Delay	68.2
Approach LOS	E

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	260	1603	436	68	640	214	138	285	324	681
v/c Ratio	0.52	0.60	0.46	0.39	0.26	0.25	0.80	0.35	0.89	0.82
Control Delay	19.6	28.6	10.5	29.6	21.9	2.2	69.1	49.5	72.8	66.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	28.6	10.5	29.6	21.9	2.2	69.1	49.5	72.8	66.0
Queue Length 50th (m)	35.8	127.3	28.1	7.4	41.2	0.0	31.4	38.5	82.6	107.8
Queue Length 95th (m)	57.4	160.4	62.4	24.2	48.5	8.3	#49.5	49.2	#108.9	123.4
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	500	2682	944	186	2481	873	174	1013	364	1019
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.60	0.46	0.37	0.26	0.25	0.79	0.28	0.89	0.67

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	12	227	1475	401	2	61	589	197	1	126	226	36
Future Volume (vph)	12	227	1475	401	2	61	589	197	1	126	226	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1678	5043	1555		1602	3500	
Flt Permitted		0.36	1.00	1.00		0.10	1.00	1.00		0.15	1.00	
Satd. Flow (perm)		669	5142	1555		174	5043	1555		247	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	247	1603	436	2	66	640	214	1	137	246	39
RTOR Reduction (vph)	0	0	0	133	0	0	0	109	0	0	8	0
Lane Group Flow (vph)	0	260	1603	303	0	68	640	105	0	138	277	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	5%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		94.7	83.4	83.4		87.0	78.7	78.7		48.2	37.3	
Effective Green, g (s)		94.7	83.4	83.4		87.0	78.7	78.7		48.2	37.3	
Actuated g/C Ratio		0.59	0.52	0.52		0.54	0.49	0.49		0.30	0.23	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		485	2680	810		172	2480	764		166	815	
v/s Ratio Prot		c0.04	c0.31			0.02	0.13			0.06	0.08	
v/s Ratio Perm		0.27		0.20		0.19		0.07		0.19		
v/c Ratio		0.54	0.60	0.37		0.40	0.26	0.14		0.83	0.34	
Uniform Delay, d1		15.9	26.6	22.8		20.1	23.7	22.2		44.9	51.1	
Progression Factor		1.00	1.00	1.00		1.68	0.89	0.56		1.00	1.00	
Incremental Delay, d2		1.1	1.0	1.3		1.5	0.2	0.4		28.3	0.2	
Delay (s)		17.1	27.6	24.1		35.2	21.3	12.7		73.2	51.3	
Level of Service		B	C	C		D	C	B		E	D	
Approach Delay (s)			25.8				20.3				58.5	
Approach LOS			C				C				E	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

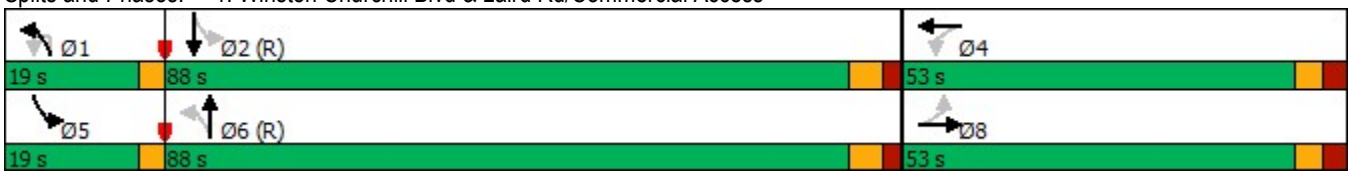
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	298	559	67
Future Volume (vph)	298	559	67
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.51	1.00	
Satd. Flow (perm)	945	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	324	608	73
RTOR Reduction (vph)	0	6	0
Lane Group Flow (vph)	324	675	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	48.4	37.4	
Effective Green, g (s)	48.4	37.4	
Actuated g/C Ratio	0.30	0.23	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	341	824	
v/s Ratio Prot	c0.07	0.19	
v/s Ratio Perm	c0.22		
v/c Ratio	0.95	0.82	
Uniform Delay, d1	52.8	58.1	
Progression Factor	1.00	1.00	
Incremental Delay, d2	35.7	6.4	
Delay (s)	88.5	64.5	
Level of Service	F	E	
Approach Delay (s)		72.2	
Approach LOS		E	

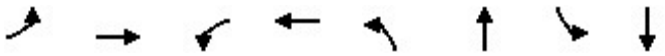
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	177	101	118	120	1	231	858	122	625
Future Volume (vph)	177	101	118	120	1	231	858	122	625
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	53.0	53.0	53.0	53.0	19.0	19.0	88.0	19.0	88.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	11.9%	11.9%	55.0%	11.9%	55.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	34.6	34.6	34.6	34.6		115.5	100.2	109.7	97.1
Actuated g/C Ratio	0.22	0.22	0.22	0.22		0.72	0.63	0.69	0.61
v/c Ratio	0.95	0.37	0.67	0.47		0.50	0.33	0.32	0.29
Control Delay	112.2	16.7	73.4	52.0		11.8	15.2	10.1	15.2
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	112.2	16.7	73.4	52.0		11.8	15.2	10.1	15.2
LOS	F	B	E	D		B	B	B	B
Approach Delay		51.6		60.4			14.6		14.6
Approach LOS		D		E			B		B

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 19 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	323	124	193	244	1025	128	864
v/c Ratio	0.95	0.37	0.67	0.47	0.50	0.33	0.32	0.29
Control Delay	112.2	16.7	73.4	52.0	11.8	15.2	10.1	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.2	16.7	73.4	52.0	11.8	15.2	10.1	15.2
Queue Length 50th (m)	58.6	14.4	36.3	49.1	23.1	52.6	11.3	42.4
Queue Length 95th (m)	83.9	25.7	55.4	67.5	42.5	77.4	22.9	63.4
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	264	1101	249	541	519	3152	479	3019
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	0.70	0.29	0.50	0.36	0.47	0.33	0.27	0.29

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	177	101	206	118	120	64	1	231	858	116	122	625
Future Volume (vph)	177	101	206	118	120	64	1	231	858	116	122	625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.91		1.00	0.91
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3260		1807	1821			1807	5018		1825	4933
Flt Permitted	0.48	1.00		0.45	1.00			0.28	1.00		0.25	1.00
Satd. Flow (perm)	911	3260		857	1821			541	5018		481	4933
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	186	106	217	124	126	67	1	243	903	122	128	658
RTOR Reduction (vph)	0	170	0	0	13	0	0	0	8	0	0	28
Lane Group Flow (vph)	186	153	0	124	180	0	0	244	1017	0	128	836
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	34.6	34.6		34.6	34.6			112.4	100.2		106.3	97.1
Effective Green, g (s)	34.6	34.6		34.6	34.6			112.4	100.2		106.3	97.1
Actuated g/C Ratio	0.22	0.22		0.22	0.22			0.70	0.63		0.66	0.61
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	197	704		185	393			477	3142		396	2993
v/s Ratio Prot		0.05			0.10			c0.04	0.20		0.02	0.17
v/s Ratio Perm	c0.20			0.14				c0.32			0.20	
v/c Ratio	0.94	0.22		0.67	0.46			0.51	0.32		0.32	0.28
Uniform Delay, d1	61.7	51.6		57.5	54.5			8.7	14.0		9.8	14.9
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	48.0	0.2		9.2	0.8			0.9	0.3		0.5	0.2
Delay (s)	109.7	51.7		66.6	55.4			9.6	14.3		10.3	15.1
Level of Service	F	D		E	E			A	B		B	B
Approach Delay (s)		72.9			59.8				13.4			14.5
Approach LOS		E			E				B			B

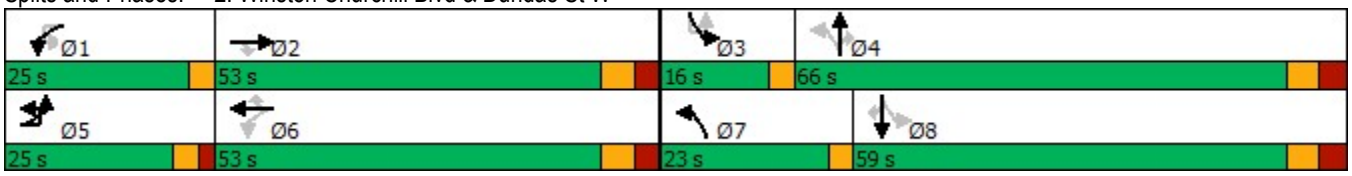
Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	196
Future Volume (vph)	196
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	206
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	301	1224	238	3	319	1130	318	238	741	361	2	280
Future Volume (vph)	301	1224	238	3	319	1130	318	238	741	361	2	280
Turn Type	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt
Protected Phases	5	2			1	6		7	4			3
Permitted Phases			2	1	6		6	4		4	3	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	53.0	53.0	25.0	25.0	53.0	53.0	23.0	66.0	66.0	16.0	16.0
Total Split (%)	15.6%	33.1%	33.1%	15.6%	15.6%	33.1%	33.1%	14.4%	41.3%	41.3%	10.0%	10.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	17.0	46.1	46.1		74.0	49.1	49.1	49.0	29.2	29.2		44.2
Actuated g/C Ratio	0.13	0.35	0.35		0.57	0.38	0.38	0.37	0.22	0.22		0.34
v/c Ratio	0.73	0.70	0.34		0.90	0.61	0.45	0.67	0.68	0.66		0.98
Control Delay	65.0	39.6	5.1		61.7	35.8	14.5	38.7	49.6	16.7		81.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	65.0	39.6	5.1		61.7	35.8	14.5	38.7	49.6	16.7		81.3
LOS	E	D	A		E	D	B	D	D	B		F
Approach Delay		39.4				36.7			38.8			
Approach LOS		D				D			D			

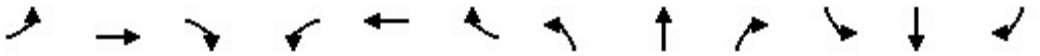
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 130.8	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 40.7	Intersection LOS: D
Intersection Capacity Utilization 98.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	538	194
Future Volume (vph)	538	194
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	24.7	24.7
Actuated g/C Ratio	0.19	0.19
v/c Ratio	0.58	0.46
Control Delay	51.2	13.4
Queue Delay	0.0	0.0
Total Delay	51.2	13.4
LOS	D	B
Approach Delay	52.3	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	328	1288	251	339	1189	335	251	780	380	297	566	204
v/c Ratio	0.73	0.70	0.34	0.90	0.61	0.45	0.67	0.68	0.66	0.98	0.58	0.46
Control Delay	65.0	39.6	5.1	61.7	35.8	14.5	38.7	49.6	16.7	81.3	51.2	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	39.6	5.1	61.7	35.8	14.5	38.7	49.6	16.7	81.3	51.2	13.4
Queue Length 50th (m)	42.2	103.9	0.0	65.5	90.3	22.9	46.2	67.9	18.8	55.6	49.7	6.3
Queue Length 95th (m)	60.4	131.9	18.5	#133.8	119.6	55.2	67.8	82.0	52.2	#104.0	63.0	28.3
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	531	1828	732	376	1950	741	399	2303	871	302	2027	737
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	0.62	0.70	0.34	0.90	0.61	0.45	0.63	0.34	0.44	0.98	0.28	0.28

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	10	301	1224	238	3	319	1130	318	238	741	361	2
Future Volume (vph)	10	301	1224	238	3	319	1130	318	238	741	361	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.91	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	5142	1585	
Flt Permitted		0.95	1.00	1.00		0.10	1.00	1.00	0.28	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		181	5193	1633	542	5142	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	317	1288	251	3	336	1189	335	251	780	380	2
RTOR Reduction (vph)	0	0	0	163	0	0	0	128	0	0	227	0
Lane Group Flow (vph)	0	328	1288	88	0	339	1189	207	251	780	153	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom
Protected Phases	5	5	2			1	6		7	4		
Permitted Phases				2	1	6		6	4		4	3
Actuated Green, G (s)		17.0	46.1	46.1		71.1	49.1	49.1	45.2	29.2	29.2	
Effective Green, g (s)		17.0	46.1	46.1		71.1	49.1	49.1	45.2	29.2	29.2	
Actuated g/C Ratio		0.13	0.35	0.35		0.54	0.38	0.38	0.35	0.22	0.22	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		451	1830	569		371	1949	612	356	1147	353	
v/s Ratio Prot		0.09	0.25			c0.15	0.23		c0.09	0.15		
v/s Ratio Perm				0.05		c0.34		0.13	0.15		0.10	
v/c Ratio		0.73	0.70	0.16		0.91	0.61	0.34	0.71	0.68	0.43	
Uniform Delay, d1		54.7	36.5	29.0		37.0	33.1	29.2	33.0	46.5	43.7	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		5.8	2.3	0.6		26.2	1.4	1.5	6.2	1.7	0.9	
Delay (s)		60.4	38.8	29.6		63.3	34.5	30.7	39.2	48.2	44.5	
Level of Service		E	D	C		E	C	C	D	D	D	
Approach Delay (s)			41.3				39.1			45.6		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	45.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	22.5
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

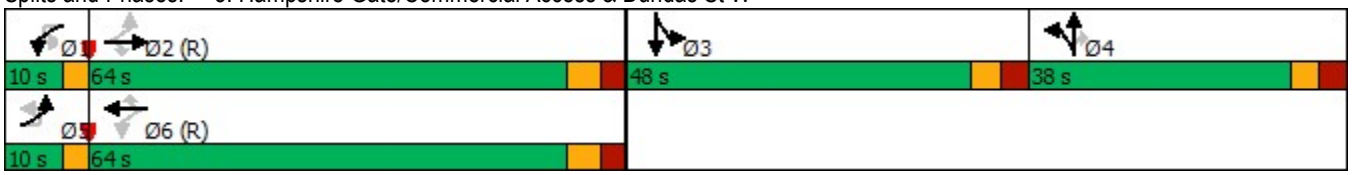
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	280	538	194
Future Volume (vph)	280	538	194
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.91	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	5142	1601
Flt Permitted	0.25	1.00	1.00
Satd. Flow (perm)	472	5142	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	295	566	204
RTOR Reduction (vph)	0	0	142
Lane Group Flow (vph)	297	566	62
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	37.7	24.7	24.7
Effective Green, g (s)	39.7	24.7	24.7
Actuated g/C Ratio	0.30	0.19	0.19
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	286	971	302
v/s Ratio Prot	c0.11	0.11	
v/s Ratio Perm	c0.20		0.04
v/c Ratio	1.04	0.58	0.21
Uniform Delay, d1	40.3	48.4	44.8
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	63.6	0.9	0.3
Delay (s)	103.8	49.3	45.1
Level of Service	F	D	D
Approach Delay (s)		63.7	
Approach LOS		E	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	95	1315	157	2	137	1229	83	679	96	318	172
Future Volume (vph)	2	95	1315	157	2	137	1229	83	679	96	318	172
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	64.0	64.0	10.0	10.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	40.0%	40.0%	6.3%	6.3%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		68.0	57.0	57.0		68.0	57.0	57.0	50.4	50.4	50.4	21.6
Actuated g/C Ratio		0.42	0.36	0.36		0.42	0.36	0.36	0.32	0.32	0.32	0.14
v/c Ratio		0.70	0.76	0.25		1.12	0.71	0.14	0.76	0.75	0.50	0.75
Control Delay		55.8	31.0	1.7		144.7	47.1	5.6	60.5	59.6	16.8	84.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		55.8	31.0	1.7		144.7	47.1	5.6	60.5	59.6	16.8	84.9
LOS		E	C	A		F	D	A	E	E	B	F
Approach Delay			29.6				54.1			47.5		
Approach LOS			C				D			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 44.2	Intersection LOS: D
Intersection Capacity Utilization 84.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	21.6
Actuated g/C Ratio	0.14
v/c Ratio	0.46
Control Delay	30.4
Queue Delay	0.0
Total Delay	30.4
LOS	C
Approach Delay	61.3
Approach LOS	E

Intersection Summary

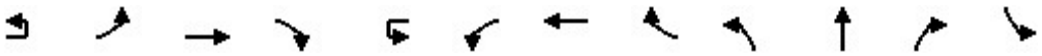
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	1399	167	148	1307	88	412	412	338	183	140
v/c Ratio	0.70	0.76	0.25	1.12	0.71	0.14	0.76	0.75	0.50	0.75	0.46
Control Delay	55.8	31.0	1.7	144.7	47.1	5.6	60.5	59.6	16.8	84.9	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	31.0	1.7	144.7	47.1	5.6	60.5	59.6	16.8	84.9	30.4
Queue Length 50th (m)	8.8	151.9	1.5	~36.3	131.5	0.0	124.8	124.2	25.0	56.9	16.2
Queue Length 95th (m)	m#27.3	m156.2	m2.3	#83.6	148.5	10.6	#195.3	#192.7	59.4	80.2	36.4
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	148	1831	677	132	1831	637	540	549	674	463	500
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	0.76	0.25	1.12	0.71	0.14	0.76	0.75	0.50	0.40	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	95	1315	157	2	137	1229	83	679	96	318	172
Future Volume (vph)	2	95	1315	157	2	137	1229	83	679	96	318	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.09	1.00	1.00		0.07	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		179	5142	1601		139	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	101	1399	167	2	146	1307	88	722	102	338	183
RTOR Reduction (vph)	0	0	0	108	0	0	0	57	0	0	160	0
Lane Group Flow (vph)	0	103	1399	59	0	148	1307	31	412	412	178	183
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		64.0	57.0	57.0		64.0	57.0	57.0	50.4	50.4	50.4	21.6
Effective Green, g (s)		64.0	57.0	57.0		64.0	57.0	57.0	50.4	50.4	50.4	21.6
Actuated g/C Ratio		0.40	0.36	0.36		0.40	0.36	0.36	0.31	0.31	0.31	0.14
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		143	1831	570		128	1831	576	540	549	514	243
v/s Ratio Prot		0.03	0.27			c0.05	0.25		c0.24	0.24		c0.10
v/s Ratio Perm		0.26		0.04		c0.41		0.02			0.11	
v/c Ratio		0.72	0.76	0.10		1.16	0.71	0.05	0.76	0.75	0.35	0.75
Uniform Delay, d1		34.5	45.6	34.4		38.2	44.5	33.8	49.4	49.2	42.1	66.6
Progression Factor		1.37	0.63	0.22		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		12.1	2.2	0.3		127.6	2.4	0.2	6.3	5.7	0.4	12.4
Delay (s)		59.3	30.8	8.0		165.8	46.9	34.0	55.7	54.9	42.5	79.0
Level of Service		E	C	A		F	D	C	E	D	D	E
Approach Delay (s)			30.3				57.5			51.6		
Approach LOS			C				E			D		

Intersection Summary			
HCM 2000 Control Delay	47.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

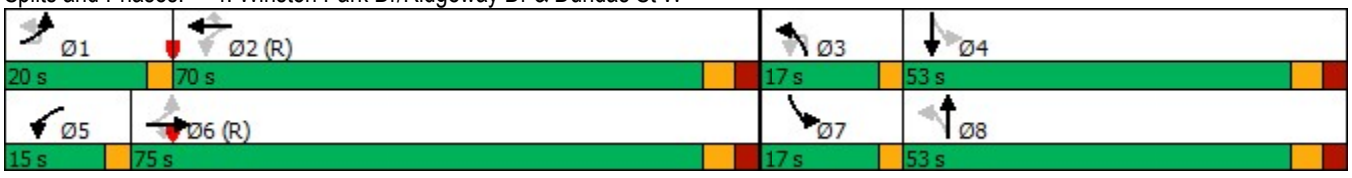
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	35	97
Future Volume (vph)	35	97
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1709	
Flt Permitted	1.00	
Satd. Flow (perm)	1709	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	37	103
RTOR Reduction (vph)	73	0
Lane Group Flow (vph)	67	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	21.6	
Effective Green, g (s)	21.6	
Actuated g/C Ratio	0.14	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	230	
v/s Ratio Prot	0.04	
v/s Ratio Perm		
v/c Ratio	0.29	
Uniform Delay, d1	62.3	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	63.0	
Level of Service	E	
Approach Delay (s)	72.1	
Approach LOS	E	

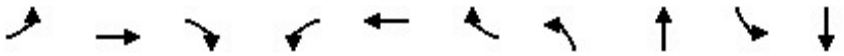
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	294	1317	133	93	1454	443	2	363	767	259	321
Future Volume (vph)	8	294	1317	133	93	1454	443	2	363	767	259	321
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt	NA
Protected Phases		1	6		5	2			3	8	7	4
Permitted Phases	1	6		6	2		2	3	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	20.0	20.0	75.0	75.0	15.0	70.0	70.0	17.0	17.0	53.0	17.0	53.0
Total Split (%)	12.5%	12.5%	46.9%	46.9%	9.4%	43.8%	43.8%	10.6%	10.6%	33.1%	10.6%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		89.2	72.7	72.7	76.5	63.0	63.0		63.8	43.8	65.8	43.8
Actuated g/C Ratio		0.56	0.45	0.45	0.48	0.39	0.39		0.40	0.27	0.41	0.27
v/c Ratio		1.15	0.58	0.19	0.44	0.73	0.59		1.07	0.89	1.15	0.54
Control Delay		140.9	34.2	10.0	27.3	45.9	23.7		106.9	67.1	142.7	44.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		140.9	34.2	10.0	27.3	45.9	23.7		106.9	67.1	142.7	44.3
LOS		F	C	A	C	D	C		F	E	F	D
Approach Delay			50.8			40.1				79.1		77.7
Approach LOS			D			D				E		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 137 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 56.6	Intersection LOS: E
Intersection Capacity Utilization 101.2%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	311	1358	137	96	1499	457	376	872	267	519
v/c Ratio	1.15	0.58	0.19	0.44	0.73	0.59	1.07	0.89	1.15	0.54
Control Delay	140.9	34.2	10.0	27.3	45.9	23.7	106.9	67.1	142.7	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	140.9	34.2	10.0	27.3	45.9	23.7	106.9	67.1	142.7	44.3
Queue Length 50th (m)	~105.1	119.2	7.4	10.7	136.2	57.3	~93.4	137.4	~79.3	63.2
Queue Length 95th (m)	#167.2	138.4	21.5	m17.4	155.7	84.4	#166.7	163.7	#138.7	81.5
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	271	2335	732	246	2044	777	350	1029	233	1014
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.58	0.19	0.39	0.73	0.59	1.07	0.85	1.15	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	294	1317	133	93	1454	443	2	363	767	79	259
Future Volume (vph)	8	294	1317	133	93	1454	443	2	363	767	79	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3564		1789
Flt Permitted		0.07	1.00	1.00	0.14	1.00	1.00		0.32	1.00		0.09
Satd. Flow (perm)		128	5142	1498	264	5193	1617		600	3564		174
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	303	1358	137	96	1499	457	2	374	791	81	267
RTOR Reduction (vph)	0	0	0	52	0	0	141	0	0	5	0	0
Lane Group Flow (vph)	0	311	1358	85	96	1499	316	0	376	867	0	267
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA		pm+pt
Protected Phases		1	6		5	2			3	8		7
Permitted Phases	1	6		6	2		2	3	8			4
Actuated Green, G (s)		85.2	72.7	72.7	72.5	63.0	63.0		57.8	43.8		57.8
Effective Green, g (s)		85.2	72.7	72.7	72.5	63.0	63.0		59.8	43.8		61.8
Actuated g/C Ratio		0.53	0.45	0.45	0.45	0.39	0.39		0.37	0.27		0.39
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		269	2336	680	211	2044	636		335	975		228
v/s Ratio Prot		c0.14	0.26		0.03	0.29			0.10	c0.24		c0.12
v/s Ratio Perm		c0.47		0.06	0.18		0.20		0.31			0.33
v/c Ratio		1.16	0.58	0.12	0.45	0.73	0.50		1.12	0.89		1.17
Uniform Delay, d1		51.1	32.4	25.2	26.4	41.3	36.5		46.0	55.8		47.3
Progression Factor		1.00	1.00	1.00	1.27	1.06	1.21		1.00	1.00		1.00
Incremental Delay, d2		103.8	1.1	0.4	1.1	1.7	1.9		86.5	10.0		113.6
Delay (s)		154.9	33.4	25.6	34.7	45.6	46.0		132.5	65.7		160.9
Level of Service		F	C	C	C	D	D		F	E		F
Approach Delay (s)			53.7			45.2				85.9		
Approach LOS			D			D				F		

Intersection Summary			
HCM 2000 Control Delay	62.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	321	182
Future Volume (vph)	321	182
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3354	
Flt Permitted	1.00	
Satd. Flow (perm)	3354	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	331	188
RTOR Reduction (vph)	51	0
Lane Group Flow (vph)	468	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	43.8	
Effective Green, g (s)	43.8	
Actuated g/C Ratio	0.27	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	918	
v/s Ratio Prot	0.14	
v/s Ratio Perm		
v/c Ratio	0.51	
Uniform Delay, d1	49.0	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	49.5	
Level of Service	D	
Approach Delay (s)	87.3	
Approach LOS	F	

Intersection Summary

Appendix G

Trip Distribution and Mode Split Share Information

Tue Nov 19 2024 17:23:19 GMT-0500 (Eastern Standard Time) - Run Time: 2472ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig

Filters:
(Primary travel mode of trip - mode_prime In D, P,
and
Start time of trip - start_time In 700-900
and
2006 GTA zone of destination - gta06_dest In 3634, 3650)

undefined
ROW : gta06_dest
COLUMN : gta06_orig

gta06_dest	gta 06_orig	total
3634	99	56
3634	164	23
3634	215	16
3634	326	23
3634	339	16
3634	583	59
3634	589	16
3634	2024	10
3634	2027	37
3634	2053	28
3634	2107	15
3634	2108	20
3634	2218	32
3634	3323	8
3634	3354	11
3634	3360	21
3634	3362	6
3634	3368	5
3634	3372	6
3634	3385	19
3634	3430	51
3634	3448	13
3634	3449	28
3634	3483	7
3634	3602	15
3634	3603	32

3634	3613	14
3634	3614	5
3634	3633	36
3634	3635	126
3634	3637	66
3634	3641	14
3634	3643	27
3634	3644	20
3634	3650	51
3634	3651	16
3634	3653	37
3634	3654	8
3634	3657	60
3634	3659	46
3634	3662	11
3634	3664	75
3634	3668	10
3634	3670	31
3634	3671	21
3634	3674	11
3634	3678	20
3634	3681	9
3634	3682	27
3634	3684	44
3634	3685	13
3634	3688	18
3634	3716	41
3634	3719	53
3634	3722	26
3634	3810	53
3634	3811	36
3634	3812	56
3634	3813	50
3634	3820	19
3634	3867	45
3634	3870	32
3634	3877	9
3634	4001	25
3634	4004	39
3634	4011	21
3634	4016	10
3634	4017	21
3634	4018	25
3634	4023	14
3634	4028	45
3634	4029	39
3634	4032	14
3634	4033	20
3634	4034	67
3634	4037	43

3634	4038	29
3634	4042	42
3634	4045	25
3634	4071	27
3634	4075	25
3634	4078	25
3634	4079	16
3634	4080	38
3634	4105	46
3634	4108	26
3634	4123	18
3634	4163	43
3634	4183	22
3634	4186	78
3634	4191	14
3634	4197	34
3634	5219	18
3634	7389	11
3634	8403	15
3634	8412	15
3634	8522	17
3650	114	7
3650	145	40
3650	290	16
3650	2059	39
3650	2397	28
3650	3378	33
3650	3436	31
3650	3602	16
3650	3614	92
3650	3620	28
3650	3634	11
3650	3635	39
3650	3639	32
3650	3649	52
3650	3650	213
3650	3651	82
3650	3653	6
3650	3662	35
3650	3663	91
3650	3671	39
3650	3690	15
3650	3710	46
3650	3714	6
3650	3810	12
3650	3812	190
3650	3816	45
3650	3865	20
3650	3870	32
3650	4035	10

3650	4036	26
3650	4038	74
3650	4124	39
3650	4165	30
3650	4182	32
3650	4183	14
3650	7318	30

Wed Nov 20 2024 10:10:51 GMT-0500 (Eastern Standard Time) - Run Time: 2656ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig

Filters:
(Primary travel mode of trip - mode_prime In D, P
and
Start time of trip - start_time In 1700-1900
and
2006 GTA zone of destination - gta06_dest In 3634, 3650)

undefined
ROW : gta06_dest
COLUMN : gta06_orig

gta06_dest	gta 06_orig	total
3634	368	33
3634	3342	26
3634	3493	48
3634	3601	35
3634	3602	7
3634	3604	40
3634	3607	11
3634	3612	16
3634	3615	63
3634	3616	54
3634	3618	15
3634	3619	12
3634	3623	16
3634	3632	8
3634	3634	27
3634	3635	54
3634	3636	15
3634	3639	11
3634	3640	14
3634	3646	9
3634	3648	21
3634	3649	20
3634	3650	103
3634	3652	33
3634	3655	20

3634	3662	41
3634	3663	8
3634	3664	34
3634	3677	22
3634	3683	67
3634	3684	45
3634	3685	8
3634	3696	18
3634	3700	5
3634	3716	3
3634	3719	76
3634	3810	35
3634	3811	23
3634	3812	44
3634	3867	41
3634	3868	41
3634	3869	24
3634	3870	24
3634	3876	25
3634	3877	30
3634	4006	28
3634	4009	33
3634	4019	30
3634	4023	19
3634	4024	46
3634	4025	58
3634	4026	9
3634	4036	79
3634	4038	20
3634	4040	21
3634	4041	51
3634	4045	14
3634	4074	31
3634	4087	8
3634	4108	14
3634	4110	14
3634	4119	18
3634	4127	53
3634	4182	30
3634	4183	11
3634	5238	100
3634	8076	70
3650	66	10
3650	299	23
3650	300	10
3650	308	77
3650	355	11
3650	391	13
3650	526	5
3650	3338	13

3650	3343	15
3650	3602	11
3650	3605	31
3650	3609	26
3650	3612	13
3650	3613	22
3650	3614	147
3650	3632	19
3650	3633	97
3650	3634	172
3650	3635	46
3650	3637	9
3650	3639	40
3650	3640	11
3650	3641	38
3650	3645	52
3650	3650	193
3650	3651	12
3650	3654	21
3650	3656	29
3650	3662	157
3650	3663	20
3650	3665	13
3650	3671	49
3650	3700	24
3650	3702	47
3650	3703	90
3650	3710	55
3650	3719	5
3650	3812	68
3650	3815	36
3650	3816	45
3650	3820	81
3650	3823	15
3650	3836	30
3650	3850	23
3650	3851	9
3650	3868	9
3650	3869	11
3650	3870	21
3650	3878	24
3650	4016	10
3650	4029	15
3650	4080	31
3650	4082	31
3650	6210	30
3650	8526	10

Thu Nov 28 2024 18:23:06 GMT-0500 (Eastern Standard Time) - Run Time: 3197ms

Cross Tabulation Query Form - Trip - 2016

Row: Type of dwelling unit - dwell_type
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA zone of destination - gta06_dest In 3634
and
Start time of trip - start_time In 700-900

Trip 2016
Table:

,Transit excluding GO rail,Auto driver,Auto passenger,Walk
House,29,1813,89,11
Apartment,54,520,26,0
Townhouse,34,306,18,21

Thu Nov 28 2024 18:24:10 GMT-0500 (Eastern Standard Time) - Run Time: 2551ms

Cross Tabulation Query Form - Trip - 2016

Row: Type of dwelling unit - dwell_type
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA zone of origin - gta06_orig In 3634
and
Start time of trip - start_time In 1600-1800

Trip 2016
Table:

,Transit excluding GO rail,Cycle,Auto driver,Joint GO rail and local transit,Auto passenger,Walk
House,52,4,2459,11,323,23
Apartment,73,0,629,0,94,64
Townhouse,0,0,497,0,50,21

Appendix H

ITE Trip Generation Source Data

Land Use: 222
Multifamily Housing (High-Rise)

Description

High-rise multifamily housing includes apartments, townhouses, and condominiums. Each building has more than 10 floors of living space. Access to individual dwelling units is through an outside building entrance, a lobby, elevators, and a set of hallways.

Multifamily housing (low-rise) (Land Use 220), multifamily housing (mid-rise) (Land Use 221), off-campus student apartment (high-rise) (Land Use 227), and high-rise residential with ground-floor commercial (Land Use 232) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the 12 sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 1.6 residents per occupied dwelling unit.

For the 26 sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 98 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

For the 12 sites for which data were provided for both occupied dwelling units and residents, there was an average of 1.6 residents per occupied dwelling unit.

For the 26 sites for which data were provided for both occupied dwelling units and total dwelling units, an average of 98 percent of the units were occupied.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1980s, the 2000s, and the 2010s in California, District of Columbia, Maryland, New Jersey, New York, Ontario (CAN), Oregon, Pennsylvania, and Virginia.

Source Numbers

105, 168, 169, 237, 321, 356, 818, 862, 901, 910, 949, 963, 964, 966, 967, 1056, 1057, 1076, 1077

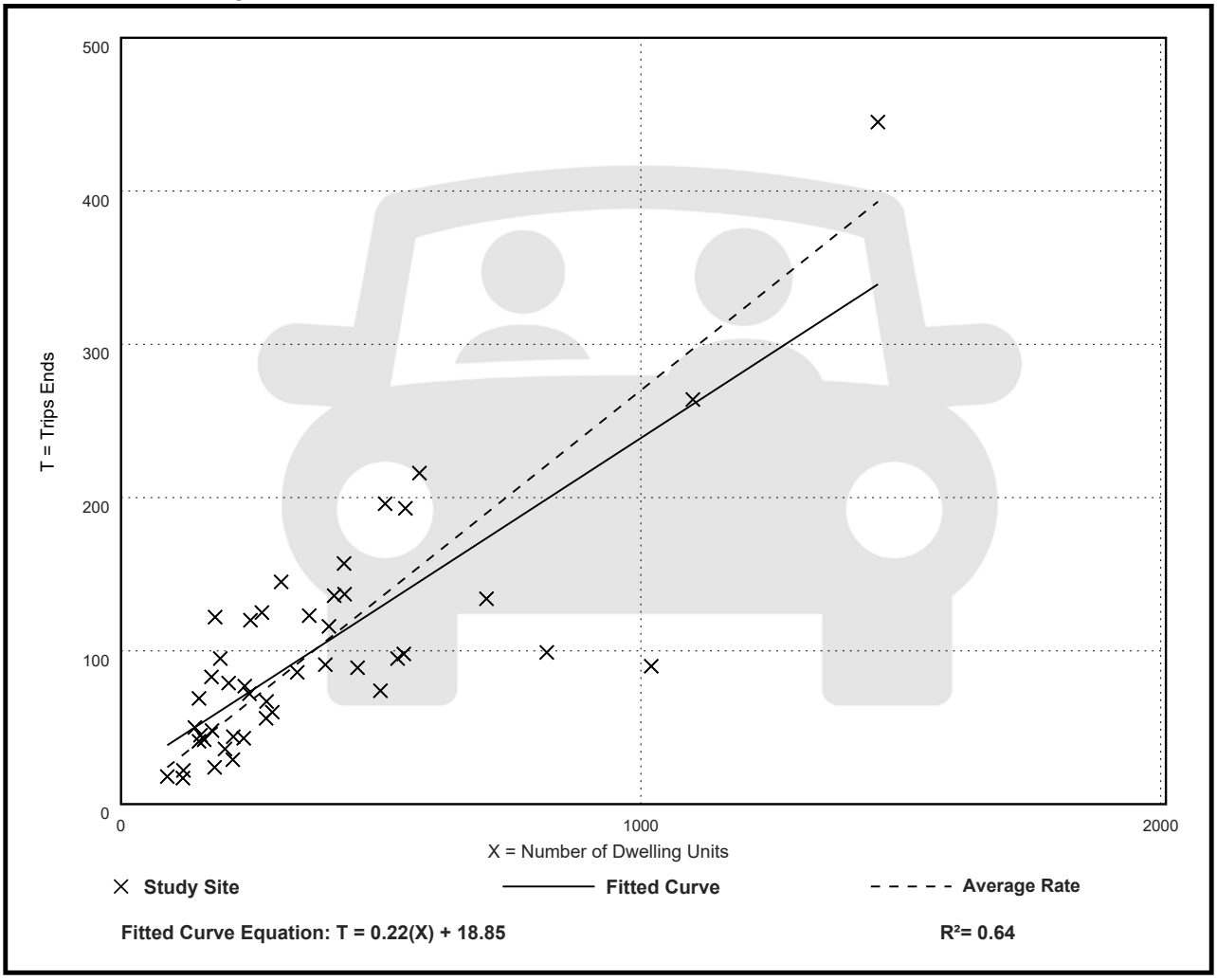
Multifamily Housing (High-Rise)
Not Close to Rail Transit (222)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 45
Avg. Num. of Dwelling Units: 372
Directional Distribution: 34% entering, 66% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.27	0.09 - 0.67	0.11

Data Plot and Equation



Fitted Curve Equation: T = 0.22(X) + 18.85

R^2= 0.64

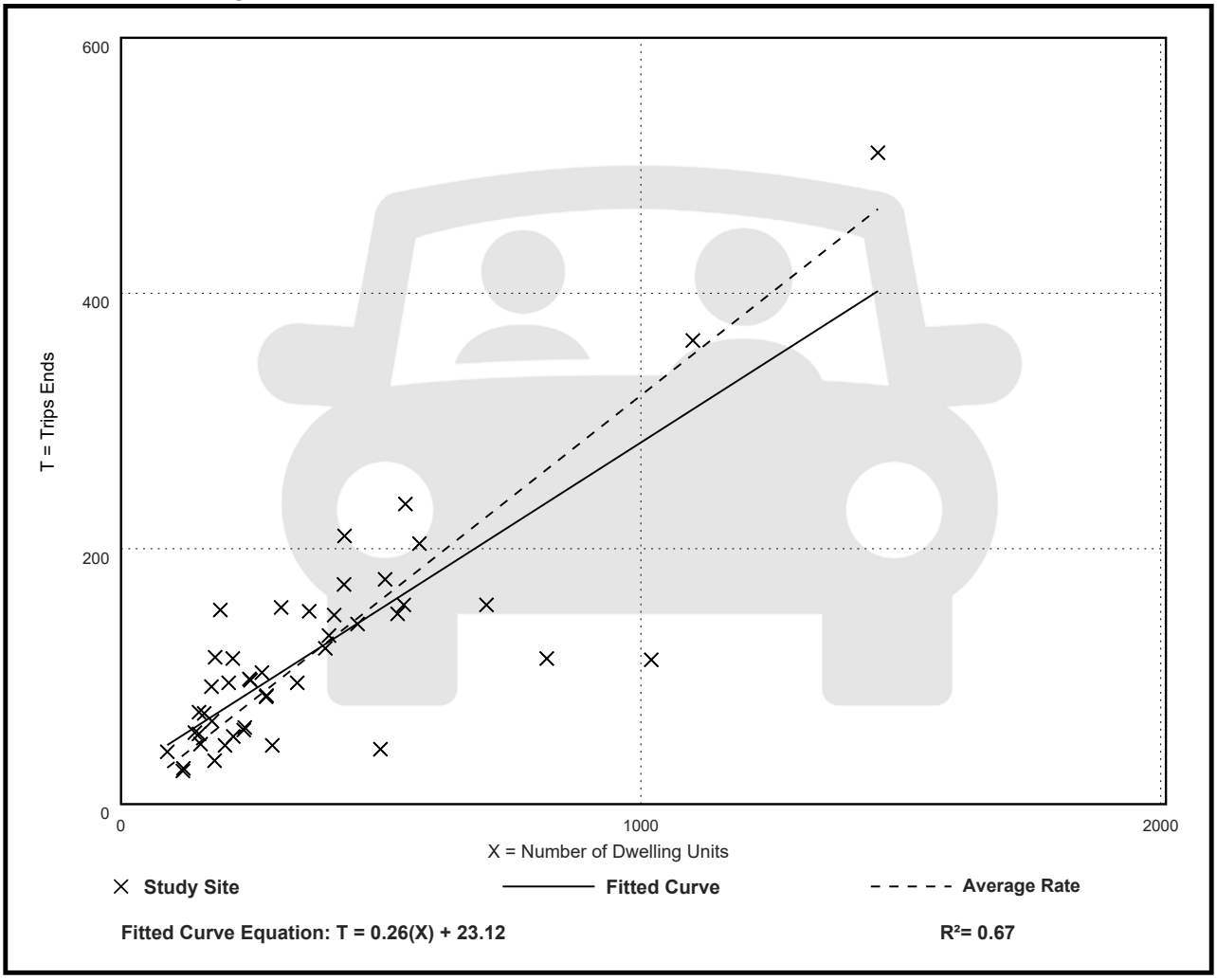
Multifamily Housing (High-Rise)
Not Close to Rail Transit (222)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 45
Avg. Num. of Dwelling Units: 372
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.32	0.09 - 0.80	0.13

Data Plot and Equation



Fitted Curve Equation: T = 0.26(X) + 23.12

R^2= 0.67

Land Use: 630
Clinic

Description

A clinic is a facility that provides limited diagnostic and outpatient care but is unable to provide prolonged in-house medical and surgical care. A clinic may have a lab facility and supporting pharmacy but typically does not have the equipment and medical personnel available at an urgent care site. A clinic typically offers a wide range of services which makes it distinct from a medical office building that typically houses specialized or individual physicians. Hospital (Land Use 610), free-standing emergency room (Land Use 650), and medical-dental office building (Land Use 720) are related uses.

Specialized Land Use

Data collected at a single methadone clinic in New Hampshire in 2021 indicate the likelihood of different trip generation rates than for a general medical clinic. The site gross floor area is 4,300 square feet. The vehicle trip counts are as follows:

- Weekday—283
- Weekday, AM peak hour of adjacent street—39
- Weekday, AM peak hour of generator—45
- Weekday, PM peak hour of adjacent street—1
- Saturday—189
- Saturday, peak hour of generator—64
- Sunday—167
- Sunday, peak hour of generator—56

The methadone clinic generates significantly more trips than a clinic during the morning peak periods and significantly fewer trips during the afternoon adjacent street peak period.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The average numbers of person trips per vehicle trip at the five general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.4 during Weekday, AM Peak Hour of Generator
- 1.7 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.5 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Minnesota, New Hampshire, Texas, Vermont, and West Virginia.

Source Numbers

440, 734, 878, 926, 972, 1049, 1062, 1073

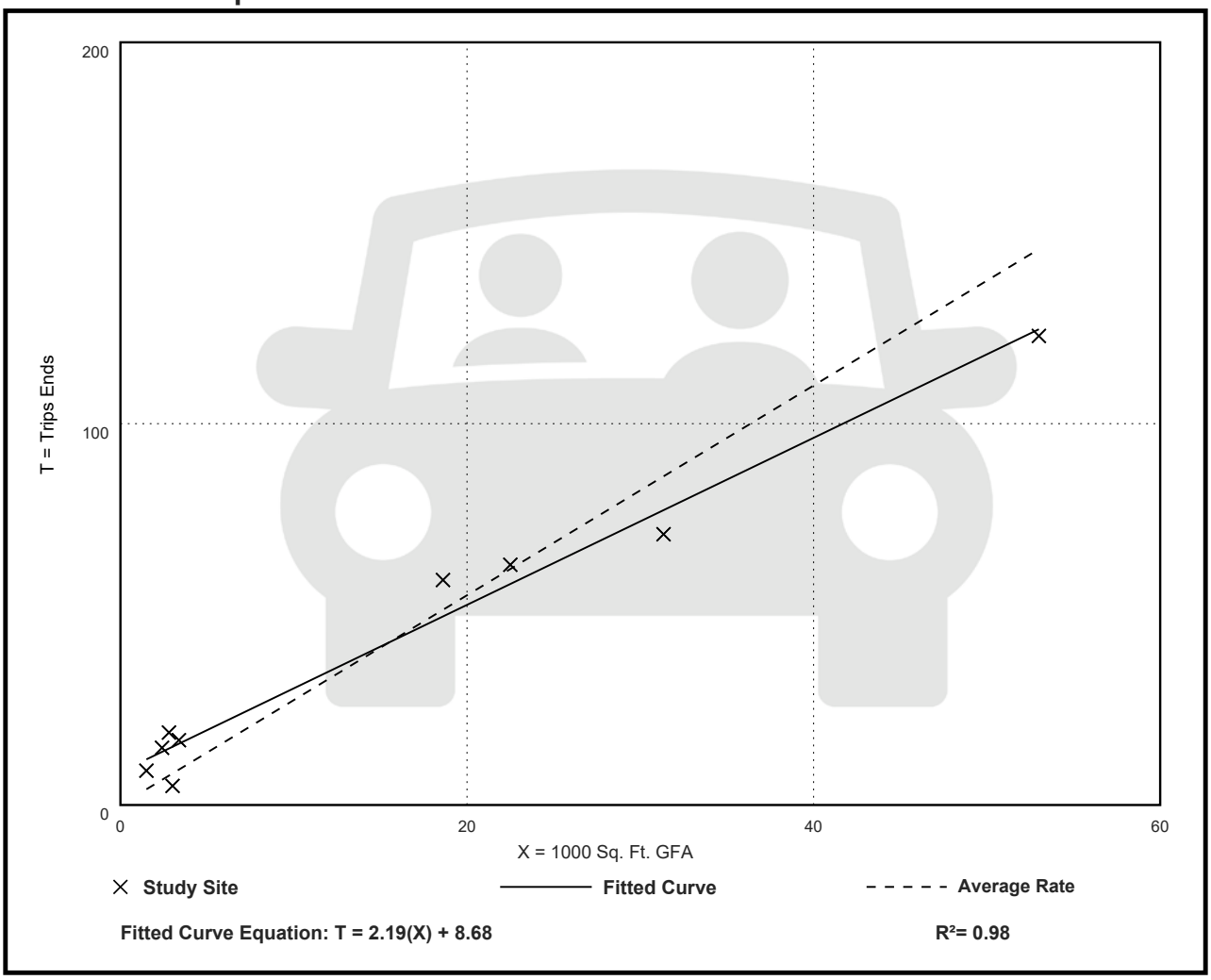
Clinic
(630)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 9
Avg. 1000 Sq. Ft. GFA: 15
Directional Distribution: 81% entering, 19% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.75	1.66 - 6.79	1.04

Data Plot and Equation



Fitted Curve Equation: T = 2.19(X) + 8.68

R^2= 0.98

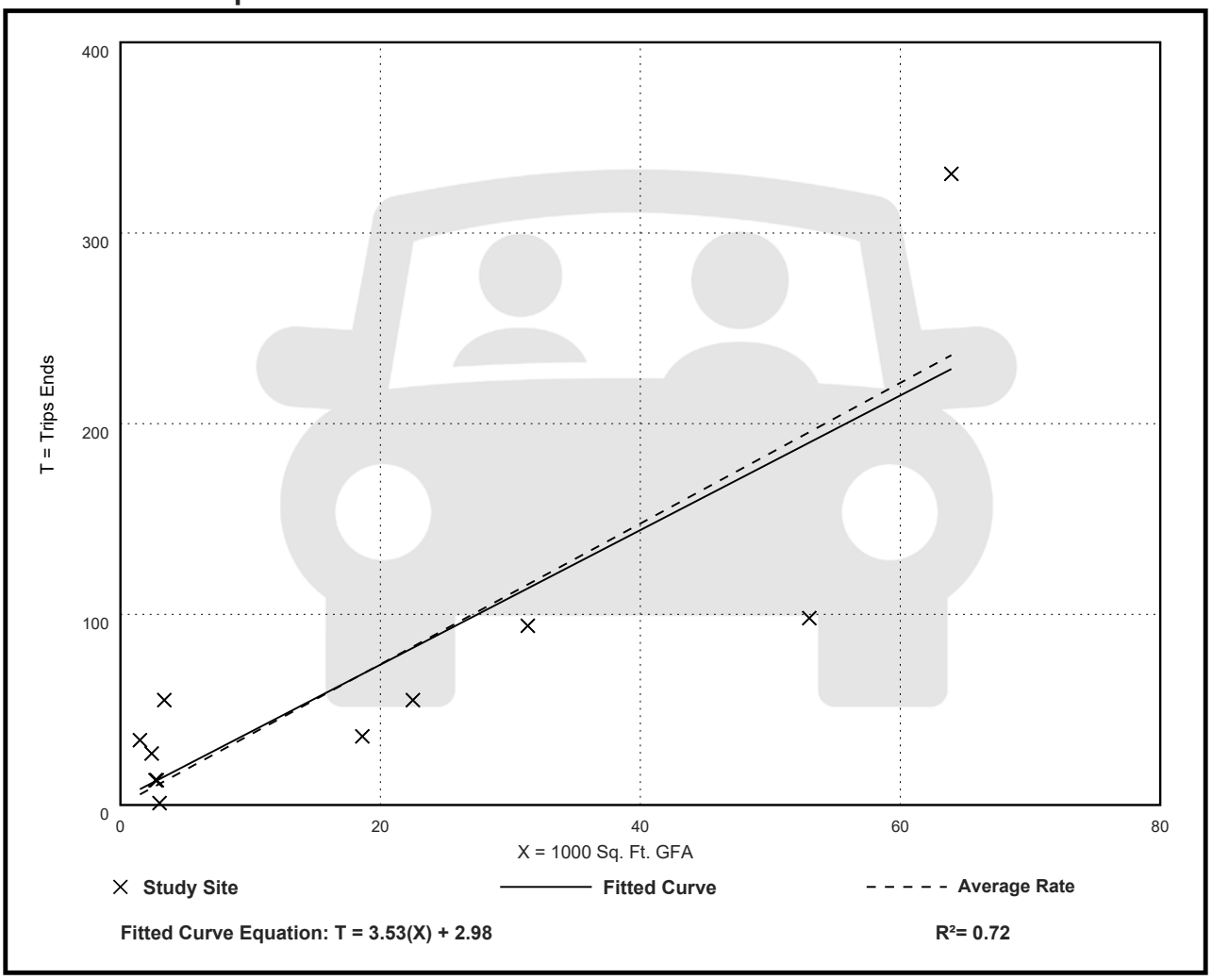
Clinic
(630)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 11
Avg. 1000 Sq. Ft. GFA: 19
Directional Distribution: 30% entering, 70% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.69	0.33 - 22.67	3.00

Data Plot and Equation



Fitted Curve Equation: T = 3.53(X) + 2.98

R^2= 0.72

Land Use: 822
Strip Retail Plaza (<40k)

Description

A strip retail plaza is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, the GLA is the same as the gross floor area of the building.

The 40,000 square feet GFA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. No shopping plaza with a supermarket as its anchor is smaller than 40,000 square feet GLA.

Shopping center (>150k) (Land use 820), shopping plaza (40-150k) (Land Use 821), and factory outlet center (Land Use 823) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Jersey, Ontario (CAN), South Dakota, Vermont, Washington, and Wisconsin.

Source Numbers

304, 358, 423, 428, 437, 507, 715, 728, 936, 960, 961, 974, 1009

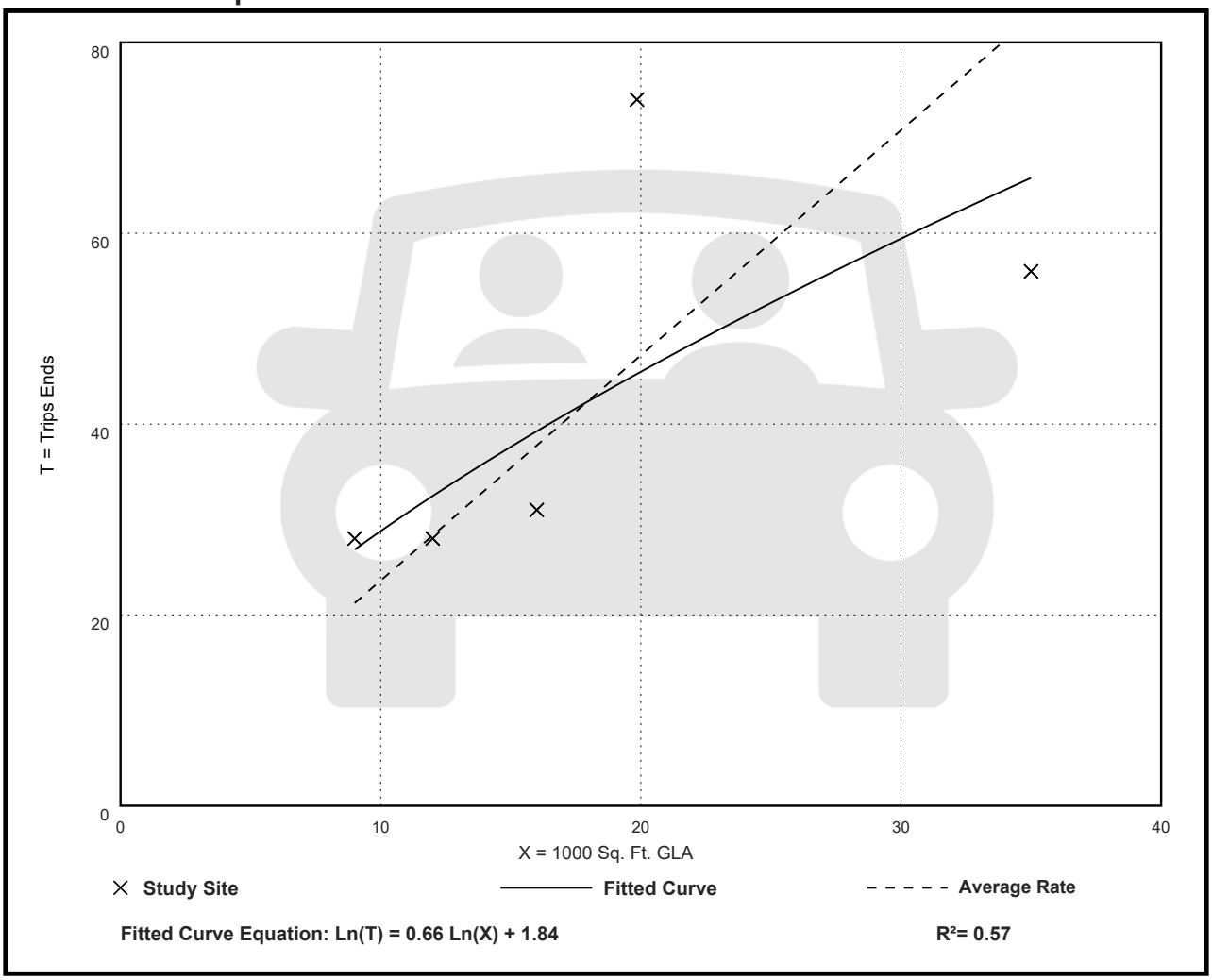
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 18
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.66 Ln(X) + 1.84

R^2= 0.57

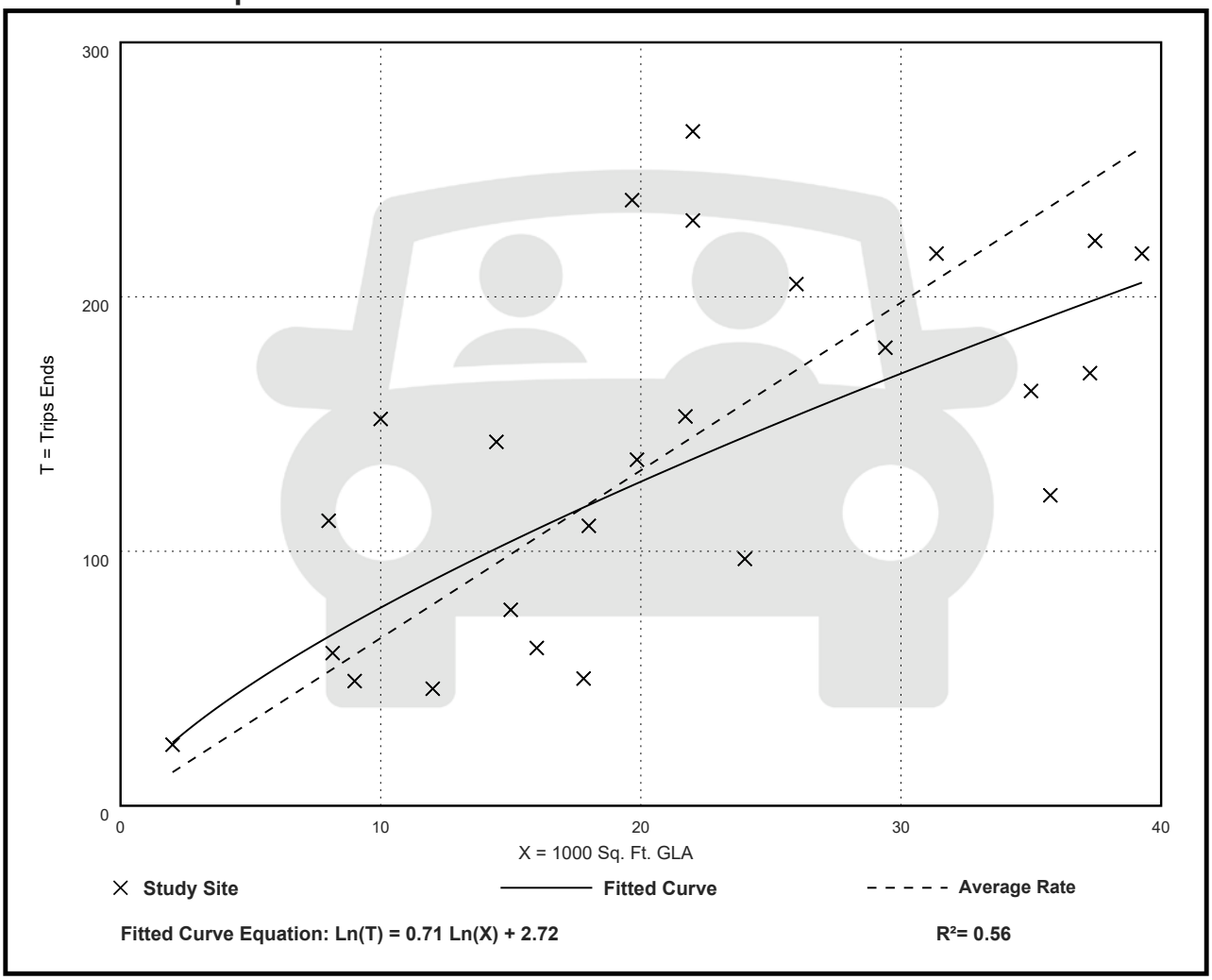
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 25
Avg. 1000 Sq. Ft. GLA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.71 Ln(X) + 2.72

R^2= 0.56

Land Use: 931
Fine Dining Restaurant

Description

A fine dining restaurant is a full-service eating establishment with a typical duration of stay of at least 1 hour. A fine dining restaurant generally does not serve breakfast; some do not serve lunch; all serve dinner. This type of restaurant often requests and sometimes requires a reservation and is generally not part of a chain. A patron commonly waits to be seated, is served by wait staff, orders from a menu and pays after the meal. Some of the study sites have lounge or bar facilities (serving alcoholic beverages), but meal service is the primary draw to the restaurant. Fast casual restaurant (Land Use 930) and high-turnover (sit-down) restaurant (Land Use 932) are related uses.

Additional Data

If the fine dining restaurant has outdoor seating, its area is not included in the overall gross floor area. For a restaurant that has significant outdoor seating, the number of seats may be more reliable than GFA as an independent variable on which to establish a trip generation rate.

The sites were surveyed in the 1980s, the 1990s, and the 2010s in Alberta (CAN), California, Colorado, Florida, Indiana, Kentucky, New Jersey, and Utah.

Source Numbers

126, 260, 291, 301, 338, 339, 368, 437, 440, 976, 1053

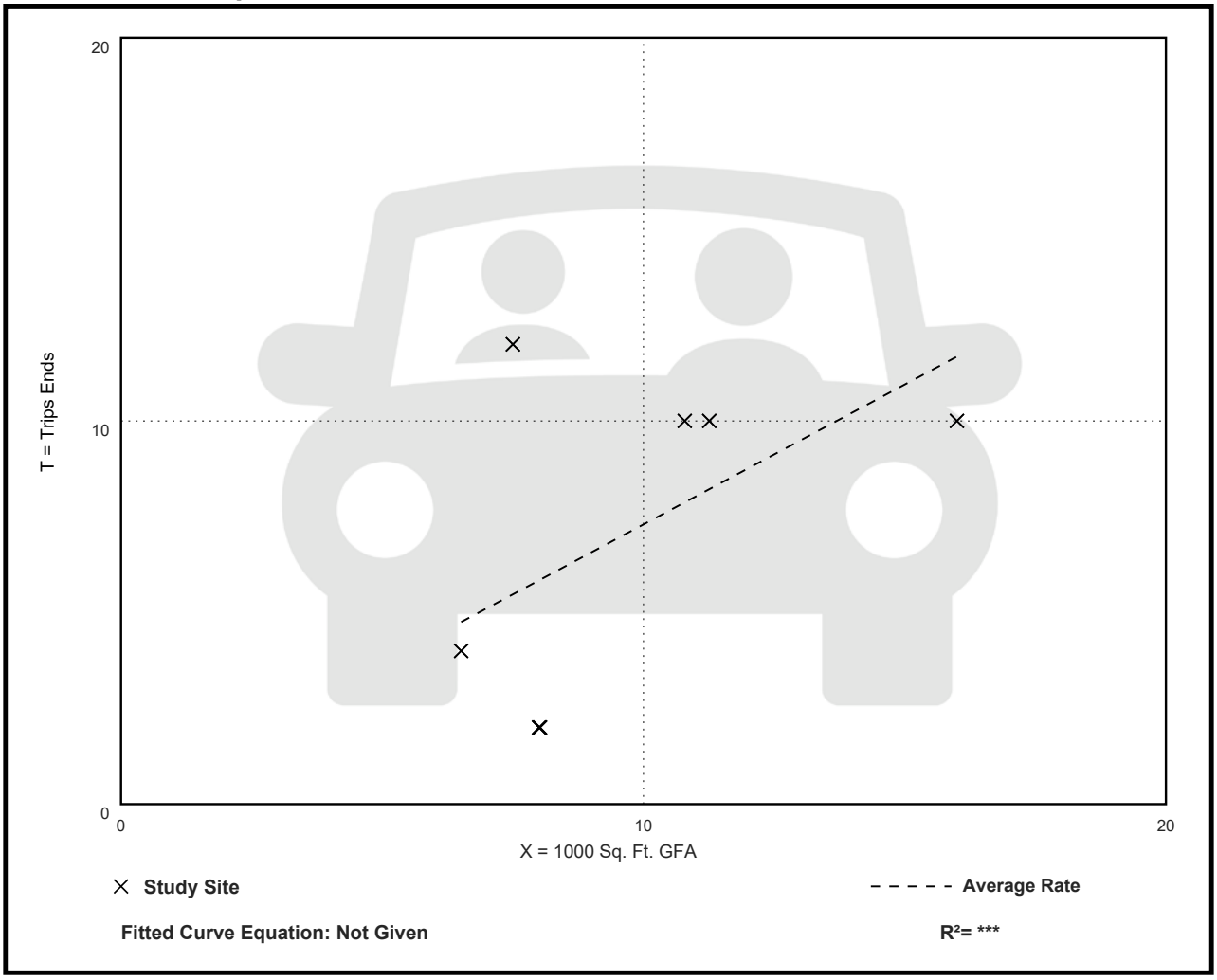
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



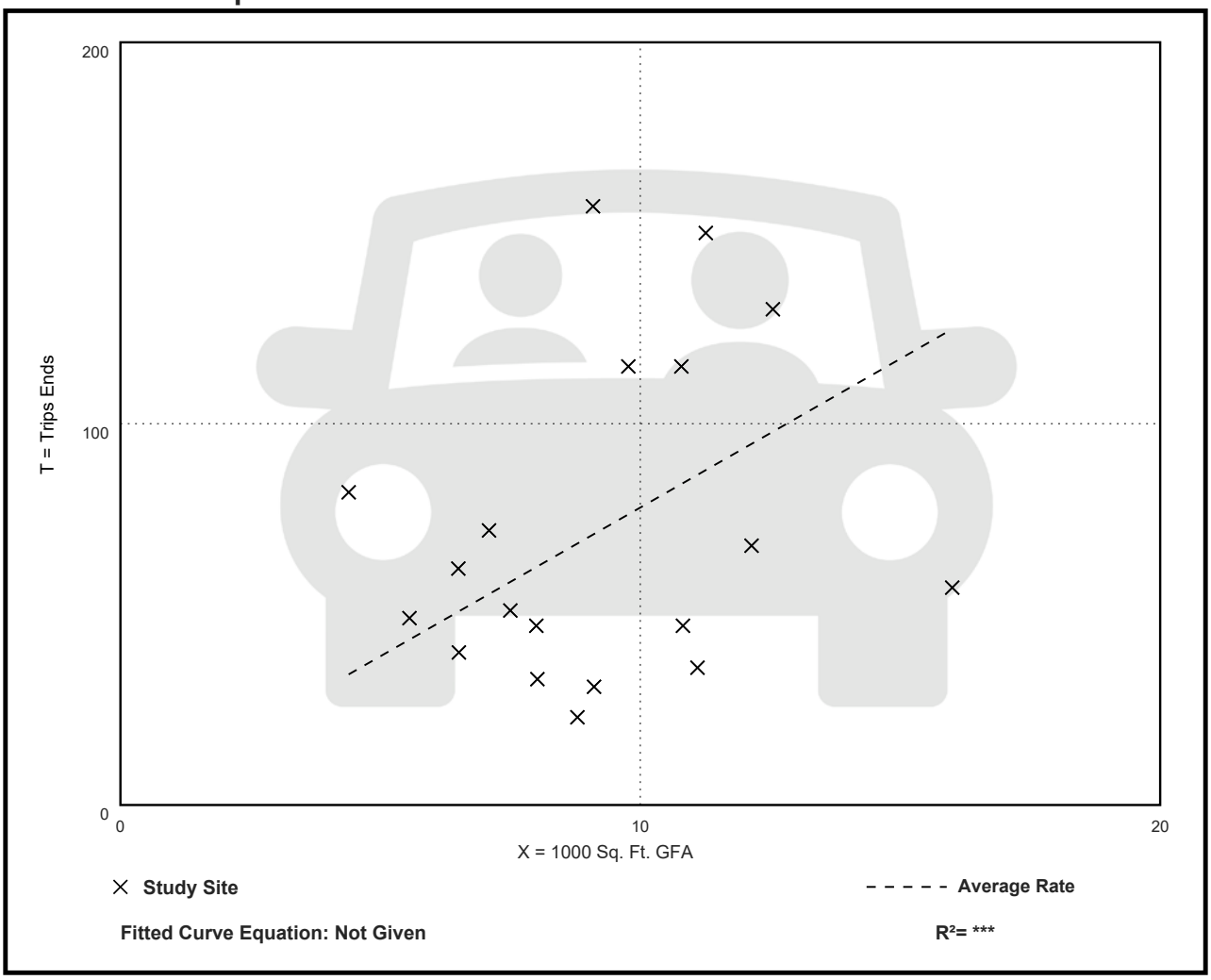
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 19
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



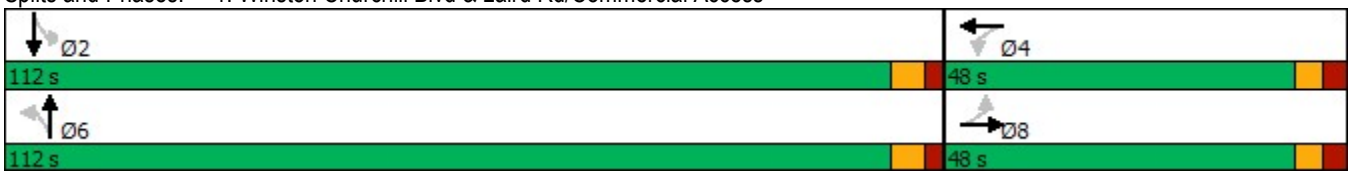
Appendix I

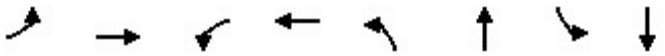
2029 Future Total Conditions – Synchro HCM Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	54	20	38	19	152	682	51	1169
Future Volume (vph)	54	20	38	19	152	682	51	1169
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	39.5	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	112.0	112.0	112.0	112.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	11.5	11.5	11.5	11.5	105.5	105.5	105.5	105.5
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.81	0.81	0.81	0.81
v/c Ratio	0.45	0.54	0.38	0.18	0.53	0.27	0.09	0.47
Control Delay	68.2	33.0	67.0	42.6	12.3	3.2	3.1	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	33.0	67.0	42.6	12.3	3.2	3.1	4.4
LOS	E	C	E	D	B	A	A	A
Approach Delay		40.8		56.6		4.8		4.3
Approach LOS		D		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 130	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 83.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	191	39	29	155	765	52	1321
v/c Ratio	0.45	0.54	0.38	0.18	0.53	0.27	0.09	0.47
Control Delay	68.2	33.0	67.0	42.6	12.3	3.2	3.1	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	33.0	67.0	42.6	12.3	3.2	3.1	4.4
Queue Length 50th (m)	13.6	11.8	9.6	4.6	10.1	18.4	2.1	40.7
Queue Length 95th (m)	27.3	23.9	21.2	14.3	31.5	28.8	5.6	61.0
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	443	1020	370	566	290	2822	561	2819
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	0.12	0.19	0.11	0.05	0.53	0.27	0.09	0.47

Intersection Summary

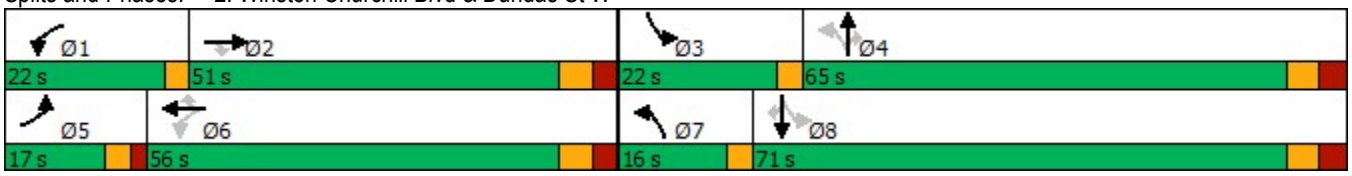
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	20	168	38	19	10	152	682	68	51	1169	125
Future Volume (vph)	54	20	168	38	19	10	152	682	68	51	1169	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	2984		1825	1753		1789	3474		1825	3472	
Flt Permitted	0.74	1.00		0.60	1.00		0.19	1.00		0.36	1.00	
Satd. Flow (perm)	1391	2984		1160	1753		358	3474		691	3472	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	55	20	171	39	19	10	155	696	69	52	1193	128
RTOR Reduction (vph)	0	90	0	0	9	0	0	3	0	0	3	0
Lane Group Flow (vph)	55	101	0	39	20	0	155	762	0	52	1318	0
Heavy Vehicles (%)	2%	5%	6%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	11.5	11.5		11.5	11.5		105.5	105.5		105.5	105.5	
Effective Green, g (s)	11.5	11.5		11.5	11.5		105.5	105.5		105.5	105.5	
Actuated g/C Ratio	0.09	0.09		0.09	0.09		0.81	0.81		0.81	0.81	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	123	263		102	155		290	2819		560	2817	
v/s Ratio Prot		0.03			0.01			0.22			0.38	
v/s Ratio Perm	c0.04			0.03			c0.43			0.08		
v/c Ratio	0.45	0.38		0.38	0.13		0.53	0.27		0.09	0.47	
Uniform Delay, d1	56.2	55.9		55.9	54.6		4.1	3.0		2.5	3.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.9		2.4	0.4		6.9	0.2		0.3	0.6	
Delay (s)	58.8	56.8		58.3	55.0		11.0	3.2		2.8	4.3	
Level of Service	E	E		E	E		B	A		A	A	
Approach Delay (s)		57.3			56.9			4.5			4.2	
Approach LOS		E			E			A			A	

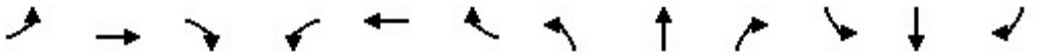
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1044	406	293	701	144	211	682	251	201	1097	126
Future Volume (vph)	85	1044	406	293	701	144	211	682	251	201	1097	126
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	51.0	51.0	22.0	56.0	56.0	16.0	65.0	65.0	22.0	71.0	71.0
Total Split (%)	10.6%	31.9%	31.9%	13.8%	35.0%	35.0%	10.0%	40.6%	40.6%	13.8%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.5	44.1	44.1	70.1	51.6	51.6	73.7	54.2	54.2	76.0	56.8	56.8
Actuated g/C Ratio	0.06	0.29	0.29	0.46	0.34	0.34	0.48	0.35	0.35	0.50	0.37	0.37
v/c Ratio	0.44	0.74	0.72	1.09	0.43	0.25	1.05	0.57	0.37	0.62	0.88	0.22
Control Delay	77.4	54.0	35.3	117.0	41.6	6.6	115.7	42.5	5.1	29.6	53.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	54.0	35.3	117.0	41.6	6.6	115.7	42.5	5.1	29.6	53.9	9.8
LOS	E	D	D	F	D	A	F	D	A	C	D	A
Approach Delay		50.4			56.5			47.8			46.5	
Approach LOS		D			E			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 153.5	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 50.1	Intersection LOS: D
Intersection Capacity Utilization 97.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



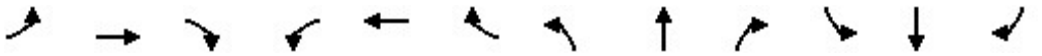


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	89	1099	427	308	738	152	222	718	264	212	1155	133
v/c Ratio	0.44	0.74	0.72	1.09	0.43	0.25	1.05	0.57	0.37	0.62	0.88	0.22
Control Delay	77.4	54.0	35.3	117.0	41.6	6.6	115.7	42.5	5.1	29.6	53.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	54.0	35.3	117.0	41.6	6.6	115.7	42.5	5.1	29.6	53.9	9.8
Queue Length 50th (m)	13.9	114.3	69.5	~87.6	65.6	0.0	~57.7	93.6	0.0	35.7	172.2	6.1
Queue Length 95th (m)	23.8	136.4	114.7	#155.1	83.4	16.5	#115.6	117.0	19.0	52.2	201.1	20.4
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	254	1476	593	283	1711	618	212	1333	749	376	1468	680
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	0.35	0.74	0.72	1.09	0.43	0.25	1.05	0.54	0.35	0.56	0.79	0.20

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.



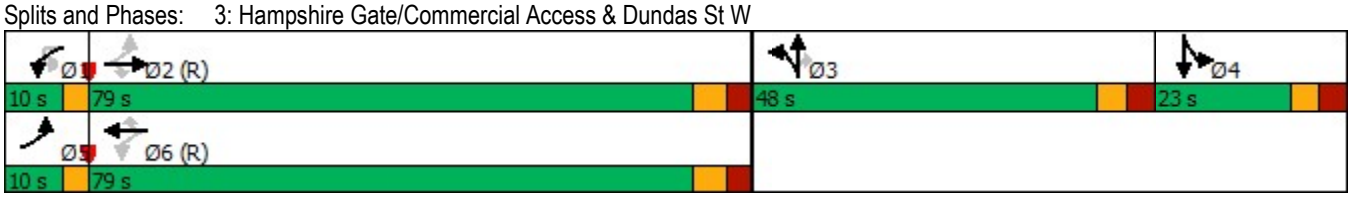
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1044	406	293	701	144	211	682	251	201	1097	126
Future Volume (vph)	85	1044	406	293	701	144	211	682	251	201	1097	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	3544	1555	1722	3544	1498
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.07	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	192	5092	1541	134	3544	1555	427	3544	1498
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	1099	427	308	738	152	222	718	264	212	1155	133
RTOR Reduction (vph)	0	0	134	0	0	101	0	0	171	0	0	64
Lane Group Flow (vph)	89	1099	293	308	738	51	222	718	93	212	1155	69
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	6%	3%	9%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.5	44.1	44.1	66.1	51.6	51.6	67.2	54.2	54.2	72.4	56.8	56.8
Effective Green, g (s)	9.5	44.1	44.1	66.1	51.6	51.6	69.2	54.2	54.2	72.4	56.8	56.8
Actuated g/C Ratio	0.06	0.29	0.29	0.43	0.34	0.34	0.45	0.35	0.35	0.47	0.37	0.37
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	1478	460	278	1712	518	208	1252	549	333	1312	554
v/s Ratio Prot	0.03	0.21		c0.14	0.14		c0.10	0.20		c0.06	0.33	
v/s Ratio Perm			0.18	c0.34		0.03	c0.38		0.06	0.24		0.05
v/c Ratio	0.44	0.74	0.64	1.11	0.43	0.10	1.07	0.57	0.17	0.64	0.88	0.12
Uniform Delay, d1	69.4	49.5	47.7	44.6	39.5	34.9	46.7	40.2	34.1	26.6	45.1	31.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	3.4	6.6	86.1	0.8	0.4	81.4	0.6	0.1	4.0	7.2	0.1
Delay (s)	71.0	53.0	54.3	130.6	40.3	35.3	128.1	40.9	34.3	30.5	52.3	32.0
Level of Service	E	D	D	F	D	D	F	D	C	C	D	C
Approach Delay (s)		54.3			62.9			55.5			47.4	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	54.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	153.4	Sum of lost time (s)	22.5
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	1567	159	1	124	822	27	72	16	68	17	4
Future Volume (vph)	32	1567	159	1	124	822	27	72	16	68	17	4
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	115.7	104.7	104.7		128.7	116.7	116.7	11.1	11.1	11.1	10.0	10.0
Actuated g/C Ratio	0.72	0.65	0.65		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.08	0.51	0.16		0.43	0.25	0.03	0.41	0.41	0.37	0.18	0.08
Control Delay	3.9	13.5	1.7		11.2	8.5	0.0	81.7	81.3	11.6	75.3	50.0
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	3.9	13.5	1.7		11.2	8.5	0.0	81.7	81.3	11.6	75.3	50.0
LOS	A	B	A		B	A	A	F	F	B	E	D
Approach Delay		12.2				8.6			51.0			67.2
Approach LOS		B				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 74.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	1722	175	137	903	30	48	49	75	19	9
v/c Ratio	0.08	0.51	0.16	0.43	0.25	0.03	0.41	0.41	0.37	0.18	0.08
Control Delay	3.9	13.5	1.7	11.2	8.5	0.0	81.7	81.3	11.6	75.3	50.0
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	3.9	13.5	1.7	11.2	8.5	0.0	81.7	81.3	11.6	75.3	50.0
Queue Length 50th (m)	1.4	145.9	9.6	9.7	38.3	0.0	15.7	16.1	0.0	5.8	1.2
Queue Length 95th (m)	m3.0	180.2	m10.1	23.3	48.7	0.0	30.3	30.9	10.3	15.0	7.4
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	461	3364	1097	315	3677	1170	431	444	489	172	180
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	0.08	0.51	0.16	0.43	0.25	0.03	0.11	0.11	0.15	0.11	0.05

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	1567	159	1	124	822	27	72	16	68	17	4
Future Volume (vph)	32	1567	159	1	124	822	27	72	16	68	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1736	1633	1722	1761
Flt Permitted	0.30	1.00	1.00		0.09	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	566	5142	1585		178	5043	1570	1683	1736	1633	1722	1761
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	35	1722	175	1	136	903	30	79	18	75	19	4
RTOR Reduction (vph)	0	0	64	0	0	0	9	0	0	70	0	5
Lane Group Flow (vph)	35	1722	111	0	137	903	21	48	49	5	19	4
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	107.5	101.9	101.9		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Effective Green, g (s)	107.5	101.9	101.9		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Actuated g/C Ratio	0.67	0.64	0.64		0.76	0.71	0.71	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	422	3274	1009		306	3571	1111	116	120	113	64	66
v/s Ratio Prot	0.00	c0.33			c0.05	0.18		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.05		0.07		0.29		0.01			0.00		
v/c Ratio	0.08	0.53	0.11		0.45	0.25	0.02	0.41	0.41	0.05	0.30	0.06
Uniform Delay, d1	8.8	15.9	11.3		10.3	8.3	6.9	71.3	71.3	69.5	74.9	74.3
Progression Factor	0.69	0.83	0.80		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.2		1.0	0.2	0.0	2.4	2.3	0.2	2.6	0.4
Delay (s)	6.2	13.7	9.3		11.4	8.5	6.9	73.7	73.6	69.7	77.5	74.7
Level of Service	A	B	A		B	A	A	E	E	E	E	E
Approach Delay (s)		13.1				8.8			71.9			76.6
Approach LOS		B				A			E			E

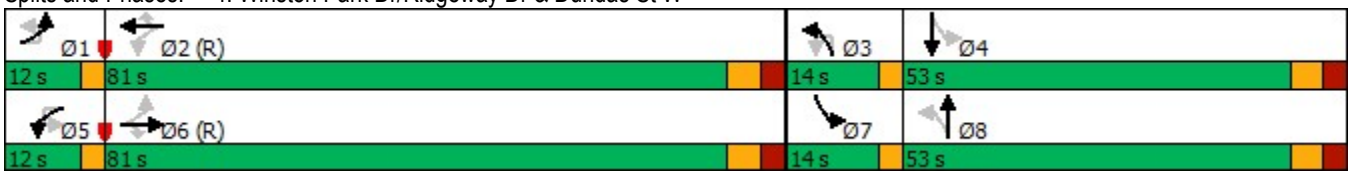
Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	11	222	1396	380	2	59	576	230	1	113	203	270
Future Volume (vph)	11	222	1396	380	2	59	576	230	1	113	203	270
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	81.0	81.0	12.0	12.0	81.0	81.0	14.0	14.0	53.0	14.0
Total Split (%)	7.5%	7.5%	50.6%	50.6%	7.5%	7.5%	50.6%	50.6%	8.8%	8.8%	33.1%	8.8%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		102.7	87.5	87.5		93.9	81.7	81.7		48.1	33.3	48.5
Actuated g/C Ratio		0.64	0.55	0.55		0.59	0.51	0.51		0.30	0.21	0.30
v/c Ratio		0.47	0.54	0.42		0.33	0.24	0.27		0.71	0.35	0.83
Control Delay		15.9	25.0	8.5		21.3	20.7	2.2		61.9	52.0	68.3
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		15.9	25.0	8.5		21.3	20.7	2.2		61.9	52.0	68.3
LOS		B	C	A		C	C	A		E	D	E
Approach Delay			20.8				15.9				55.2	
Approach LOS			C				B				E	

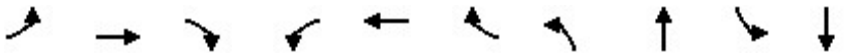
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 33 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 32.4	Intersection LOS: C
Intersection Capacity Utilization 74.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	497
Future Volume (vph)	497
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	33.1%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	33.5
Actuated g/C Ratio	0.21
v/c Ratio	0.81
Control Delay	68.3
Queue Delay	0.0
Total Delay	68.3
LOS	E
Approach Delay	68.3
Approach LOS	E

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	253	1517	413	66	626	250	124	256	293	605
v/c Ratio	0.47	0.54	0.42	0.33	0.24	0.27	0.71	0.35	0.83	0.81
Control Delay	15.9	25.0	8.5	21.3	20.7	2.2	61.9	52.0	68.3	68.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	25.0	8.5	21.3	20.7	2.2	61.9	52.0	68.3	68.3
Queue Length 50th (m)	32.1	110.3	21.2	6.8	33.8	0.0	29.1	35.3	76.1	96.4
Queue Length 95th (m)	52.1	141.3	51.8	19.3	47.1	9.2	43.3	46.2	98.9	111.8
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	535	2813	976	211	2576	924	177	1013	351	1019
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.54	0.42	0.31	0.24	0.27	0.70	0.25	0.83	0.59

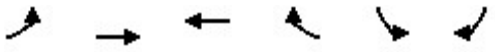
Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	11	222	1396	380	2	59	576	230	1	113	203	32
Future Volume (vph)	11	222	1396	380	2	59	576	230	1	113	203	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1679	5043	1570		1603	3500	
Flt Permitted		0.37	1.00	1.00		0.12	1.00	1.00		0.17	1.00	
Satd. Flow (perm)		688	5142	1555		214	5043	1570		285	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	241	1517	413	2	64	626	250	1	123	221	35
RTOR Reduction (vph)	0	0	0	125	0	0	0	122	0	0	9	0
Lane Group Flow (vph)	0	253	1517	288	0	66	626	128	0	124	247	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	4%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		98.7	87.6	87.6		89.9	81.8	81.8		44.1	33.3	
Effective Green, g (s)		98.7	87.6	87.6		89.9	81.8	81.8		44.1	33.3	
Actuated g/C Ratio		0.62	0.55	0.55		0.56	0.51	0.51		0.28	0.21	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		518	2815	851		194	2578	802		167	728	
v/s Ratio Prot		c0.04	c0.30			0.02	0.12			0.05	0.07	
v/s Ratio Perm		0.26		0.18		0.17		0.08		0.15		
v/c Ratio		0.49	0.54	0.34		0.34	0.24	0.16		0.74	0.34	
Uniform Delay, d1		14.0	23.2	20.1		17.5	21.8	20.8		47.0	54.0	
Progression Factor		1.00	1.00	1.00		1.37	0.90	0.57		1.00	1.00	
Incremental Delay, d2		0.7	0.7	1.1		1.0	0.2	0.4		16.2	0.3	
Delay (s)		14.7	24.0	21.2		25.0	19.8	12.3		63.3	54.3	
Level of Service		B	C	C		C	B	B		E	D	
Approach Delay (s)			22.4				18.2				57.2	
Approach LOS			C				B				E	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	270	497	60
Future Volume (vph)	270	497	60
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.53	1.00	
Satd. Flow (perm)	983	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	293	540	65
RTOR Reduction (vph)	0	6	0
Lane Group Flow (vph)	293	599	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	44.5	33.5	
Effective Green, g (s)	44.5	33.5	
Actuated g/C Ratio	0.28	0.21	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	326	738	
v/s Ratio Prot	c0.06	0.17	
v/s Ratio Perm	c0.19		
v/c Ratio	0.90	0.81	
Uniform Delay, d1	53.8	60.2	
Progression Factor	1.00	1.00	
Incremental Delay, d2	25.8	6.8	
Delay (s)	79.6	67.0	
Level of Service	E	E	
Approach Delay (s)		71.1	
Approach LOS		E	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1046	1004	33	0	42
Future Volume (Veh/h)	0	1046	1004	33	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1101	1057	35	0	44
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		173	159			
pX, platoon unblocked	0.89				0.94	0.89
vC, conflicting volume	1092				1442	370
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	680				451	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	810				502	973

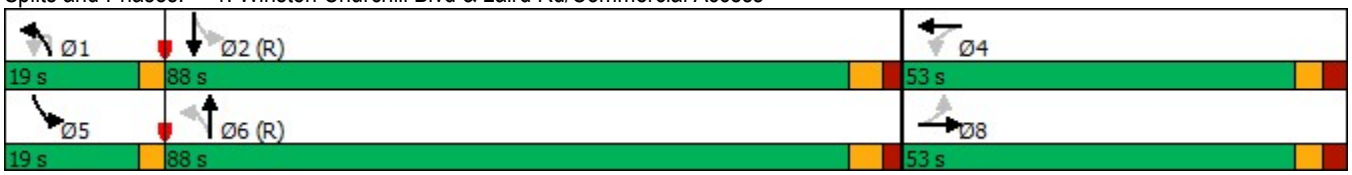
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	367	367	367	423	423	246	44
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	35	44
cSH	1700	1700	1700	1700	1700	1700	973
Volume to Capacity	0.22	0.22	0.22	0.25	0.25	0.14	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	8.9
Lane LOS							A
Approach Delay (s)	0.0			0.0			8.9
Approach LOS							A

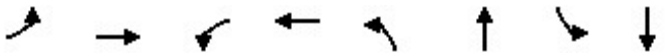
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	176	96	115	116	1	207	770	109	573
Future Volume (vph)	176	96	115	116	1	207	770	109	573
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	53.0	53.0	53.0	53.0	19.0	19.0	88.0	19.0	88.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	11.9%	11.9%	55.0%	11.9%	55.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	34.2	34.2	34.2	34.2		115.8	101.0	110.4	98.1
Actuated g/C Ratio	0.21	0.21	0.21	0.21		0.72	0.63	0.69	0.61
v/c Ratio	0.93	0.37	0.67	0.47		0.43	0.42	0.27	0.37
Control Delay	109.8	16.2	73.9	51.8		10.7	16.6	9.4	16.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	109.8	16.2	73.9	51.8		10.7	16.6	9.4	16.9
LOS	F	B	E	D		B	B	A	B
Approach Delay		50.2		60.5			15.5		15.9
Approach LOS		D		E			B		B

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 19 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 26.7	Intersection LOS: C
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	185	324	121	187	219	920	115	788
v/c Ratio	0.93	0.37	0.67	0.47	0.43	0.42	0.27	0.37
Control Delay	109.8	16.2	73.9	51.8	10.7	16.6	9.4	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.8	16.2	73.9	51.8	10.7	16.6	9.4	16.9
Queue Length 50th (m)	58.2	13.8	35.5	47.5	20.1	72.5	9.9	60.5
Queue Length 95th (m)	82.9	25.0	54.0	65.6	38.1	110.7	21.0	94.7
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	269	1103	247	541	539	2209	506	2120
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	0.69	0.29	0.49	0.35	0.41	0.42	0.23	0.37

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	176	96	212	115	116	62	1	207	770	104	109	573
Future Volume (vph)	176	96	212	115	116	62	1	207	770	104	109	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.95		1.00	0.95
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3251		1807	1821			1807	3493		1825	3435
Flt Permitted	0.49	1.00		0.45	1.00			0.30	1.00		0.27	1.00
Satd. Flow (perm)	929	3251		851	1821			573	3493		521	3435
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	101	223	121	122	65	1	218	811	109	115	603
RTOR Reduction (vph)	0	175	0	0	13	0	0	0	5	0	0	14
Lane Group Flow (vph)	185	149	0	121	174	0	0	219	915	0	115	774
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	34.2	34.2		34.2	34.2			112.7	101.0		106.9	98.1
Effective Green, g (s)	34.2	34.2		34.2	34.2			112.7	101.0		106.9	98.1
Actuated g/C Ratio	0.21	0.21		0.21	0.21			0.70	0.63		0.67	0.61
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	198	694		181	389			493	2204		419	2106
v/s Ratio Prot		0.05			0.10			c0.03	0.26		0.02	0.23
v/s Ratio Perm	c0.20			0.14				c0.28			0.17	
v/c Ratio	0.93	0.21		0.67	0.45			0.44	0.42		0.27	0.37
Uniform Delay, d1	61.8	51.8		57.7	54.7			9.0	14.7		10.0	15.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	45.3	0.2		9.0	0.8			0.6	0.6		0.4	0.5
Delay (s)	107.1	52.0		66.7	55.5			9.6	15.3		10.3	16.0
Level of Service	F	D		E	E			A	B		B	B
Approach Delay (s)		72.0			59.9				14.2			15.2
Approach LOS		E			E				B			B

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

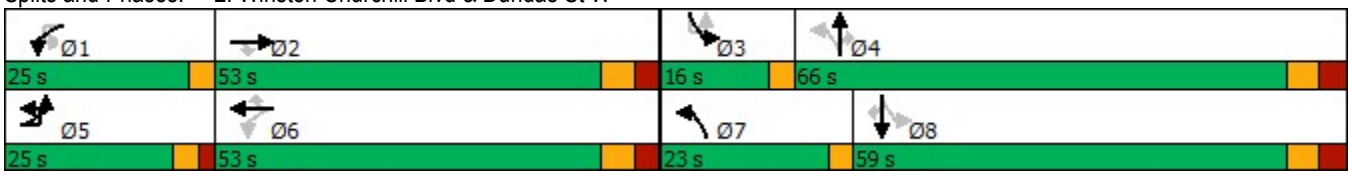
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	176
Future Volume (vph)	176
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	185
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	285	1159	226	3	310	1110	309	224	665	324	2	260
Future Volume (vph)	285	1159	226	3	310	1110	309	224	665	324	2	260
Turn Type	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt
Protected Phases	5	2			1	6		7	4			3
Permitted Phases			2	1	6		6	4		4	3	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	53.0	53.0	25.0	25.0	53.0	53.0	23.0	66.0	66.0	16.0	16.0
Total Split (%)	15.6%	33.1%	33.1%	15.6%	15.6%	33.1%	33.1%	14.4%	41.3%	41.3%	10.0%	10.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	16.7	46.1	46.1		74.1	49.4	49.4	54.5	34.9	34.9		50.5
Actuated g/C Ratio	0.12	0.34	0.34		0.54	0.36	0.36	0.40	0.26	0.26		0.37
v/c Ratio	0.73	0.70	0.34		0.90	0.62	0.44	0.64	0.77	0.55		0.95
Control Delay	68.7	42.5	5.5		61.7	39.0	13.6	36.0	53.0	10.8		72.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	68.7	42.5	5.5		61.7	39.0	13.6	36.0	53.0	10.8		72.7
LOS	E	D	A		E	D	B	D	D	B		E
Approach Delay		42.1				38.6			38.6			
Approach LOS		D				D			D			

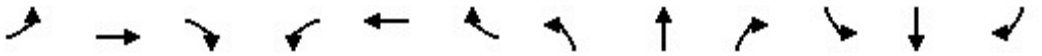
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 136.6	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 41.7	Intersection LOS: D
Intersection Capacity Utilization 93.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	483	194
Future Volume (vph)	483	194
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	30.9	30.9
Actuated g/C Ratio	0.23	0.23
v/c Ratio	0.63	0.44
Control Delay	51.6	19.0
Queue Delay	0.0	0.0
Total Delay	51.6	19.0
LOS	D	B
Approach Delay	50.8	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	309	1220	238	329	1168	325	236	700	341	276	508	204
v/c Ratio	0.73	0.70	0.34	0.90	0.62	0.44	0.64	0.77	0.55	0.95	0.63	0.44
Control Delay	68.7	42.5	5.5	61.7	39.0	13.6	36.0	53.0	10.8	72.7	51.6	19.0
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	68.7	42.5	5.5	61.7	39.0	13.6	36.0	53.0	10.8	72.7	51.6	19.0
Queue Length 50th (m)	41.7	103.8	0.0	65.2	94.7	19.1	43.0	92.3	10.2	51.0	65.8	15.2
Queue Length 95th (m)	60.6	134.3	19.1	#137.2	127.4	51.5	62.8	113.5	36.9	#98.4	85.8	38.3
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	509	1752	703	366	1877	731	399	1536	846	291	1352	688
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	0.61	0.70	0.34	0.90	0.62	0.44	0.59	0.46	0.40	0.95	0.38	0.30

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	9	285	1159	226	3	310	1110	309	224	665	324	2
Future Volume (vph)	9	285	1159	226	3	310	1110	309	224	665	324	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.95	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	3579	1585	
Flt Permitted		0.95	1.00	1.00		0.10	1.00	1.00	0.27	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		196	5193	1633	521	3579	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	300	1220	238	3	326	1168	325	236	700	341	2
RTOR Reduction (vph)	0	0	0	158	0	0	0	141	0	0	217	0
Lane Group Flow (vph)	0	309	1220	80	0	329	1168	184	236	700	124	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom
Protected Phases	5	5	2			1	6		7	4		
Permitted Phases				2	1	6		6	4		4	3
Actuated Green, G (s)		16.8	46.1	46.1		71.2	49.4	49.4	50.9	34.9	34.9	
Effective Green, g (s)		16.8	46.1	46.1		71.2	49.4	49.4	50.9	34.9	34.9	
Actuated g/C Ratio		0.12	0.34	0.34		0.52	0.36	0.36	0.37	0.26	0.26	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		427	1752	545		362	1877	590	354	914	404	
v/s Ratio Prot		0.09	0.23			c0.15	0.22		c0.08	0.20		
v/s Ratio Perm				0.05		c0.33		0.11	0.17		0.08	
v/c Ratio		0.72	0.70	0.15		0.91	0.62	0.31	0.67	0.77	0.31	
Uniform Delay, d1		57.7	39.2	31.5		37.4	35.9	31.4	31.9	47.1	41.1	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.0	2.3	0.6		25.6	1.6	1.4	4.7	3.9	0.4	
Delay (s)		63.6	41.5	32.1		63.0	37.5	32.7	36.6	50.9	41.5	
Level of Service		E	D	C		E	D	C	D	D	D	
Approach Delay (s)			44.1				41.3			45.8		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	46.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	136.6	Sum of lost time (s)	22.5
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

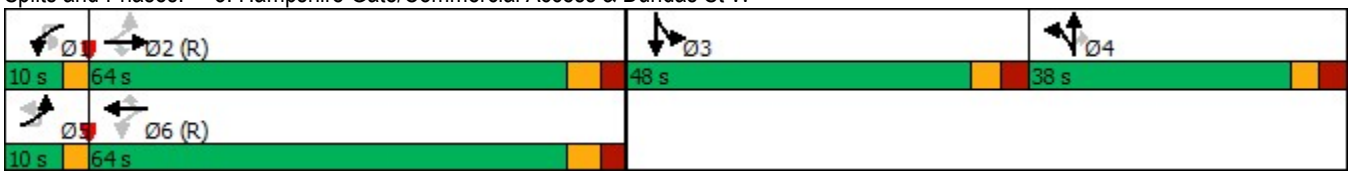
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	260	483	194
Future Volume (vph)	260	483	194
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	3579	1601
Flt Permitted	0.21	1.00	1.00
Satd. Flow (perm)	396	3579	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	274	508	204
RTOR Reduction (vph)	0	0	104
Lane Group Flow (vph)	276	508	100
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	43.9	30.9	30.9
Effective Green, g (s)	45.9	30.9	30.9
Actuated g/C Ratio	0.34	0.23	0.23
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	277	809	362
v/s Ratio Prot	c0.10	0.14	
v/s Ratio Perm	c0.23		0.06
v/c Ratio	1.00	0.63	0.27
Uniform Delay, d1	39.3	47.7	43.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	52.7	1.5	0.4
Delay (s)	92.1	49.2	44.0
Level of Service	F	D	D
Approach Delay (s)		60.1	
Approach LOS		E	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	90	1255	149	2	140	1234	81	609	86	285	154
Future Volume (vph)	2	90	1255	149	2	140	1234	81	609	86	285	154
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	64.0	64.0	10.0	10.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	40.0%	40.0%	6.3%	6.3%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		69.1	57.0	57.0		71.8	58.6	58.6	49.4	49.4	49.4	19.9
Actuated g/C Ratio		0.43	0.36	0.36		0.45	0.37	0.37	0.31	0.31	0.31	0.12
v/c Ratio		0.60	0.73	0.24		0.88	0.70	0.13	0.70	0.69	0.46	0.73
Control Delay		45.5	31.7	2.1		75.0	45.8	5.2	57.5	56.9	13.4	85.5
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		45.5	31.7	2.1		75.0	45.8	5.2	57.5	56.9	13.4	85.5
LOS		D	C	A		E	D	A	E	E	B	F
Approach Delay			29.6				46.4			44.4		
Approach LOS			C				D			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 40.8	Intersection LOS: D
Intersection Capacity Utilization 79.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



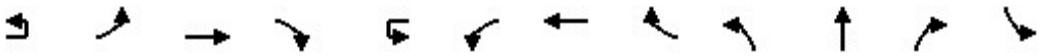
Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	31
Future Volume (vph)	31
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	19.9
Actuated g/C Ratio	0.12
v/c Ratio	0.44
Control Delay	27.3
Queue Delay	0.0
Total Delay	27.3
LOS	C
Approach Delay	60.2
Approach LOS	E

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	98	1335	159	151	1313	86	369	370	303	164	126
v/c Ratio	0.60	0.73	0.24	0.88	0.70	0.13	0.70	0.69	0.46	0.73	0.44
Control Delay	45.5	31.7	2.1	75.0	45.8	5.2	57.5	56.9	13.4	85.5	27.3
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	45.5	31.7	2.1	75.0	45.8	5.2	57.5	56.9	13.4	85.5	27.3
Queue Length 50th (m)	6.9	142.8	6.0	28.0	132.3	0.0	109.1	109.0	16.2	51.1	11.9
Queue Length 95th (m)	m23.5	m156.7	m1.8	#79.7	149.5	9.9	155.1	154.6	45.2	73.6	31.5
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	164	1831	672	171	1882	652	530	539	665	463	500
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	0.60	0.73	0.24	0.88	0.70	0.13	0.70	0.69	0.46	0.35	0.25

Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	90	1255	149	2	140	1234	81	609	86	285	154
Future Volume (vph)	2	90	1255	149	2	140	1234	81	609	86	285	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.10	1.00	1.00		0.08	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		190	5142	1601		161	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	96	1335	159	2	149	1313	86	648	91	303	164
RTOR Reduction (vph)	0	0	0	102	0	0	0	55	0	0	161	0
Lane Group Flow (vph)	0	98	1335	57	0	151	1313	31	369	370	142	164
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		65.2	57.1	57.1		68.2	58.6	58.6	49.4	49.4	49.4	19.9
Effective Green, g (s)		65.2	57.1	57.1		68.2	58.6	58.6	49.4	49.4	49.4	19.9
Actuated g/C Ratio		0.41	0.36	0.36		0.43	0.37	0.37	0.31	0.31	0.31	0.12
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		160	1835	571		167	1883	592	530	539	504	224
v/s Ratio Prot		0.03	0.26			c0.05	0.26		c0.21	0.21		c0.09
v/s Ratio Perm		0.22		0.04		c0.33		0.02			0.09	
v/c Ratio		0.61	0.73	0.10		0.90	0.70	0.05	0.70	0.69	0.28	0.73
Uniform Delay, d1		33.1	44.7	34.3		34.5	43.2	32.8	48.7	48.5	41.9	67.5
Progression Factor		1.25	0.66	0.31		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		5.4	2.0	0.3		42.9	2.2	0.2	4.0	3.6	0.3	11.7
Delay (s)		46.9	31.4	11.1		77.3	45.3	32.9	52.7	52.1	42.2	79.1
Level of Service		D	C	B		E	D	C	D	D	D	E
Approach Delay (s)			30.3				47.8			49.4		
Approach LOS			C				D			D		

Intersection Summary			
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

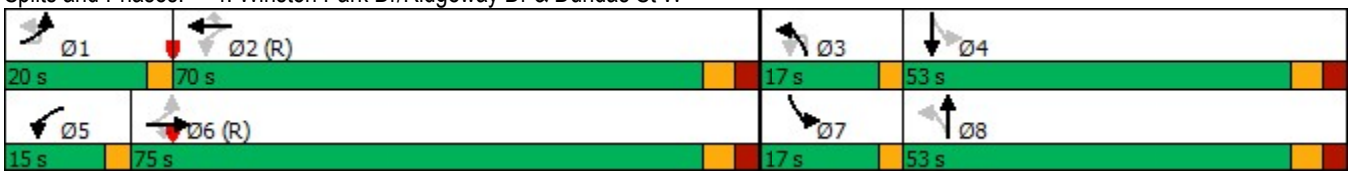
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	31	87
Future Volume (vph)	31	87
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1708	
Flt Permitted	1.00	
Satd. Flow (perm)	1708	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	33	93
RTOR Reduction (vph)	74	0
Lane Group Flow (vph)	52	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	19.9	
Effective Green, g (s)	19.9	
Actuated g/C Ratio	0.12	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	212	
v/s Ratio Prot	0.03	
v/s Ratio Perm		
v/c Ratio	0.24	
Uniform Delay, d1	63.3	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	63.9	
Level of Service	E	
Approach Delay (s)	72.5	
Approach LOS	E	

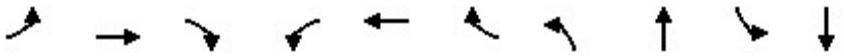
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	287	1247	126	90	1418	464	2	326	688	242	289
Future Volume (vph)	8	287	1247	126	90	1418	464	2	326	688	242	289
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt	NA
Protected Phases		1	6		5	2			3	8	7	4
Permitted Phases	1	6		6	2		2	3	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	20.0	20.0	75.0	75.0	15.0	70.0	70.0	17.0	17.0	53.0	17.0	53.0
Total Split (%)	12.5%	12.5%	46.9%	46.9%	9.4%	43.8%	43.8%	10.6%	10.6%	33.1%	10.6%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		92.0	75.7	75.7	76.3	63.0	63.0		61.0	41.0	63.0	41.0
Actuated g/C Ratio		0.58	0.47	0.47	0.48	0.39	0.39		0.38	0.26	0.39	0.26
v/c Ratio		0.98	0.53	0.17	0.39	0.72	0.61		0.95	0.85	1.01	0.51
Control Delay		90.3	31.5	8.9	24.2	44.4	24.2		76.8	65.6	98.2	44.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		90.3	31.5	8.9	24.2	44.4	24.2		76.8	65.6	98.2	44.5
LOS		F	C	A	C	D	C		E	E	F	D
Approach Delay			40.2			38.7				69.0		63.2
Approach LOS			D			D				E		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 137 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 48.4	Intersection LOS: D
Intersection Capacity Utilization 96.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	304	1286	130	93	1462	478	338	782	249	467
v/c Ratio	0.98	0.53	0.17	0.39	0.72	0.61	0.95	0.85	1.01	0.51
Control Delay	90.3	31.5	8.9	24.2	44.4	24.2	76.8	65.6	98.2	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.3	31.5	8.9	24.2	44.4	24.2	76.8	65.6	98.2	44.5
Queue Length 50th (m)	~77.5	104.4	5.8	10.5	131.3	62.5	79.5	123.8	~58.1	57.2
Queue Length 95th (m)	#157.7	129.0	19.7	m17.7	150.5	90.3	#127.2	143.3	#112.6	72.2
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	310	2431	758	270	2044	784	356	1029	246	1013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.53	0.17	0.34	0.72	0.61	0.95	0.76	1.01	0.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

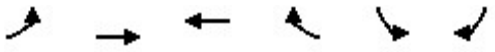
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	287	1247	126	90	1418	464	2	326	688	71	242
Future Volume (vph)	8	287	1247	126	90	1418	464	2	326	688	71	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3563		1789
Flt Permitted		0.07	1.00	1.00	0.17	1.00	1.00		0.35	1.00		0.12
Satd. Flow (perm)		141	5142	1498	324	5193	1617		655	3563		229
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	296	1286	130	93	1462	478	2	336	709	73	249
RTOR Reduction (vph)	0	0	0	51	0	0	147	0	0	5	0	0
Lane Group Flow (vph)	0	304	1286	79	93	1462	331	0	338	777	0	249
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA		pm+pt
Protected Phases		1	6		5	2			3	8		7
Permitted Phases	1	6		6	2		2	3	8			4
Actuated Green, G (s)		88.0	75.7	75.7	72.3	63.0	63.0		55.0	41.0		55.0
Effective Green, g (s)		88.0	75.7	75.7	72.3	63.0	63.0		57.0	41.0		59.0
Actuated g/C Ratio		0.55	0.47	0.47	0.45	0.39	0.39		0.36	0.26		0.37
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		306	2432	708	232	2044	636		339	913		240
v/s Ratio Prot		c0.14	0.25		0.02	0.28			0.09	c0.22		c0.10
v/s Ratio Perm		c0.41		0.05	0.16		0.20		0.26			0.28
v/c Ratio		0.99	0.53	0.11	0.40	0.72	0.52		1.00	0.85		1.04
Uniform Delay, d1		50.3	29.6	23.5	25.8	40.9	37.0		47.8	56.6		42.1
Progression Factor		1.00	1.00	1.00	1.21	1.04	1.19		1.00	1.00		1.00
Incremental Delay, d2		49.4	0.8	0.3	0.8	1.6	2.2		47.8	7.7		68.2
Delay (s)		99.7	30.4	23.8	32.0	44.2	46.3		95.5	64.3		110.3
Level of Service		F	C	C	C	D	D		F	E		F
Approach Delay (s)			42.2			44.1				73.7		
Approach LOS			D			D				E		

Intersection Summary			
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	289	164
Future Volume (vph)	289	164
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3354	
Flt Permitted	1.00	
Satd. Flow (perm)	3354	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	298	169
RTOR Reduction (vph)	51	0
Lane Group Flow (vph)	416	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	41.0	
Effective Green, g (s)	41.0	
Actuated g/C Ratio	0.26	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	859	
v/s Ratio Prot	0.12	
v/s Ratio Perm		
v/c Ratio	0.48	
Uniform Delay, d1	50.5	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	50.9	
Level of Service	D	
Approach Delay (s)	71.6	
Approach LOS	E	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1164	1491	47	0	33
Future Volume (Veh/h)	0	1164	1491	47	0	33
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1225	1569	49	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		173	159			
pX, platoon unblocked	0.82				0.91	0.82
vC, conflicting volume	1618				2002	548
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	971				387	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	576				535	891

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	408	408	408	628	628	363	35
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	49	35
cSH	1700	1700	1700	1700	1700	1700	891
Volume to Capacity	0.24	0.24	0.24	0.37	0.37	0.21	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.2
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.2
Approach LOS							A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix J

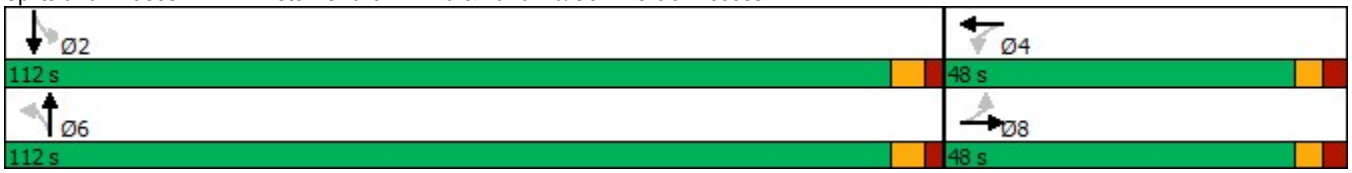
2036 Future Total Conditions – Synchro HCM Reports

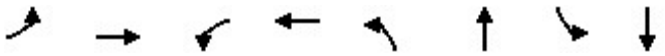
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	56	21	39	20	169	760	57	1315
Future Volume (vph)	56	21	39	20	169	760	57	1315
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	39.5	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	112.0	112.0	112.0	112.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	11.8	11.8	11.8	11.8	105.5	105.5	105.5	105.5
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.81	0.81	0.81	0.81
v/c Ratio	0.46	0.88dr	0.40	0.18	0.71	0.21	0.12	0.37
Control Delay	68.1	44.1	68.0	42.9	26.0	3.0	3.4	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	44.1	68.0	42.9	26.0	3.0	3.4	3.7
LOS	E	D	E	D	C	A	A	A
Approach Delay		49.4		57.2		6.8		3.6
Approach LOS		D		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 130.3	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	201	40	30	172	854	58	1485
v/c Ratio	0.46	0.88dr	0.40	0.18	0.71	0.21	0.12	0.37
Control Delay	68.1	44.1	68.0	42.9	26.0	3.0	3.4	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	44.1	68.0	42.9	26.0	3.0	3.4	3.7
Queue Length 50th (m)	14.1	16.8	9.9	4.8	15.6	13.9	2.5	29.0
Queue Length 95th (m)	28.1	29.6	21.9	14.5	#75.7	20.6	6.3	40.6
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	442	999	353	565	241	4045	496	4047
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	0.13	0.20	0.11	0.05	0.71	0.21	0.12	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	21	176	39	20	10	169	760	76	57	1315	140
Future Volume (vph)	56	21	176	39	20	10	169	760	76	57	1315	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	2984		1825	1755		1789	4991		1825	4989	
Flt Permitted	0.74	1.00		0.58	1.00		0.16	1.00		0.32	1.00	
Satd. Flow (perm)	1389	2984		1110	1755		298	4991		613	4989	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	57	21	180	40	20	10	172	776	78	58	1342	143
RTOR Reduction (vph)	0	65	0	0	9	0	0	4	0	0	5	0
Lane Group Flow (vph)	57	136	0	40	21	0	172	850	0	58	1480	0
Heavy Vehicles (%)	2%	5%	6%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	11.8	11.8		11.8	11.8		105.5	105.5		105.5	105.5	
Effective Green, g (s)	11.8	11.8		11.8	11.8		105.5	105.5		105.5	105.5	
Actuated g/C Ratio	0.09	0.09		0.09	0.09		0.81	0.81		0.81	0.81	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	125	270		100	158		241	4041		496	4039	
v/s Ratio Prot		c0.05			0.01			0.17			0.30	
v/s Ratio Perm	0.04			0.04			c0.58			0.09		
v/c Ratio	0.46	0.88dr		0.40	0.13		0.71	0.21		0.12	0.37	
Uniform Delay, d1	56.2	56.5		55.9	54.5		5.6	2.8		2.6	3.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	1.5		2.6	0.4		16.5	0.1		0.5	0.3	
Delay (s)	58.8	57.9		58.5	54.9		22.1	3.0		3.1	3.6	
Level of Service	E	E		E	D		C	A		A	A	
Approach Delay (s)		58.1			57.0			6.2			3.6	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	130.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

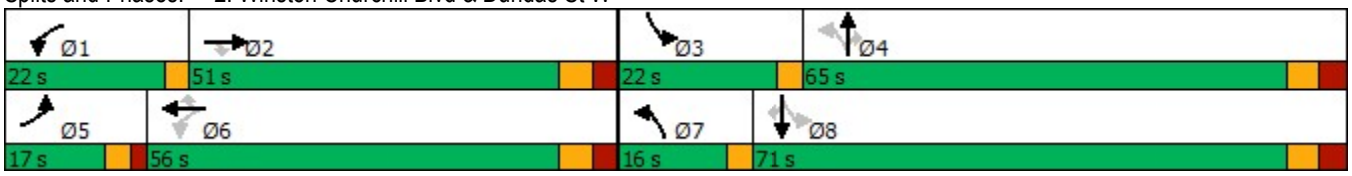
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

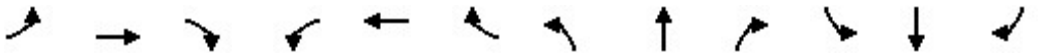
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1103	429	302	722	148	234	760	280	224	1235	140
Future Volume (vph)	90	1103	429	302	722	148	234	760	280	224	1235	140
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	51.0	51.0	22.0	56.0	56.0	16.0	65.0	65.0	22.0	71.0	71.0
Total Split (%)	10.6%	31.9%	31.9%	13.8%	35.0%	35.0%	10.0%	40.6%	40.6%	13.8%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.5	44.1	44.1	70.2	51.7	51.7	64.0	44.4	44.4	67.5	47.9	47.9
Actuated g/C Ratio	0.07	0.30	0.30	0.49	0.36	0.36	0.44	0.31	0.31	0.47	0.33	0.33
v/c Ratio	0.45	0.74	0.74	1.07	0.42	0.24	1.07	0.51	0.45	0.69	0.77	0.26
Control Delay	73.1	49.5	35.5	107.6	37.3	6.2	115.2	42.5	8.3	33.7	46.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	49.5	35.5	107.6	37.3	6.2	115.2	42.5	8.3	33.7	46.7	12.6
LOS	E	D	D	F	D	A	F	D	A	C	D	B
Approach Delay		47.1			51.5			48.3			41.9	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 144.7	
Natural Cycle: 125	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 46.8	Intersection LOS: D
Intersection Capacity Utilization 93.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



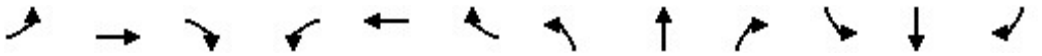


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	95	1161	452	318	760	156	246	800	295	236	1300	147
v/c Ratio	0.45	0.74	0.74	1.07	0.42	0.24	1.07	0.51	0.45	0.69	0.77	0.26
Control Delay	73.1	49.5	35.5	107.6	37.3	6.2	115.2	42.5	8.3	33.7	46.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	49.5	35.5	107.6	37.3	6.2	115.2	42.5	8.3	33.7	46.7	12.6
Queue Length 50th (m)	13.6	108.9	71.7	~79.7	59.8	0.0	~59.8	69.7	6.2	40.4	122.1	8.9
Queue Length 95th (m)	24.6	141.8	126.8	#158.8	83.8	16.5	#121.8	83.9	28.7	58.3	138.6	24.7
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	270	1568	614	298	1819	650	230	2029	779	369	2241	716
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	0.35	0.74	0.74	1.07	0.42	0.24	1.07	0.39	0.38	0.64	0.58	0.21

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.



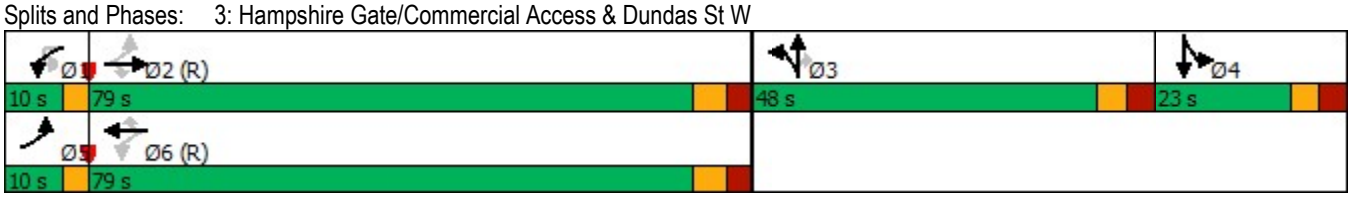
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1103	429	302	722	148	234	760	280	224	1235	140
Future Volume (vph)	90	1103	429	302	722	148	234	760	280	224	1235	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	5092	1555	1722	5092	1498
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.10	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	184	5092	1541	176	5092	1555	418	5092	1498
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	1161	452	318	760	156	246	800	295	236	1300	147
RTOR Reduction (vph)	0	0	126	0	0	100	0	0	184	0	0	68
Lane Group Flow (vph)	95	1161	326	318	760	56	246	800	111	236	1300	79
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	6%	3%	9%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.5	44.1	44.1	66.2	51.7	51.7	57.4	44.4	44.4	63.9	47.9	47.9
Effective Green, g (s)	9.5	44.1	44.1	66.2	51.7	51.7	59.4	44.4	44.4	63.9	47.9	47.9
Actuated g/C Ratio	0.07	0.30	0.30	0.46	0.36	0.36	0.41	0.31	0.31	0.44	0.33	0.33
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	213	1568	488	293	1820	550	225	1563	477	333	1686	496
v/s Ratio Prot	0.03	0.23		c0.14	0.15		c0.11	0.16		c0.08	0.26	
v/s Ratio Perm			0.20	c0.35		0.04	c0.34		0.07	0.23		0.05
v/c Ratio	0.45	0.74	0.67	1.09	0.42	0.10	1.09	0.51	0.23	0.71	0.77	0.16
Uniform Delay, d1	65.0	45.1	43.9	42.7	35.1	31.0	40.0	41.2	37.4	27.4	43.4	34.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	3.2	7.1	77.2	0.7	0.4	87.2	0.3	0.3	6.8	2.2	0.2
Delay (s)	66.5	48.3	51.0	120.0	35.8	31.3	127.1	41.5	37.7	34.1	45.7	34.3
Level of Service	E	D	D	F	D	C	F	D	D	C	D	C
Approach Delay (s)		50.0			56.9			56.3			43.1	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	144.6	Sum of lost time (s)	22.5
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	34	1655	168	1	127	846	28	80	18	76	19	5
Future Volume (vph)	34	1655	168	1	127	846	28	80	18	76	19	5
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	114.5	103.4	103.4		128.3	116.2	116.2	11.5	11.5	11.5	10.0	10.0
Actuated g/C Ratio	0.72	0.65	0.65		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.08	0.55	0.17		0.46	0.25	0.03	0.45	0.44	0.41	0.20	0.10
Control Delay	3.7	13.3	1.2		16.2	8.7	0.0	82.6	81.6	15.2	75.8	48.2
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	3.7	13.3	1.2		16.2	8.7	0.0	82.6	81.6	15.2	75.8	48.2
LOS	A	B	A		B	A	A	F	F	B	E	D
Approach Delay		12.0				9.5			52.8			65.8
Approach LOS		B				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	37	1819	185	141	930	31	54	54	84	21	12
v/c Ratio	0.08	0.55	0.17	0.46	0.25	0.03	0.45	0.44	0.41	0.20	0.10
Control Delay	3.7	13.3	1.2	16.2	8.7	0.0	82.6	81.6	15.2	75.8	48.2
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	3.7	13.3	1.2	16.2	8.7	0.0	82.6	81.6	15.2	75.8	48.2
Queue Length 50th (m)	1.5	162.9	6.8	10.2	40.1	0.0	17.7	17.7	0.0	6.5	1.5
Queue Length 95th (m)	m1.9	197.0	m6.7	31.8	51.3	0.0	32.8	32.8	13.6	16.0	8.7
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	447	3323	1089	305	3663	1166	431	444	489	172	181
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	0.08	0.55	0.17	0.46	0.25	0.03	0.13	0.12	0.17	0.12	0.07

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	34	1655	168	1	127	846	28	80	18	76	19	5
Future Volume (vph)	34	1655	168	1	127	846	28	80	18	76	19	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1737	1633	1722	1753
Flt Permitted	0.30	1.00	1.00		0.08	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	550	5142	1585		152	5043	1570	1683	1737	1633	1722	1753
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	37	1819	185	1	140	930	31	88	20	84	21	5
RTOR Reduction (vph)	0	0	68	0	0	0	9	0	0	78	0	7
Lane Group Flow (vph)	37	1819	117	0	141	930	22	54	54	6	21	5
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	106.3	100.6	100.6		121.5	112.8	112.8	11.5	11.5	11.5	6.0	6.0
Effective Green, g (s)	106.3	100.6	100.6		121.5	112.8	112.8	11.5	11.5	11.5	6.0	6.0
Actuated g/C Ratio	0.66	0.63	0.63		0.76	0.70	0.70	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	408	3233	996		298	3555	1106	120	124	117	64	65
v/s Ratio Prot	0.00	c0.35			c0.05	0.18		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.06		0.07		0.31		0.01			0.00		
v/c Ratio	0.09	0.56	0.12		0.47	0.26	0.02	0.45	0.44	0.05	0.33	0.08
Uniform Delay, d1	9.2	17.1	11.9		13.5	8.5	7.1	71.2	71.1	69.2	75.0	74.3
Progression Factor	0.64	0.76	0.46		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.6	0.2		1.2	0.2	0.0	2.7	2.4	0.2	3.0	0.5
Delay (s)	6.0	13.5	5.6		14.7	8.7	7.1	73.9	73.6	69.4	78.0	74.9
Level of Service	A	B	A		B	A	A	E	E	E	E	E
Approach Delay (s)		12.7				9.4			71.8			76.9
Approach LOS		B				A			E			E

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

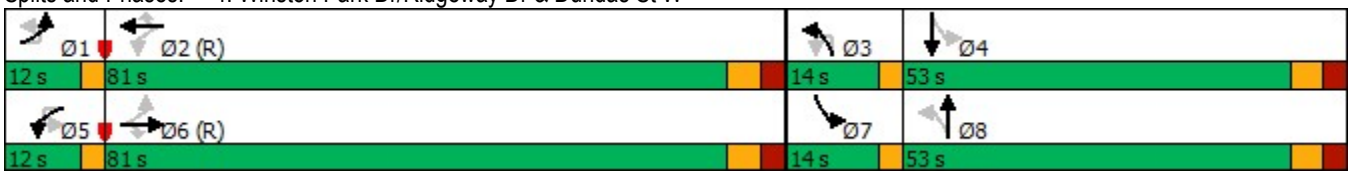
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	12	234	1475	401	2	61	593	236	1	126	226	303
Future Volume (vph)	12	234	1475	401	2	61	593	236	1	126	226	303
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	81.0	81.0	12.0	12.0	81.0	81.0	14.0	14.0	53.0	14.0
Total Split (%)	7.5%	7.5%	50.6%	50.6%	7.5%	7.5%	50.6%	50.6%	8.8%	8.8%	33.1%	8.8%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		98.1	83.5	83.5		90.8	78.6	78.6		52.2	37.3	52.3
Actuated g/C Ratio		0.61	0.52	0.52		0.57	0.49	0.49		0.33	0.23	0.33
v/c Ratio		0.54	0.60	0.46		0.39	0.26	0.29		0.80	0.35	0.90
Control Delay		20.1	28.6	10.5		29.4	22.1	2.2		69.1	49.5	75.0
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		20.1	28.6	10.5		29.4	22.1	2.2		69.1	49.5	75.0
LOS		C	C	B		C	C	A		E	D	E
Approach Delay			24.2				17.3				55.9	
Approach LOS			C				B				E	

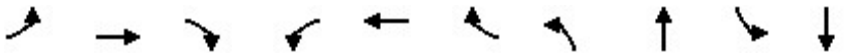
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 33 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 35.2	Intersection LOS: D
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	559
Future Volume (vph)	559
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	33.1%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	37.3
Actuated g/C Ratio	0.23
v/c Ratio	0.82
Control Delay	66.0
Queue Delay	0.0
Total Delay	66.0
LOS	E
Approach Delay	68.9
Approach LOS	E

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	267	1603	436	68	645	257	138	285	329	681
v/c Ratio	0.54	0.60	0.46	0.39	0.26	0.29	0.80	0.35	0.90	0.82
Control Delay	20.1	28.6	10.5	29.4	22.1	2.2	69.1	49.5	75.0	66.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	28.6	10.5	29.4	22.1	2.2	69.1	49.5	75.0	66.0
Queue Length 50th (m)	37.0	127.3	28.1	7.6	41.4	0.0	31.4	38.5	84.1	107.8
Queue Length 95th (m)	59.3	160.4	62.4	24.2	48.6	8.6	#49.5	49.2	#113.4	123.4
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	498	2682	944	186	2476	901	174	1013	364	1019
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.60	0.46	0.37	0.26	0.29	0.79	0.28	0.90	0.67

Intersection Summary

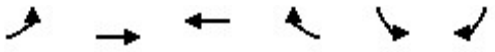
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	12	234	1475	401	2	61	593	236	1	126	226	36
Future Volume (vph)	12	234	1475	401	2	61	593	236	1	126	226	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1678	5043	1570		1602	3500	
Flt Permitted		0.36	1.00	1.00		0.10	1.00	1.00		0.15	1.00	
Satd. Flow (perm)		664	5142	1555		174	5043	1570		247	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	254	1603	436	2	66	645	257	1	137	246	39
RTOR Reduction (vph)	0	0	0	133	0	0	0	131	0	0	8	0
Lane Group Flow (vph)	0	267	1603	303	0	68	645	126	0	138	277	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	4%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		94.7	83.4	83.4		86.8	78.5	78.5		48.2	37.3	
Effective Green, g (s)		94.7	83.4	83.4		86.8	78.5	78.5		48.2	37.3	
Actuated g/C Ratio		0.59	0.52	0.52		0.54	0.49	0.49		0.30	0.23	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		484	2680	810		172	2474	770		166	815	
v/s Ratio Prot		c0.05	c0.31			0.02	0.13			0.06	0.08	
v/s Ratio Perm		0.28		0.20		0.19		0.08		0.19		
v/c Ratio		0.55	0.60	0.37		0.40	0.26	0.16		0.83	0.34	
Uniform Delay, d1		16.0	26.6	22.8		20.1	23.8	22.6		44.9	51.1	
Progression Factor		1.00	1.00	1.00		1.67	0.89	0.54		1.00	1.00	
Incremental Delay, d2		1.4	1.0	1.3		1.5	0.3	0.4		28.3	0.2	
Delay (s)		17.4	27.6	24.1		35.1	21.5	12.5		73.2	51.3	
Level of Service		B	C	C		D	C	B		E	D	
Approach Delay (s)			25.8				20.1				58.5	
Approach LOS			C				C				E	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	303	559	67
Future Volume (vph)	303	559	67
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.51	1.00	
Satd. Flow (perm)	945	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	329	608	73
RTOR Reduction (vph)	0	6	0
Lane Group Flow (vph)	329	675	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	48.4	37.4	
Effective Green, g (s)	48.4	37.4	
Actuated g/C Ratio	0.30	0.23	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	341	824	
v/s Ratio Prot	c0.07	0.19	
v/s Ratio Perm	c0.23		
v/c Ratio	0.96	0.82	
Uniform Delay, d1	53.2	58.1	
Progression Factor	1.00	1.00	
Incremental Delay, d2	39.1	6.4	
Delay (s)	92.3	64.5	
Level of Service	F	E	
Approach Delay (s)		73.5	
Approach LOS		E	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1105	1062	33	0	42
Future Volume (Veh/h)	0	1105	1062	33	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1163	1118	35	0	44
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		173	159			
pX, platoon unblocked	0.89				0.92	0.89
vC, conflicting volume	1153				1523	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	748				457	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	764				488	973

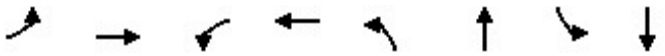
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	388	388	388	447	447	259	44
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	35	44
cSH	1700	1700	1700	1700	1700	1700	973
Volume to Capacity	0.23	0.23	0.23	0.26	0.26	0.15	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	8.9
Lane LOS							A
Approach Delay (s)	0.0			0.0			8.9
Approach LOS							A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	185	101	118	120	1	231	858	122	637
Future Volume (vph)	185	101	118	120	1	231	858	122	637
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	53.0	53.0	53.0	53.0	19.0	19.0	88.0	19.0	88.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	11.9%	11.9%	55.0%	11.9%	55.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	35.7	35.7	35.7	35.7		114.5	99.1	108.6	95.8
Actuated g/C Ratio	0.22	0.22	0.22	0.22		0.72	0.62	0.68	0.60
v/c Ratio	0.95	0.38	0.67	0.46		0.51	0.33	0.32	0.29
Control Delay	110.8	15.8	73.4	50.9		12.4	15.7	10.4	15.8
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	110.8	15.8	73.4	50.9		12.4	15.7	10.4	15.8
LOS	F	B	E	D		B	B	B	B
Approach Delay		50.3		59.7			15.1		15.1
Approach LOS		D		E			B		B

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 19 (12%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 69.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	195	341	124	193	244	1025	128	877
v/c Ratio	0.95	0.38	0.67	0.46	0.51	0.33	0.32	0.29
Control Delay	110.8	15.8	73.4	50.9	12.4	15.7	10.4	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.8	15.8	73.4	50.9	12.4	15.7	10.4	15.8
Queue Length 50th (m)	61.2	14.2	36.1	48.5	24.0	54.0	11.7	44.6
Queue Length 95th (m)	#92.1	26.1	56.0	67.5	42.5	77.4	22.9	64.6
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	268	1111	240	541	508	3116	475	2984
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	0.73	0.31	0.52	0.36	0.48	0.33	0.27	0.29

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	185	101	223	118	120	64	1	231	858	116	122	637
Future Volume (vph)	185	101	223	118	120	64	1	231	858	116	122	637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.91		1.00	0.91
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3250		1807	1821			1807	5018		1825	4935
Flt Permitted	0.49	1.00		0.44	1.00			0.28	1.00		0.25	1.00
Satd. Flow (perm)	924	3250		828	1821			530	5018		480	4935
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	195	106	235	124	126	67	1	243	903	122	128	671
RTOR Reduction (vph)	0	183	0	0	13	0	0	0	8	0	0	28
Lane Group Flow (vph)	195	158	0	124	180	0	0	244	1017	0	128	849
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	35.7	35.7		35.7	35.7			111.3	99.1		105.0	95.8
Effective Green, g (s)	35.7	35.7		35.7	35.7			111.3	99.1		105.0	95.8
Actuated g/C Ratio	0.22	0.22		0.22	0.22			0.70	0.62		0.66	0.60
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	206	725		184	406			468	3108		392	2954
v/s Ratio Prot		0.05			0.10			c0.04	0.20		0.02	0.17
v/s Ratio Perm	c0.21			0.15				c0.32			0.20	
v/c Ratio	0.95	0.22		0.67	0.44			0.52	0.33		0.33	0.29
Uniform Delay, d1	61.2	50.8		56.8	53.6			9.1	14.5		10.3	15.6
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	47.2	0.2		9.4	0.8			1.1	0.3		0.5	0.2
Delay (s)	108.4	50.9		66.2	54.3			10.2	14.8		10.8	15.8
Level of Service	F	D		E	D			B	B		B	B
Approach Delay (s)		71.8			59.0				13.9			15.2
Approach LOS		E			E				B			B

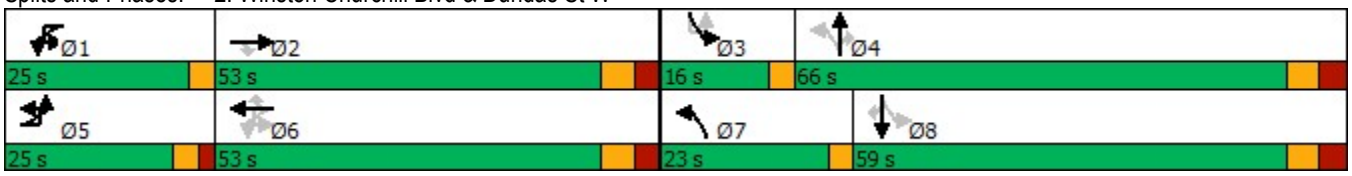
Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	196
Future Volume (vph)	196
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	206
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	301	1224	238	3	319	1143	318	248	741	361	2	289
Future Volume (vph)	301	1224	238	3	319	1143	318	248	741	361	2	289
Turn Type	Prot	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt
Protected Phases	5	2		1	1	6		7	4			3
Permitted Phases			2	6	6		6	4		4	3	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	53.0	53.0	25.0	25.0	53.0	53.0	23.0	66.0	66.0	16.0	16.0
Total Split (%)	15.6%	33.1%	33.1%	15.6%	15.6%	33.1%	33.1%	14.4%	41.3%	41.3%	10.0%	10.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	17.0	46.1	46.1		74.0	49.1	49.1	49.2	29.2	29.2		43.9
Actuated g/C Ratio	0.13	0.35	0.35		0.57	0.38	0.38	0.38	0.22	0.22		0.34
v/c Ratio	0.73	0.70	0.34		0.90	0.62	0.45	0.70	0.68	0.66		1.01
Control Delay	65.0	39.6	5.1		61.7	35.9	14.5	39.7	49.6	16.8		89.0
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	65.0	39.6	5.1		61.7	35.9	14.5	39.7	49.6	16.8		89.0
LOS	E	D	A		E	D	B	D	D	B		F
Approach Delay		39.4				36.8			39.1			
Approach LOS		D				D			D			

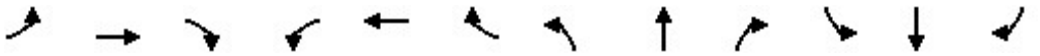
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 130.8	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 41.1	Intersection LOS: D
Intersection Capacity Utilization 98.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	538	214
Future Volume (vph)	538	214
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	24.4	24.4
Actuated g/C Ratio	0.19	0.19
v/c Ratio	0.59	0.49
Control Delay	51.6	13.6
Queue Delay	0.0	0.0
Total Delay	51.6	13.6
LOS	D	B
Approach Delay	54.2	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	328	1288	251	339	1203	335	261	780	380	306	566	225
v/c Ratio	0.73	0.70	0.34	0.90	0.62	0.45	0.70	0.68	0.66	1.01	0.59	0.49
Control Delay	65.0	39.6	5.1	61.7	35.9	14.5	39.7	49.6	16.8	89.0	51.6	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	39.6	5.1	61.7	35.9	14.5	39.7	49.6	16.8	89.0	51.6	13.6
Queue Length 50th (m)	42.2	103.9	0.0	65.5	91.7	22.9	48.3	67.9	19.0	~60.2	50.0	7.0
Queue Length 95th (m)	60.4	131.9	18.5	#133.8	121.4	55.2	70.2	82.0	52.5	#108.9	63.0	30.1
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	531	1828	732	376	1950	741	398	2303	870	302	2027	748
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	0.62	0.70	0.34	0.90	0.62	0.45	0.66	0.34	0.44	1.01	0.28	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	10	301	1224	238	3	319	1143	318	248	741	361	2
Future Volume (vph)	10	301	1224	238	3	319	1143	318	248	741	361	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.91	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	5142	1585	
Flt Permitted		0.95	1.00	1.00		0.10	1.00	1.00	0.28	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		181	5193	1633	537	5142	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	317	1288	251	3	336	1203	335	261	780	380	2
RTOR Reduction (vph)	0	0	0	163	0	0	0	128	0	0	226	0
Lane Group Flow (vph)	0	328	1288	88	0	339	1203	207	261	780	154	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	custom
Protected Phases	5	5	2		1	1	6		7	4		
Permitted Phases				2	6	6		6	4		4	3
Actuated Green, G (s)		17.0	46.1	46.1		71.1	49.1	49.1	45.2	29.2	29.2	
Effective Green, g (s)		17.0	46.1	46.1		71.1	49.1	49.1	45.2	29.2	29.2	
Actuated g/C Ratio		0.13	0.35	0.35		0.54	0.38	0.38	0.35	0.22	0.22	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		451	1830	569		371	1949	612	358	1147	353	
v/s Ratio Prot		0.09	0.25			c0.15	0.23		c0.10	0.15		
v/s Ratio Perm				0.05		c0.34		0.13	0.15		0.10	
v/c Ratio		0.73	0.70	0.16		0.91	0.62	0.34	0.73	0.68	0.44	
Uniform Delay, d1		54.7	36.5	29.0		37.0	33.2	29.2	33.2	46.5	43.7	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		5.8	2.3	0.6		26.2	1.5	1.5	7.3	1.7	0.9	
Delay (s)		60.4	38.8	29.6		63.3	34.7	30.7	40.5	48.2	44.6	
Level of Service		E	D	C		E	C	C	D	D	D	
Approach Delay (s)			41.3				39.1			45.8		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	22.5
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

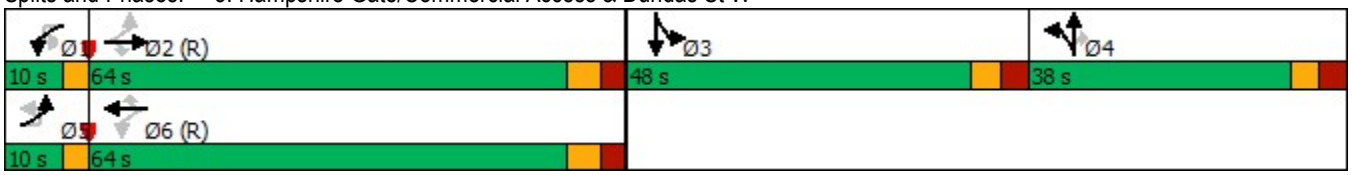
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	289	538	214
Future Volume (vph)	289	538	214
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.91	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	5142	1601
Flt Permitted	0.25	1.00	1.00
Satd. Flow (perm)	478	5142	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	304	566	225
RTOR Reduction (vph)	0	0	157
Lane Group Flow (vph)	306	566	68
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	37.4	24.4	24.4
Effective Green, g (s)	39.4	24.4	24.4
Actuated g/C Ratio	0.30	0.19	0.19
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	286	959	298
v/s Ratio Prot	c0.11	0.11	
v/s Ratio Perm	c0.21		0.04
v/c Ratio	1.07	0.59	0.23
Uniform Delay, d1	40.5	48.6	45.2
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	73.0	1.0	0.4
Delay (s)	113.5	49.6	45.6
Level of Service	F	D	D
Approach Delay (s)		66.6	
Approach LOS		E	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	95	1325	157	2	144	1270	83	679	96	318	172
Future Volume (vph)	2	95	1325	157	2	144	1270	83	679	96	318	172
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	64.0	64.0	10.0	10.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	40.0%	40.0%	6.3%	6.3%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		68.0	57.0	57.0		68.0	57.0	57.0	50.4	50.4	50.4	21.6
Actuated g/C Ratio		0.42	0.36	0.36		0.42	0.36	0.36	0.32	0.32	0.32	0.14
v/c Ratio		0.74	0.77	0.25		1.19	0.74	0.14	0.76	0.75	0.50	0.75
Control Delay		64.3	31.5	1.7		169.1	47.9	5.6	60.5	59.6	16.8	84.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		64.3	31.5	1.7		169.1	47.9	5.6	60.5	59.6	16.8	84.9
LOS		E	C	A		F	D	A	E	E	B	F
Approach Delay			30.6				57.4			47.5		
Approach LOS			C				E			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 45.8	Intersection LOS: D
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	21.6
Actuated g/C Ratio	0.14
v/c Ratio	0.46
Control Delay	30.8
Queue Delay	0.0
Total Delay	30.8
LOS	C
Approach Delay	61.5
Approach LOS	E

Intersection Summary

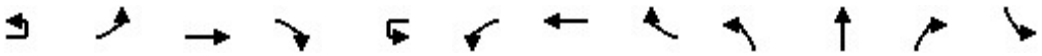
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	1410	167	155	1351	88	412	412	338	183	140
v/c Ratio	0.74	0.77	0.25	1.19	0.74	0.14	0.76	0.75	0.50	0.75	0.46
Control Delay	64.3	31.5	1.7	169.1	47.9	5.6	60.5	59.6	16.8	84.9	30.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	31.5	1.7	169.1	47.9	5.6	60.5	59.6	16.8	84.9	30.8
Queue Length 50th (m)	11.4	153.5	1.5	~41.9	137.5	0.0	124.8	124.2	25.0	56.9	16.5
Queue Length 95th (m)	m#31.8	m157.5	m2.4	#90.0	154.9	10.6	#195.3	#192.7	59.4	80.2	36.7
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	140	1831	677	130	1831	637	540	549	674	463	499
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.77	0.25	1.19	0.74	0.14	0.76	0.75	0.50	0.40	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	95	1325	157	2	144	1270	83	679	96	318	172
Future Volume (vph)	2	95	1325	157	2	144	1270	83	679	96	318	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.08	1.00	1.00		0.07	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		160	5142	1601		134	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	101	1410	167	2	153	1351	88	722	102	338	183
RTOR Reduction (vph)	0	0	0	108	0	0	0	57	0	0	160	0
Lane Group Flow (vph)	0	103	1410	59	0	155	1351	31	412	412	178	183
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		64.0	57.0	57.0		64.0	57.0	57.0	50.4	50.4	50.4	21.6
Effective Green, g (s)		64.0	57.0	57.0		64.0	57.0	57.0	50.4	50.4	50.4	21.6
Actuated g/C Ratio		0.40	0.36	0.36		0.40	0.36	0.36	0.31	0.31	0.31	0.14
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		136	1831	570		126	1831	576	540	549	514	243
v/s Ratio Prot		0.03	0.27			c0.05	0.26		c0.24	0.24		c0.10
v/s Ratio Perm		0.27		0.04		c0.43		0.02			0.11	
v/c Ratio		0.76	0.77	0.10		1.23	0.74	0.05	0.76	0.75	0.35	0.75
Uniform Delay, d1		35.0	45.7	34.4		37.8	45.0	33.8	49.4	49.2	42.1	66.6
Progression Factor		1.56	0.64	0.24		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		15.7	2.3	0.3		154.7	2.7	0.2	6.3	5.7	0.4	12.4
Delay (s)		70.2	31.4	8.4		192.5	47.7	34.0	55.7	54.9	42.5	79.0
Level of Service		E	C	A		F	D	C	E	D	D	E
Approach Delay (s)			31.5				61.0			51.6		
Approach LOS			C				E			D		

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

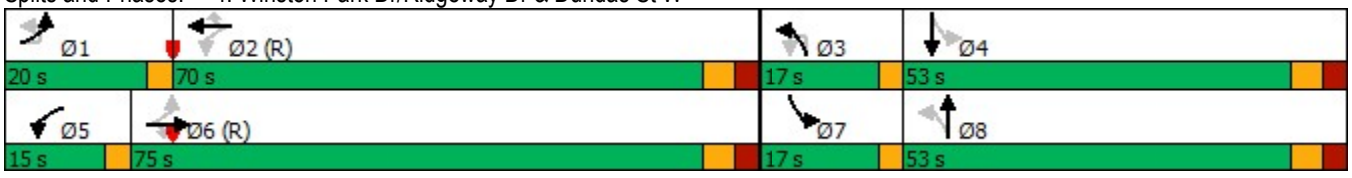
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	35	97
Future Volume (vph)	35	97
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1709	
Flt Permitted	1.00	
Satd. Flow (perm)	1709	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	37	103
RTOR Reduction (vph)	72	0
Lane Group Flow (vph)	68	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	21.6	
Effective Green, g (s)	21.6	
Actuated g/C Ratio	0.14	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	230	
v/s Ratio Prot	0.04	
v/s Ratio Perm		
v/c Ratio	0.30	
Uniform Delay, d1	62.4	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	63.1	
Level of Service	E	
Approach Delay (s)	72.1	
Approach LOS	E	

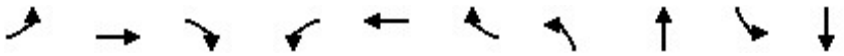
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	302	1317	133	93	1461	477	2	363	767	269	321
Future Volume (vph)	8	302	1317	133	93	1461	477	2	363	767	269	321
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt	NA
Protected Phases		1	6		5	2			3	8	7	4
Permitted Phases	1	6		6	2		2	3	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	20.0	20.0	75.0	75.0	15.0	70.0	70.0	17.0	17.0	53.0	17.0	53.0
Total Split (%)	12.5%	12.5%	46.9%	46.9%	9.4%	43.8%	43.8%	10.6%	10.6%	33.1%	10.6%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		89.2	72.7	72.7	76.5	63.0	63.0		63.8	43.8	65.8	43.8
Actuated g/C Ratio		0.56	0.45	0.45	0.48	0.39	0.39		0.40	0.27	0.41	0.27
v/c Ratio		1.18	0.58	0.19	0.44	0.74	0.63		1.07	0.89	1.19	0.54
Control Delay		151.4	34.2	10.0	27.6	47.0	27.0		106.9	67.1	157.5	44.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		151.4	34.2	10.0	27.6	47.0	27.0		106.9	67.1	157.5	44.3
LOS		F	C	A	C	D	C		F	E	F	D
Approach Delay			53.0			41.4				79.1		83.7
Approach LOS			D			D				E		F

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 137 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 58.5	Intersection LOS: E
Intersection Capacity Utilization 102.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	319	1358	137	96	1506	492	376	872	277	519
v/c Ratio	1.18	0.58	0.19	0.44	0.74	0.63	1.07	0.89	1.19	0.54
Control Delay	151.4	34.2	10.0	27.6	47.0	27.0	106.9	67.1	157.5	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	151.4	34.2	10.0	27.6	47.0	27.0	106.9	67.1	157.5	44.3
Queue Length 50th (m)	~110.8	119.2	7.4	11.1	138.1	70.4	~93.4	137.4	~86.0	63.2
Queue Length 95th (m)	#172.8	138.4	21.5	m17.2	157.0	102.8	#166.7	163.7	#145.4	81.5
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	271	2335	732	246	2044	777	350	1029	233	1014
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.58	0.19	0.39	0.74	0.63	1.07	0.85	1.19	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

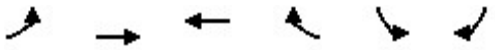
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	302	1317	133	93	1461	477	2	363	767	79	269
Future Volume (vph)	8	302	1317	133	93	1461	477	2	363	767	79	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3564		1789
Flt Permitted		0.07	1.00	1.00	0.14	1.00	1.00		0.32	1.00		0.09
Satd. Flow (perm)		126	5142	1498	264	5193	1617		600	3564		174
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	311	1358	137	96	1506	492	2	374	791	81	277
RTOR Reduction (vph)	0	0	0	52	0	0	141	0	0	5	0	0
Lane Group Flow (vph)	0	319	1358	85	96	1506	351	0	376	867	0	277
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA		pm+pt
Protected Phases		1	6		5	2			3	8		7
Permitted Phases	1	6		6	2		2	3	8			4
Actuated Green, G (s)		85.2	72.7	72.7	72.5	63.0	63.0		57.8	43.8		57.8
Effective Green, g (s)		85.2	72.7	72.7	72.5	63.0	63.0		59.8	43.8		61.8
Actuated g/C Ratio		0.53	0.45	0.45	0.45	0.39	0.39		0.37	0.27		0.39
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		268	2336	680	211	2044	636		335	975		228
v/s Ratio Prot		c0.14	0.26		0.03	0.29			0.10	c0.24		c0.12
v/s Ratio Perm		c0.49		0.06	0.18		0.22		0.31			0.35
v/c Ratio		1.19	0.58	0.12	0.45	0.74	0.55		1.12	0.89		1.21
Uniform Delay, d1		51.4	32.4	25.2	26.4	41.4	37.6		46.0	55.8		47.3
Progression Factor		1.00	1.00	1.00	1.29	1.09	1.23		1.00	1.00		1.00
Incremental Delay, d2		116.5	1.1	0.4	1.1	1.6	2.3		86.5	10.0		129.9
Delay (s)		167.9	33.4	25.6	35.3	46.7	48.6		132.5	65.7		177.2
Level of Service		F	C	C	D	D	D		F	E		F
Approach Delay (s)			56.5			46.6				85.9		
Approach LOS			E			D				F		

Intersection Summary			
HCM 2000 Control Delay	64.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	321	182
Future Volume (vph)	321	182
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3354	
Flt Permitted	1.00	
Satd. Flow (perm)	3354	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	331	188
RTOR Reduction (vph)	51	0
Lane Group Flow (vph)	468	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	43.8	
Effective Green, g (s)	43.8	
Actuated g/C Ratio	0.27	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	918	
v/s Ratio Prot	0.14	
v/s Ratio Perm		
v/c Ratio	0.51	
Uniform Delay, d1	49.0	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	49.5	
Level of Service	D	
Approach Delay (s)	93.9	
Approach LOS	F	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1229	1569	47	0	33
Future Volume (Veh/h)	0	1229	1569	47	0	33
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1294	1652	49	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		173	159			
pX, platoon unblocked	0.81				0.89	0.81
vC, conflicting volume	1701				2108	575
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1059				419	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	531				503	887

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	431	431	431	661	661	379	35
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	49	35
cSH	1700	1700	1700	1700	1700	1700	887
Volume to Capacity	0.25	0.25	0.25	0.39	0.39	0.22	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.2
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.2
Approach LOS							A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

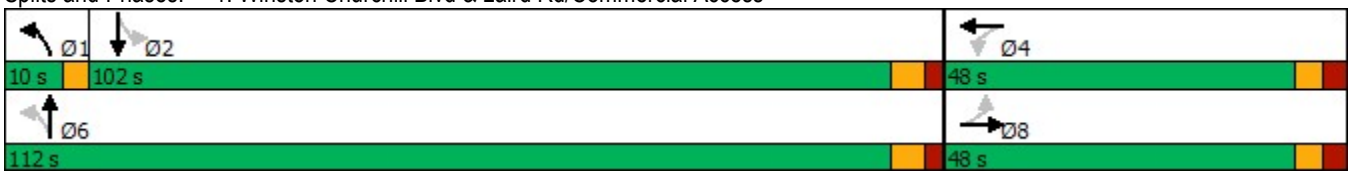
Appendix K

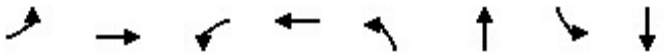
2036 Future Total Mitigated Conditions – Synchro HCM Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	54	20	38	19	152	682	51	1169
Future Volume (vph)	54	20	38	19	152	682	51	1169
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		8		4	1	6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	1	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.0	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	10.0	112.0	102.0	102.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	6.3%	70.0%	63.8%	63.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	3.0	6.5	6.5	6.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	11.5	11.5	11.5	11.5	109.0	105.5	95.5	95.5
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.84	0.81	0.73	0.73
v/c Ratio	0.45	0.48	0.38	0.18	0.45	0.27	0.10	0.52
Control Delay	68.2	20.2	67.0	42.6	6.2	3.2	5.8	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	20.2	67.0	42.6	6.2	3.2	5.8	8.3
LOS	E	C	E	D	A	A	A	A
Approach Delay		30.9		56.6		3.7		8.2
Approach LOS		C		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 130	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 10.0	Intersection LOS: B
Intersection Capacity Utilization 81.0%	ICU Level of Service D
Analysis Period (min) 15	

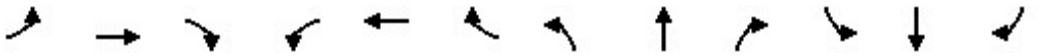
Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	191	39	29	155	765	52	1321
v/c Ratio	0.45	0.48	0.38	0.18	0.45	0.27	0.10	0.52
Control Delay	68.2	20.2	67.0	42.6	6.2	3.2	5.8	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	20.2	67.0	42.6	6.2	3.2	5.8	8.3
Queue Length 50th (m)	13.6	5.8	9.6	4.6	5.0	18.4	3.3	64.3
Queue Length 95th (m)	27.3	17.4	21.2	14.3	10.5	28.8	8.1	89.1
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	443	1052	370	566	345	2822	510	2553
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	0.12	0.18	0.11	0.05	0.45	0.27	0.10	0.52

Intersection Summary



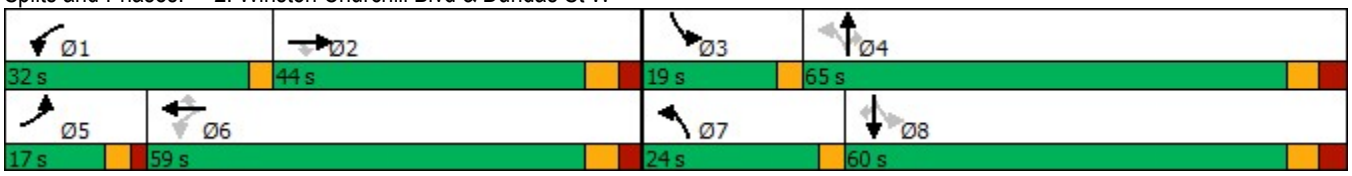
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	20	168	38	19	10	152	682	68	51	1169	125
Future Volume (vph)	54	20	168	38	19	10	152	682	68	51	1169	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		3.0	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	2984		1825	1753		1789	3474		1825	3472	
Flt Permitted	0.74	1.00		0.60	1.00		0.17	1.00		0.36	1.00	
Satd. Flow (perm)	1391	2984		1160	1753		319	3474		695	3472	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	55	20	171	39	19	10	155	696	69	52	1193	128
RTOR Reduction (vph)	0	132	0	0	9	0	0	3	0	0	3	0
Lane Group Flow (vph)	55	59	0	39	20	0	155	762	0	52	1318	0
Heavy Vehicles (%)	2%	5%	6%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	11.5	11.5		11.5	11.5		105.5	105.5		95.5	95.5	
Effective Green, g (s)	11.5	11.5		11.5	11.5		105.5	105.5		95.5	95.5	
Actuated g/C Ratio	0.09	0.09		0.09	0.09		0.81	0.81		0.73	0.73	
Clearance Time (s)	6.5	6.5		6.5	6.5		3.0	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	123	263		102	155		338	2819		510	2550	
v/s Ratio Prot		0.02			0.01		c0.02	0.22			c0.38	
v/s Ratio Perm	c0.04			0.03			0.35			0.07		
v/c Ratio	0.45	0.22		0.38	0.13		0.46	0.27		0.10	0.52	
Uniform Delay, d1	56.2	55.1		55.9	54.6		4.6	3.0		4.9	7.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.4		2.4	0.4		1.0	0.2		0.4	0.8	
Delay (s)	58.8	55.5		58.3	55.0		5.6	3.2		5.3	8.1	
Level of Service	E	E		E	E		A	A		A	A	
Approach Delay (s)		56.3			56.9			3.6			8.0	
Approach LOS		E			E			A			A	

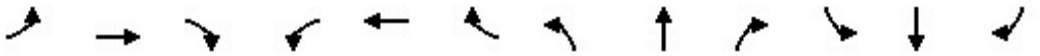
Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1044	406	293	701	144	211	682	251	201	1097	126
Future Volume (vph)	85	1044	406	293	701	144	211	682	251	201	1097	126
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	44.0	44.0	32.0	59.0	59.0	24.0	65.0	65.0	19.0	60.0	60.0
Total Split (%)	10.6%	27.5%	27.5%	20.0%	36.9%	36.9%	15.0%	40.6%	40.6%	11.9%	37.5%	37.5%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.6	38.9	38.9	71.3	52.7	52.7	80.3	57.3	57.3	71.6	52.5	52.5
Actuated g/C Ratio	0.06	0.25	0.25	0.46	0.34	0.34	0.51	0.37	0.37	0.46	0.34	0.34
v/c Ratio	0.45	0.86	0.73	0.91	0.43	0.25	0.80	0.55	0.36	0.62	0.97	0.23
Control Delay	78.6	64.7	30.4	74.6	41.7	6.3	61.0	41.9	5.1	30.9	71.3	8.3
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	78.6	64.7	30.4	74.6	41.7	6.3	61.0	41.9	5.1	30.9	71.3	8.3
LOS	E	E	C	E	D	A	E	D	A	C	E	A
Approach Delay		56.4			45.6			37.4			60.0	
Approach LOS		E			D			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 156.6	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 50.9	Intersection LOS: D
Intersection Capacity Utilization 97.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W

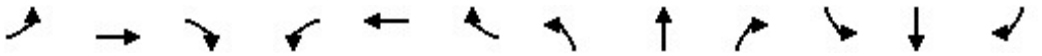




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	89	1099	427	308	738	152	222	718	264	212	1155	133
v/c Ratio	0.45	0.86	0.73	0.91	0.43	0.25	0.80	0.55	0.36	0.62	0.97	0.23
Control Delay	78.6	64.7	30.4	74.6	41.7	6.3	61.0	41.9	5.1	30.9	71.3	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.6	64.7	30.4	74.6	41.7	6.3	61.0	41.9	5.1	30.9	71.3	8.3
Queue Length 50th (m)	14.3	126.2	54.5	78.5	66.5	0.0	51.4	96.3	0.0	37.2	192.8	2.2
Queue Length 95th (m)	23.8	#151.4	97.4	#126.2	81.0	16.0	#87.6	117.0	19.0	54.5	#241.5	17.6
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	248	1277	586	376	1712	619	296	1303	738	358	1188	584
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.86	0.73	0.82	0.43	0.25	0.75	0.55	0.36	0.59	0.97	0.23

Intersection Summary

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



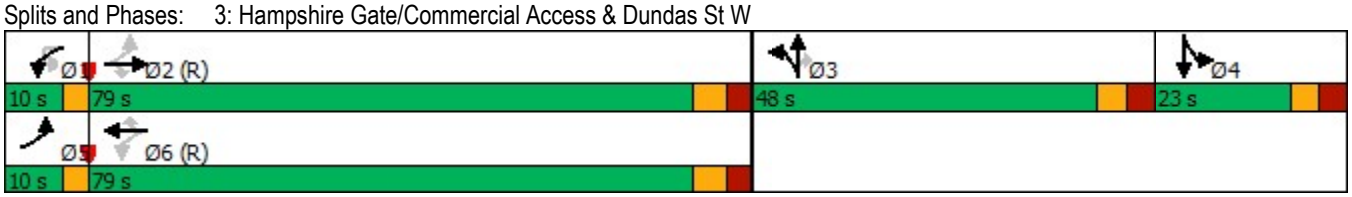
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1044	406	293	701	144	211	682	251	201	1097	126
Future Volume (vph)	85	1044	406	293	701	144	211	682	251	201	1097	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	3544	1555	1722	3544	1498
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.07	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	178	5092	1541	133	3544	1555	501	3544	1498
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	1099	427	308	738	152	222	718	264	212	1155	133
RTOR Reduction (vph)	0	0	189	0	0	101	0	0	167	0	0	82
Lane Group Flow (vph)	89	1099	238	308	738	51	222	718	97	212	1155	51
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	6%	3%	9%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.6	38.9	38.9	67.3	52.7	52.7	74.9	57.3	57.3	67.2	52.6	52.6
Effective Green, g (s)	9.6	38.9	38.9	67.3	52.7	52.7	75.9	57.3	57.3	67.2	52.6	52.6
Actuated g/C Ratio	0.06	0.25	0.25	0.43	0.34	0.34	0.48	0.37	0.37	0.43	0.34	0.34
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	1276	397	334	1712	518	274	1295	568	328	1189	502
v/s Ratio Prot	0.03	0.21		c0.15	0.14		c0.10	0.20		0.06	c0.33	
v/s Ratio Perm			0.15	c0.25		0.03	0.29		0.06	0.22		0.03
v/c Ratio	0.45	0.86	0.60	0.92	0.43	0.10	0.81	0.55	0.17	0.65	0.97	0.10
Uniform Delay, d1	71.0	56.3	52.0	48.0	40.4	35.7	46.3	39.5	33.6	30.1	51.3	35.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	7.8	6.5	30.0	0.8	0.4	16.4	0.5	0.1	4.3	19.5	0.1
Delay (s)	72.6	64.1	58.5	78.0	41.2	36.1	62.6	40.1	33.8	34.4	70.8	35.9
Level of Service	E	E	E	E	D	D	E	D	C	C	E	D
Approach Delay (s)		63.1			50.0			42.8			62.6	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	55.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	156.7	Sum of lost time (s)	22.5
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	1567	159	1	124	822	27	72	16	68	17	4
Future Volume (vph)	32	1567	159	1	124	822	27	72	16	68	17	4
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	115.7	104.7	104.7		128.7	116.7	116.7	11.1	11.1	11.1	10.0	10.0
Actuated g/C Ratio	0.72	0.65	0.65		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.08	0.51	0.16		0.43	0.25	0.03	0.41	0.41	0.37	0.18	0.08
Control Delay	5.5	16.2	2.1		11.2	8.5	0.0	81.7	81.3	11.6	75.3	50.0
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	5.5	16.2	2.1		11.2	8.5	0.0	81.7	81.3	11.6	75.3	50.0
LOS	A	B	A		B	A	A	F	F	B	E	D
Approach Delay		14.8				8.6			51.0			67.2
Approach LOS		B				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 74.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	1722	175	137	903	30	48	49	75	19	9
v/c Ratio	0.08	0.51	0.16	0.43	0.25	0.03	0.41	0.41	0.37	0.18	0.08
Control Delay	5.5	16.2	2.1	11.2	8.5	0.0	81.7	81.3	11.6	75.3	50.0
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	5.5	16.2	2.1	11.2	8.5	0.0	81.7	81.3	11.6	75.3	50.0
Queue Length 50th (m)	2.3	109.1	0.0	9.7	38.3	0.0	15.7	16.1	0.0	5.8	1.2
Queue Length 95th (m)	5.6	135.1	10.1	23.3	48.7	0.0	30.3	30.9	10.3	15.0	7.4
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	461	3364	1097	315	3677	1170	431	444	489	172	180
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	0.08	0.51	0.16	0.43	0.25	0.03	0.11	0.11	0.15	0.11	0.05

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	1567	159	1	124	822	27	72	16	68	17	4
Future Volume (vph)	32	1567	159	1	124	822	27	72	16	68	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1736	1633	1722	1761
Flt Permitted	0.30	1.00	1.00		0.09	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	566	5142	1585		178	5043	1570	1683	1736	1633	1722	1761
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	35	1722	175	1	136	903	30	79	18	75	19	4
RTOR Reduction (vph)	0	0	64	0	0	0	9	0	0	70	0	5
Lane Group Flow (vph)	35	1722	111	0	137	903	21	48	49	5	19	4
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	107.5	101.9	101.9		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Effective Green, g (s)	107.5	101.9	101.9		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Actuated g/C Ratio	0.67	0.64	0.64		0.76	0.71	0.71	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	422	3274	1009		306	3571	1111	116	120	113	64	66
v/s Ratio Prot	0.00	c0.33			c0.05	0.18		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.05		0.07		0.29		0.01			0.00		
v/c Ratio	0.08	0.53	0.11		0.45	0.25	0.02	0.41	0.41	0.05	0.30	0.06
Uniform Delay, d1	8.8	15.9	11.3		10.3	8.3	6.9	71.3	71.3	69.5	74.9	74.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.6	0.2		1.0	0.2	0.0	2.4	2.3	0.2	2.6	0.4
Delay (s)	8.9	16.5	11.6		11.4	8.5	6.9	73.7	73.6	69.7	77.5	74.7
Level of Service	A	B	B		B	A	A	E	E	E	E	E
Approach Delay (s)		15.9				8.8			71.9			76.6
Approach LOS		B				A			E			E

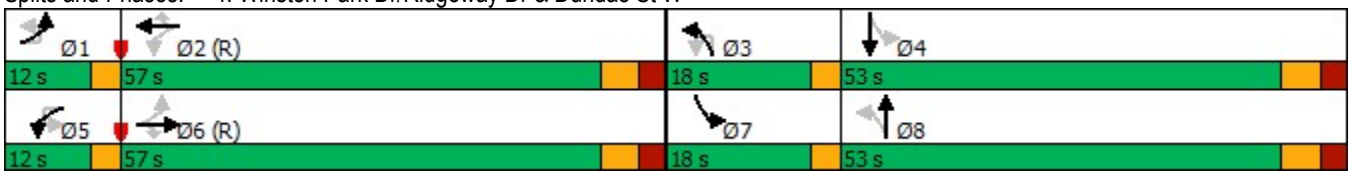
Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	11	222	1396	380	2	59	576	230	1	113	203	270
Future Volume (vph)	11	222	1396	380	2	59	576	230	1	113	203	270
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	57.0	57.0	12.0	12.0	57.0	57.0	18.0	18.0	53.0	18.0
Total Split (%)	8.6%	8.6%	40.7%	40.7%	8.6%	8.6%	40.7%	40.7%	12.9%	12.9%	37.9%	12.9%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		83.9	70.7	70.7		74.7	62.4	62.4		44.9	28.1	48.6
Actuated g/C Ratio		0.60	0.50	0.50		0.53	0.45	0.45		0.32	0.20	0.35
v/c Ratio		0.49	0.58	0.45		0.34	0.28	0.30		0.55	0.36	0.71
Control Delay		17.9	27.4	10.7		18.9	26.7	4.4		39.1	45.7	44.7
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		17.9	27.4	10.7		18.9	26.7	4.4		39.1	45.7	44.7
LOS		B	C	B		B	C	A		D	D	D
Approach Delay			23.1				20.2				43.6	
Approach LOS			C				C				D	

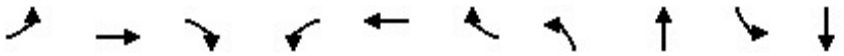
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 33 (24%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 30.6	Intersection LOS: C
Intersection Capacity Utilization 74.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	497
Future Volume (vph)	497
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	37.9%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	30.3
Actuated g/C Ratio	0.22
v/c Ratio	0.79
Control Delay	58.3
Queue Delay	0.0
Total Delay	58.3
LOS	E
Approach Delay	53.9
Approach LOS	D

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	253	1517	413	66	626	250	124	256	293	605
v/c Ratio	0.49	0.58	0.45	0.34	0.28	0.30	0.55	0.36	0.71	0.79
Control Delay	17.9	27.4	10.7	18.9	26.7	4.4	39.1	45.7	44.7	58.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	27.4	10.7	18.9	26.7	4.4	39.1	45.7	44.7	58.3
Queue Length 50th (m)	31.6	108.8	23.5	7.4	40.1	0.0	23.7	30.5	62.0	82.7
Queue Length 95th (m)	54.0	145.4	58.9	16.3	57.4	17.8	35.1	40.2	79.8	97.4
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	515	2595	915	209	2248	838	251	1158	414	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.58	0.45	0.32	0.28	0.30	0.49	0.22	0.71	0.52

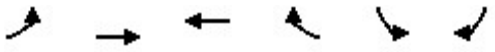
Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	11	222	1396	380	2	59	576	230	1	113	203	32
Future Volume (vph)	11	222	1396	380	2	59	576	230	1	113	203	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1679	5043	1570		1603	3500	
Flt Permitted		0.36	1.00	1.00		0.12	1.00	1.00		0.21	1.00	
Satd. Flow (perm)		669	5142	1555		206	5043	1570		349	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	241	1517	413	2	64	626	250	1	123	221	35
RTOR Reduction (vph)	0	0	0	132	0	0	0	139	0	0	10	0
Lane Group Flow (vph)	0	253	1517	281	0	66	626	111	0	124	246	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	4%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		79.9	70.0	70.0		69.3	62.4	62.4		40.9	28.1	
Effective Green, g (s)		79.9	70.0	70.0		69.3	62.4	62.4		40.9	28.1	
Actuated g/C Ratio		0.57	0.50	0.50		0.49	0.45	0.45		0.29	0.20	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		496	2571	777		174	2247	699		216	702	
v/s Ratio Prot		c0.05	c0.30			0.02	0.12			0.05	0.07	
v/s Ratio Perm		0.24		0.18		0.17		0.07		0.12		
v/c Ratio		0.51	0.59	0.36		0.38	0.28	0.16		0.57	0.35	
Uniform Delay, d1		15.3	24.8	21.4		19.9	24.6	23.2		38.9	48.1	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9	1.0	1.3		1.4	0.3	0.5		3.7	0.3	
Delay (s)		16.2	25.8	22.7		21.3	24.9	23.6		42.6	48.4	
Level of Service		B	C	C		C	C	C		D	D	
Approach Delay (s)			24.1				24.3				46.5	
Approach LOS			C				C				D	

Intersection Summary			
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	270	497	60
Future Volume (vph)	270	497	60
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.51	1.00	
Satd. Flow (perm)	942	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	293	540	65
RTOR Reduction (vph)	0	8	0
Lane Group Flow (vph)	293	597	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	45.3	30.3	
Effective Green, g (s)	45.3	30.3	
Actuated g/C Ratio	0.32	0.22	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	391	763	
v/s Ratio Prot	c0.08	c0.17	
v/s Ratio Perm	0.16		
v/c Ratio	0.75	0.78	
Uniform Delay, d1	39.6	51.7	
Progression Factor	1.00	1.00	
Incremental Delay, d2	7.7	5.3	
Delay (s)	47.3	57.0	
Level of Service	D	E	
Approach Delay (s)		53.8	
Approach LOS		D	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1046	1004	33	0	42
Future Volume (Veh/h)	0	1046	1004	33	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1101	1057	35	0	44
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		173	159			
pX, platoon unblocked	0.89				0.94	0.89
vC, conflicting volume	1092				1442	370
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	679				450	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	811				503	973

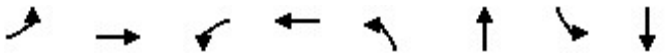
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	367	367	367	423	423	246	44
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	35	44
cSH	1700	1700	1700	1700	1700	1700	973
Volume to Capacity	0.22	0.22	0.22	0.25	0.25	0.14	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	8.9
Lane LOS							A
Approach Delay (s)	0.0			0.0			8.9
Approach LOS							A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	176	96	115	116	1	207	770	109	573
Future Volume (vph)	176	96	115	116	1	207	770	109	573
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	42.0	42.0	42.0	42.0	19.0	19.0	59.0	19.0	59.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	15.8%	15.8%	49.2%	15.8%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	25.7	25.7	25.7	25.7		83.9	70.0	79.3	67.5
Actuated g/C Ratio	0.21	0.21	0.21	0.21		0.70	0.58	0.66	0.56
v/c Ratio	0.86	0.37	0.62	0.46		0.44	0.45	0.27	0.40
Control Delay	77.9	12.7	54.7	37.9		9.8	16.1	8.6	16.4
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	77.9	12.7	54.7	37.9		9.8	16.1	8.6	16.4
LOS	E	B	D	D		A	B	A	B
Approach Delay		36.4		44.5			14.9		15.4
Approach LOS		D		D			B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 19 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 22.1	Intersection LOS: C
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	185	324	121	187	219	920	115	788
v/c Ratio	0.86	0.37	0.62	0.46	0.44	0.45	0.27	0.40
Control Delay	77.9	12.7	54.7	37.9	9.8	16.1	8.6	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	12.7	54.7	37.9	9.8	16.1	8.6	16.4
Queue Length 50th (m)	42.0	10.1	25.8	33.5	15.7	60.2	7.7	49.7
Queue Length 95th (m)	63.4	20.0	41.9	49.8	31.7	95.3	17.6	82.5
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	297	1119	271	554	562	2043	535	1952
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	0.62	0.29	0.45	0.34	0.39	0.45	0.21	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	176	96	212	115	116	62	1	207	770	104	109	573
Future Volume (vph)	176	96	212	115	116	62	1	207	770	104	109	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.95		1.00	0.95
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3251		1807	1821			1807	3493		1825	3435
Flt Permitted	0.53	1.00		0.48	1.00			0.29	1.00		0.27	1.00
Satd. Flow (perm)	1007	3251		919	1821			561	3493		512	3435
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	101	223	121	122	65	1	218	811	109	115	603
RTOR Reduction (vph)	0	175	0	0	18	0	0	0	7	0	0	19
Lane Group Flow (vph)	185	149	0	121	169	0	0	219	913	0	115	769
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	25.7	25.7		25.7	25.7			80.7	70.0		75.9	67.6
Effective Green, g (s)	25.7	25.7		25.7	25.7			80.7	70.0		75.9	67.6
Actuated g/C Ratio	0.21	0.21		0.21	0.21			0.67	0.58		0.63	0.56
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	215	696		196	389			488	2037		414	1935
v/s Ratio Prot		0.05			0.09			c0.04	0.26		0.02	0.22
v/s Ratio Perm	c0.18			0.13				c0.26			0.16	
v/c Ratio	0.86	0.21		0.62	0.43			0.45	0.45		0.28	0.40
Uniform Delay, d1	45.4	38.8		42.7	40.9			8.2	14.1		9.1	14.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	27.8	0.2		5.7	0.8			0.7	0.7		0.4	0.6
Delay (s)	73.2	39.0		48.4	41.6			8.8	14.8		9.5	15.4
Level of Service	E	D		D	D			A	B		A	B
Approach Delay (s)		51.4			44.3				13.7			14.6
Approach LOS		D			D				B			B

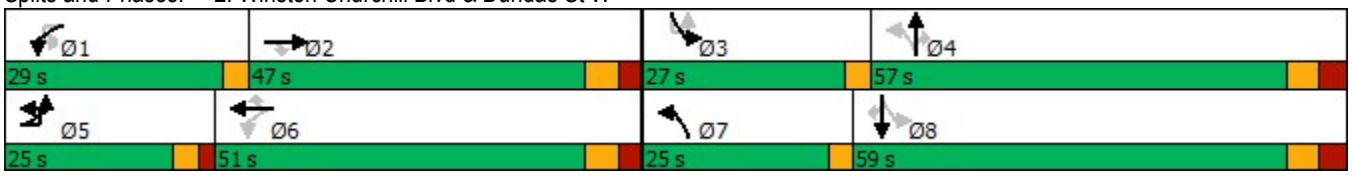
Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	176
Future Volume (vph)	176
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	185
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	285	1159	226	3	310	1110	309	224	665	324	2	260
Future Volume (vph)	285	1159	226	3	310	1110	309	224	665	324	2	260
Turn Type	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt
Protected Phases	5	2			1	6		7	4			3
Permitted Phases			2	1	6		6	4		4	3	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	47.0	47.0	29.0	29.0	51.0	51.0	25.0	57.0	57.0	27.0	27.0
Total Split (%)	15.6%	29.4%	29.4%	18.1%	18.1%	31.9%	31.9%	15.6%	35.6%	35.6%	16.9%	16.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	17.0	40.4	40.4		72.2	46.1	46.1	57.6	35.8	35.8		63.0
Actuated g/C Ratio	0.12	0.29	0.29		0.51	0.33	0.33	0.41	0.25	0.25		0.45
v/c Ratio	0.74	0.82	0.38		0.87	0.69	0.44	0.57	0.77	0.53		0.77
Control Delay	72.0	53.4	6.9		62.2	45.5	8.3	30.5	54.8	8.0		41.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	72.0	53.4	6.9		62.2	45.5	8.3	30.5	54.8	8.0		41.1
LOS	E	D	A		E	D	A	C	D	A		D
Approach Delay		50.4				41.9			37.8			
Approach LOS		D				D			D			

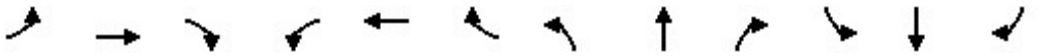
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 140.6	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 43.0	Intersection LOS: D
Intersection Capacity Utilization 93.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	483	194
Future Volume (vph)	483	194
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	37.6	37.6
Actuated g/C Ratio	0.27	0.27
v/c Ratio	0.53	0.39
Control Delay	46.1	16.8
Queue Delay	0.0	0.0
Total Delay	46.1	16.8
LOS	D	B
Approach Delay	38.7	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	309	1220	238	329	1168	325	236	700	341	276	508	204
v/c Ratio	0.74	0.82	0.38	0.87	0.69	0.44	0.57	0.77	0.53	0.77	0.53	0.39
Control Delay	72.0	53.4	6.9	62.2	45.5	8.3	30.5	54.8	8.0	41.1	46.1	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	53.4	6.9	62.2	45.5	8.3	30.5	54.8	8.0	41.1	46.1	16.8
Queue Length 50th (m)	43.5	118.1	0.0	72.1	104.4	5.4	41.8	96.7	2.8	49.5	64.4	14.9
Queue Length 95th (m)	65.6	#165.2	21.5	#146.7	144.5	32.7	60.0	122.7	27.4	74.2	85.0	37.1
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	498	1491	633	394	1701	734	469	1272	774	414	1323	677
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	0.62	0.82	0.38	0.84	0.69	0.44	0.50	0.55	0.44	0.67	0.38	0.30

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	9	285	1159	226	3	310	1110	309	224	665	324	2
Future Volume (vph)	9	285	1159	226	3	310	1110	309	224	665	324	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.95	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	3579	1585	
Flt Permitted		0.95	1.00	1.00		0.09	1.00	1.00	0.35	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		175	5193	1633	669	3579	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	300	1220	238	3	326	1168	325	236	700	341	2
RTOR Reduction (vph)	0	0	0	170	0	0	0	199	0	0	244	0
Lane Group Flow (vph)	0	309	1220	68	0	329	1168	126	236	700	97	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom
Protected Phases	5	5	2			1	6		7	4		
Permitted Phases				2	1	6		6	4		4	3
Actuated Green, G (s)		17.0	40.4	40.4		68.2	46.2	46.2	53.1	35.9	35.9	
Effective Green, g (s)		17.0	40.4	40.4		68.2	46.2	46.2	53.1	35.9	35.9	
Actuated g/C Ratio		0.12	0.29	0.29		0.49	0.33	0.33	0.38	0.26	0.26	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		420	1493	464		373	1707	536	392	914	404	
v/s Ratio Prot		0.09	0.23			c0.16	0.22		0.07	c0.20		
v/s Ratio Perm				0.04		c0.27		0.08	0.15		0.06	
v/c Ratio		0.74	0.82	0.15		0.88	0.68	0.23	0.60	0.77	0.24	
Uniform Delay, d1		59.6	46.6	37.2		41.3	40.8	34.3	31.6	48.4	41.5	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.6	5.1	0.7		20.9	2.2	1.0	2.6	3.9	0.3	
Delay (s)		66.2	51.7	37.9		62.3	43.1	35.3	34.2	52.3	41.8	
Level of Service		E	D	D		E	D	D	C	D	D	
Approach Delay (s)			52.4				45.2			46.1		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.5	Sum of lost time (s)	22.5
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

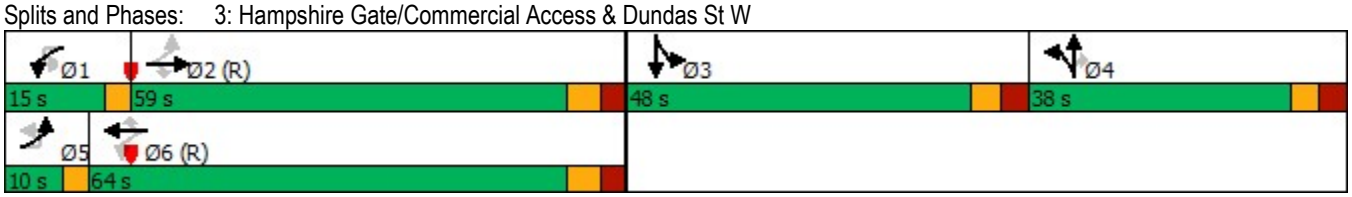
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	260	483	194
Future Volume (vph)	260	483	194
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	3579	1601
Flt Permitted	0.17	1.00	1.00
Satd. Flow (perm)	332	3579	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	274	508	204
RTOR Reduction (vph)	0	0	99
Lane Group Flow (vph)	276	508	105
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	56.5	37.6	37.6
Effective Green, g (s)	58.5	37.6	37.6
Actuated g/C Ratio	0.42	0.27	0.27
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	347	957	428
v/s Ratio Prot	c0.11	0.14	
v/s Ratio Perm	0.22		0.07
v/c Ratio	0.80	0.53	0.25
Uniform Delay, d1	30.8	43.9	40.3
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	11.9	0.6	0.3
Delay (s)	42.7	44.5	40.6
Level of Service	D	D	D
Approach Delay (s)		43.2	
Approach LOS		D	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	90	1255	149	2	140	1234	81	609	86	285	154
Future Volume (vph)	2	90	1255	149	2	140	1234	81	609	86	285	154
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	59.0	59.0	15.0	15.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	36.9%	36.9%	9.4%	9.4%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		66.4	54.4	54.4		73.6	58.6	58.6	49.4	49.4	49.4	19.9
Actuated g/C Ratio		0.42	0.34	0.34		0.46	0.37	0.37	0.31	0.31	0.31	0.12
v/c Ratio		0.60	0.76	0.25		0.79	0.70	0.13	0.70	0.69	0.46	0.73
Control Delay		45.7	35.2	3.6		60.7	45.8	5.2	57.5	56.9	13.4	85.5
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		45.7	35.2	3.6		60.7	45.8	5.2	57.5	56.9	13.4	85.5
LOS		D	D	A		E	D	A	E	E	B	F
Approach Delay			32.7				45.0			44.4		
Approach LOS			C				D			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 41.5	Intersection LOS: D
Intersection Capacity Utilization 79.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	31
Future Volume (vph)	31
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	19.9
Actuated g/C Ratio	0.12
v/c Ratio	0.44
Control Delay	27.3
Queue Delay	0.0
Total Delay	27.3
LOS	C
Approach Delay	60.2
Approach LOS	E

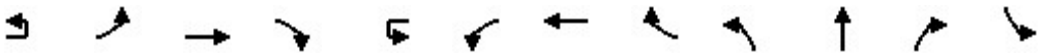
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	98	1335	159	151	1313	86	369	370	303	164	126
v/c Ratio	0.60	0.76	0.25	0.79	0.70	0.13	0.70	0.69	0.46	0.73	0.44
Control Delay	45.7	35.2	3.6	60.7	45.8	5.2	57.5	56.9	13.4	85.5	27.3
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	45.7	35.2	3.6	60.7	45.8	5.2	57.5	56.9	13.4	85.5	27.3
Queue Length 50th (m)	6.8	151.3	13.3	29.4	132.3	0.0	109.1	109.0	16.2	51.1	11.9
Queue Length 95th (m)	m#23.3	169.4	m9.6	#67.2	149.5	9.9	155.1	154.6	45.2	73.6	31.5
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	164	1747	648	196	1882	652	530	539	665	463	500
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	0.60	0.76	0.25	0.77	0.70	0.13	0.70	0.69	0.46	0.35	0.25

Intersection Summary

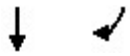
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	90	1255	149	2	140	1234	81	609	86	285	154
Future Volume (vph)	2	90	1255	149	2	140	1234	81	609	86	285	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.10	1.00	1.00		0.07	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		200	5142	1601		141	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	96	1335	159	2	149	1313	86	648	91	303	164
RTOR Reduction (vph)	0	0	0	105	0	0	0	55	0	0	161	0
Lane Group Flow (vph)	0	98	1335	54	0	151	1313	31	369	370	142	164
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		62.5	54.4	54.4		69.7	58.6	58.6	49.4	49.4	49.4	19.9
Effective Green, g (s)		62.5	54.4	54.4		69.7	58.6	58.6	49.4	49.4	49.4	19.9
Actuated g/C Ratio		0.39	0.34	0.34		0.44	0.37	0.37	0.31	0.31	0.31	0.12
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		160	1748	544		189	1883	592	530	539	504	224
v/s Ratio Prot		0.03	0.26			c0.06	0.26		c0.21	0.21		c0.09
v/s Ratio Perm		0.21		0.03		c0.29		0.02			0.09	
v/c Ratio		0.61	0.76	0.10		0.80	0.70	0.05	0.70	0.69	0.28	0.73
Uniform Delay, d1		34.2	47.1	36.1		36.8	43.2	32.8	48.7	48.5	41.9	67.5
Progression Factor		1.24	0.68	0.55		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		5.4	2.6	0.3		20.5	2.2	0.2	4.0	3.6	0.3	11.7
Delay (s)		47.8	34.7	20.1		57.3	45.3	32.9	52.7	52.1	42.2	79.1
Level of Service		D	C	C		E	D	C	D	D	D	E
Approach Delay (s)			34.0				45.8			49.4		
Approach LOS			C				D			D		

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



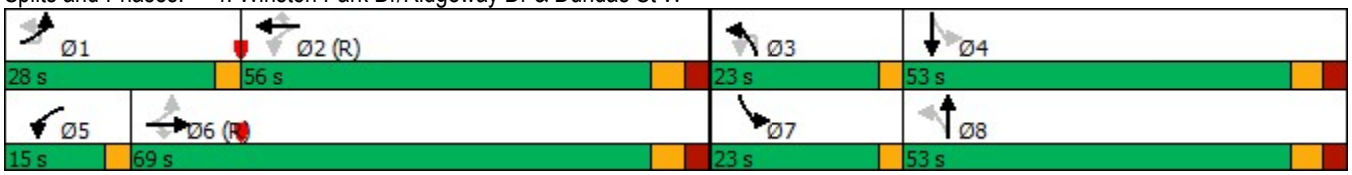
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	31	87
Future Volume (vph)	31	87
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1708	
Flt Permitted	1.00	
Satd. Flow (perm)	1708	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	33	93
RTOR Reduction (vph)	74	0
Lane Group Flow (vph)	52	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	19.9	
Effective Green, g (s)	19.9	
Actuated g/C Ratio	0.12	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	212	
v/s Ratio Prot	0.03	
v/s Ratio Perm		
v/c Ratio	0.24	
Uniform Delay, d1	63.3	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	63.9	
Level of Service	E	
Approach Delay (s)	72.5	
Approach LOS	E	

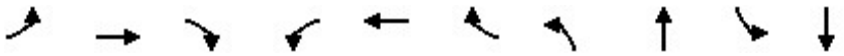
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	287	1247	126	90	1418	464	2	326	688	242	289
Future Volume (vph)	8	287	1247	126	90	1418	464	2	326	688	242	289
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt	NA
Protected Phases		1	6		5	2			3	8	7	4
Permitted Phases	1	6		6	2		2	3	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	28.0	28.0	69.0	69.0	15.0	56.0	56.0	23.0	23.0	53.0	23.0	53.0
Total Split (%)	17.5%	17.5%	43.1%	43.1%	9.4%	35.0%	35.0%	14.4%	14.4%	33.1%	14.4%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		86.8	70.2	70.2	68.1	54.6	54.6		66.6	41.0	67.4	40.2
Actuated g/C Ratio		0.54	0.44	0.44	0.43	0.34	0.34		0.42	0.26	0.42	0.25
v/c Ratio		0.91	0.57	0.18	0.41	0.83	0.64		0.81	0.85	0.82	0.52
Control Delay		76.8	35.9	11.3	35.3	65.8	33.4		49.1	65.6	56.9	45.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		76.8	35.9	11.3	35.3	65.8	33.4		49.1	65.6	56.9	45.1
LOS		E	D	B	D	E	C		D	E	E	D
Approach Delay			41.3			56.8				60.6		49.2
Approach LOS			D			E				E		D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 137 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 51.8	Intersection LOS: D
Intersection Capacity Utilization 96.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	304	1286	130	93	1462	478	338	782	249	467
v/c Ratio	0.91	0.57	0.18	0.41	0.83	0.64	0.81	0.85	0.82	0.52
Control Delay	76.8	35.9	11.3	35.3	65.8	33.4	49.1	65.6	56.9	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	35.9	11.3	35.3	65.8	33.4	49.1	65.6	56.9	45.1
Queue Length 50th (m)	77.5	112.8	7.4	15.0	157.5	67.2	74.3	123.8	53.3	57.2
Queue Length 95th (m)	#137.9	137.9	22.6	m23.2	174.7	105.4	96.5	143.3	#89.1	72.2
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	345	2257	708	252	1771	749	415	1029	313	1013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.57	0.18	0.37	0.83	0.64	0.81	0.76	0.80	0.46

Intersection Summary

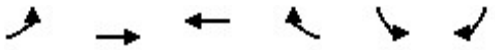
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	287	1247	126	90	1418	464	2	326	688	71	242
Future Volume (vph)	8	287	1247	126	90	1418	464	2	326	688	71	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3563		1789
Flt Permitted		0.07	1.00	1.00	0.17	1.00	1.00		0.34	1.00		0.12
Satd. Flow (perm)		132	5142	1498	322	5193	1617		635	3563		234
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	296	1286	130	93	1462	478	2	336	709	73	249
RTOR Reduction (vph)	0	0	0	50	0	0	198	0	0	5	0	0
Lane Group Flow (vph)	0	304	1286	80	93	1462	280	0	338	777	0	249
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA		pm+pt
Protected Phases		1	6		5	2			3	8		7
Permitted Phases	1	6		6	2		2	3	8			4
Actuated Green, G (s)		82.8	70.3	70.3	64.1	54.6	54.6		61.0	41.0		59.4
Effective Green, g (s)		82.8	70.3	70.3	64.1	54.6	54.6		63.0	41.0		63.4
Actuated g/C Ratio		0.52	0.44	0.44	0.40	0.34	0.34		0.39	0.26		0.40
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		332	2259	658	217	1772	551		401	913		298
v/s Ratio Prot		c0.14	0.25		0.03	0.28			c0.11	c0.22		0.11
v/s Ratio Perm		c0.33		0.05	0.15		0.17		0.22			0.22
v/c Ratio		0.92	0.57	0.12	0.43	0.83	0.51		0.84	0.85		0.84
Uniform Delay, d1		51.0	33.5	26.6	30.6	48.3	42.0		38.0	56.6		39.4
Progression Factor		1.00	1.00	1.00	1.50	1.27	1.80		1.00	1.00		1.00
Incremental Delay, d2		28.7	1.0	0.4	1.0	3.4	2.4		14.8	7.7		18.0
Delay (s)		79.7	34.6	26.9	46.9	64.5	78.2		52.8	64.3		57.4
Level of Service		E	C	C	D	E	E		D	E		E
Approach Delay (s)			42.0			66.9				60.8		
Approach LOS			D			E				E		

Intersection Summary			
HCM 2000 Control Delay	56.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	289	164
Future Volume (vph)	289	164
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3354	
Flt Permitted	1.00	
Satd. Flow (perm)	3354	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	298	169
RTOR Reduction (vph)	52	0
Lane Group Flow (vph)	415	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	40.2	
Effective Green, g (s)	40.2	
Actuated g/C Ratio	0.25	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	842	
v/s Ratio Prot	0.12	
v/s Ratio Perm		
v/c Ratio	0.49	
Uniform Delay, d1	51.2	
Progression Factor	1.00	
Incremental Delay, d2	0.5	
Delay (s)	51.7	
Level of Service	D	
Approach Delay (s)	53.7	
Approach LOS	D	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1164	1491	47	0	33
Future Volume (Veh/h)	0	1164	1491	47	0	33
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1225	1569	49	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		173	159			
pX, platoon unblocked	0.81				0.90	0.81
vC, conflicting volume	1618				2002	548
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	929				313	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	591				591	881

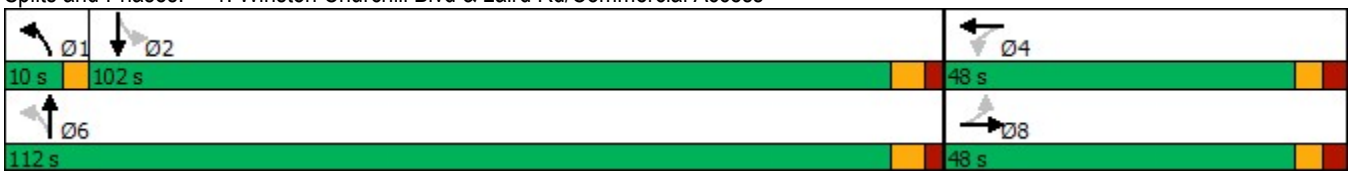
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	408	408	408	628	628	363	35
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	49	35
cSH	1700	1700	1700	1700	1700	1700	881
Volume to Capacity	0.24	0.24	0.24	0.37	0.37	0.21	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.3
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.3
Approach LOS							A

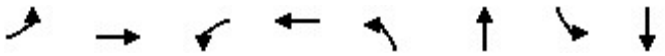
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	56	21	39	20	169	760	57	1315
Future Volume (vph)	56	21	39	20	169	760	57	1315
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		8		4	1	6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	1	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.0	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	10.0	112.0	102.0	102.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	6.3%	70.0%	63.8%	63.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	3.0	6.5	6.5	6.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	11.6	11.6	11.6	11.6	109.0	105.5	95.5	95.5
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.84	0.81	0.73	0.73
v/c Ratio	0.46	0.53	0.41	0.18	0.55	0.21	0.13	0.40
Control Delay	68.6	27.6	68.5	43.0	9.0	2.9	6.2	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	27.6	68.5	43.0	9.0	2.9	6.2	6.9
LOS	E	C	E	D	A	A	A	A
Approach Delay		36.7		57.6		3.9		6.9
Approach LOS		D		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 130.1	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	

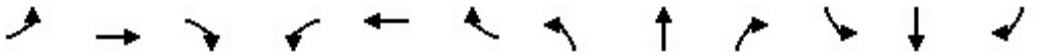
Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	201	40	30	172	854	58	1485
v/c Ratio	0.46	0.53	0.41	0.18	0.55	0.21	0.13	0.40
Control Delay	68.6	27.6	68.5	43.0	9.0	2.9	6.2	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	27.6	68.5	43.0	9.0	2.9	6.2	6.9
Queue Length 50th (m)	14.1	9.8	9.9	4.8	5.7	13.6	3.8	44.4
Queue Length 95th (m)	28.1	22.0	21.9	14.5	11.8	20.6	9.2	59.4
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	443	1036	353	566	311	4050	450	3669
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	0.13	0.19	0.11	0.05	0.55	0.21	0.13	0.40

Intersection Summary



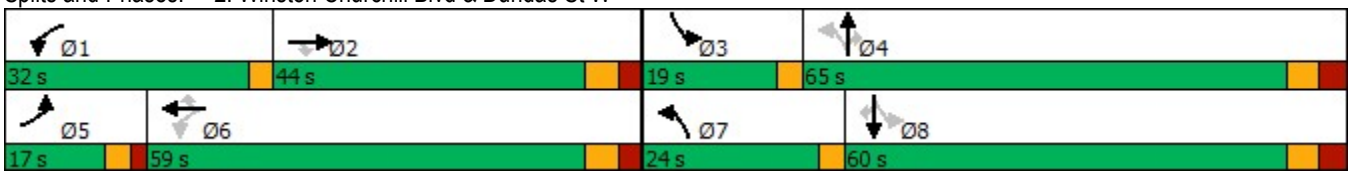
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	21	176	39	20	10	169	760	76	57	1315	140
Future Volume (vph)	56	21	176	39	20	10	169	760	76	57	1315	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		3.0	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	2984		1825	1755		1789	4991		1825	4989	
Flt Permitted	0.74	1.00		0.58	1.00		0.15	1.00		0.32	1.00	
Satd. Flow (perm)	1389	2984		1109	1755		274	4991		613	4989	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	57	21	180	40	20	10	172	776	78	58	1342	143
RTOR Reduction (vph)	0	113	0	0	9	0	0	4	0	0	5	0
Lane Group Flow (vph)	57	88	0	40	21	0	172	850	0	58	1480	0
Heavy Vehicles (%)	2%	5%	6%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	11.6	11.6		11.6	11.6		105.5	105.5		95.5	95.5	
Effective Green, g (s)	11.6	11.6		11.6	11.6		105.5	105.5		95.5	95.5	
Actuated g/C Ratio	0.09	0.09		0.09	0.09		0.81	0.81		0.73	0.73	
Clearance Time (s)	6.5	6.5		6.5	6.5		3.0	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	123	266		98	156		303	4047		449	3662	
v/s Ratio Prot		0.03			0.01		c0.03	0.17			0.30	
v/s Ratio Perm	c0.04			0.04			c0.43			0.09		
v/c Ratio	0.46	0.33		0.41	0.13		0.57	0.21		0.13	0.40	
Uniform Delay, d1	56.3	55.6		56.0	54.6		3.7	2.8		5.1	6.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.7		2.8	0.4		2.4	0.1		0.6	0.3	
Delay (s)	59.0	56.3		58.8	55.0		6.1	2.9		5.7	6.9	
Level of Service	E	E		E	E		A	A		A	A	
Approach Delay (s)		56.9			57.2			3.5			6.8	
Approach LOS		E			E			A			A	

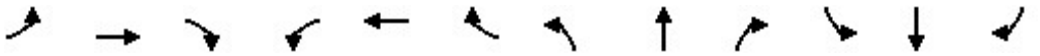
Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	130.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1103	429	302	722	148	234	760	280	224	1235	140
Future Volume (vph)	90	1103	429	302	722	148	234	760	280	224	1235	140
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	44.0	44.0	32.0	59.0	59.0	24.0	65.0	65.0	19.0	60.0	60.0
Total Split (%)	10.6%	27.5%	27.5%	20.0%	36.9%	36.9%	15.0%	40.6%	40.6%	11.9%	37.5%	37.5%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.7	39.1	39.1	71.5	52.8	52.8	75.9	52.3	52.3	67.0	47.4	47.4
Actuated g/C Ratio	0.06	0.26	0.26	0.47	0.35	0.35	0.50	0.34	0.34	0.44	0.31	0.31
v/c Ratio	0.46	0.88	0.76	0.91	0.43	0.25	0.84	0.46	0.41	0.68	0.82	0.27
Control Delay	77.7	64.2	33.8	73.6	40.3	6.2	64.4	39.9	5.2	34.3	53.6	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.7	64.2	33.8	73.6	40.3	6.2	64.4	39.9	5.2	34.3	53.6	10.4
LOS	E	E	C	E	D	A	E	D	A	C	D	B
Approach Delay		56.9			44.5			36.8			47.1	
Approach LOS		E			D			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 152.4	
Natural Cycle: 125	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 47.1	Intersection LOS: D
Intersection Capacity Utilization 93.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W

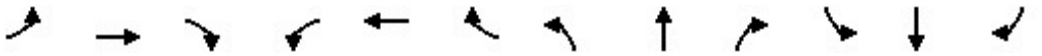




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	95	1161	452	318	760	156	246	800	295	236	1300	147
v/c Ratio	0.46	0.88	0.76	0.91	0.43	0.25	0.84	0.46	0.41	0.68	0.82	0.27
Control Delay	77.7	64.2	33.8	73.6	40.3	6.2	64.4	39.9	5.2	34.3	53.6	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.7	64.2	33.8	73.6	40.3	6.2	64.4	39.9	5.2	34.3	53.6	10.4
Queue Length 50th (m)	15.2	134.1	65.5	81.2	68.2	0.0	57.9	70.8	0.0	42.2	137.0	5.2
Queue Length 95th (m)	25.0	#166.4	112.1	#132.9	83.7	16.3	#102.4	83.6	19.8	60.6	154.9	22.0
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	256	1318	594	387	1762	635	306	1929	772	358	1761	598
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	0.37	0.88	0.76	0.82	0.43	0.25	0.80	0.41	0.38	0.66	0.74	0.25

Intersection Summary

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



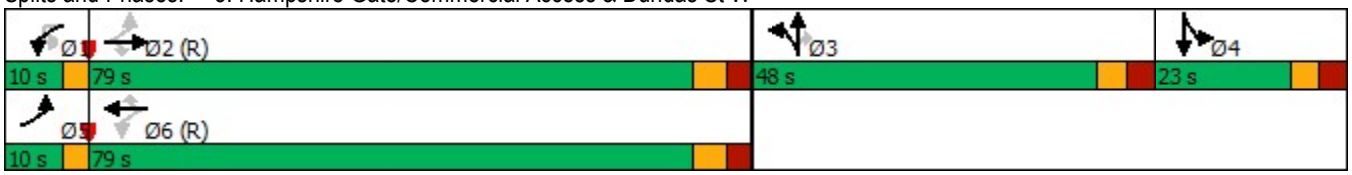
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1103	429	302	722	148	234	760	280	224	1235	140
Future Volume (vph)	90	1103	429	302	722	148	234	760	280	224	1235	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	5092	1555	1722	5092	1498
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.08	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	177	5092	1541	146	5092	1555	519	5092	1498
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	1161	452	318	760	156	246	800	295	236	1300	147
RTOR Reduction (vph)	0	0	184	0	0	102	0	0	194	0	0	85
Lane Group Flow (vph)	95	1161	268	318	760	54	246	800	101	236	1300	62
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	6%	3%	9%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.7	39.1	39.1	67.5	52.8	52.8	70.4	52.3	52.3	62.6	47.5	47.5
Effective Green, g (s)	9.7	39.1	39.1	67.5	52.8	52.8	71.4	52.3	52.3	62.6	47.5	47.5
Actuated g/C Ratio	0.06	0.26	0.26	0.44	0.35	0.35	0.47	0.34	0.34	0.41	0.31	0.31
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	206	1319	410	344	1764	533	289	1747	533	332	1587	466
v/s Ratio Prot	0.03	0.23		c0.15	0.15		c0.12	0.16		0.07	c0.26	
v/s Ratio Perm			0.17	c0.25		0.04	0.28		0.07	0.22		0.04
v/c Ratio	0.46	0.88	0.65	0.92	0.43	0.10	0.85	0.46	0.19	0.71	0.82	0.13
Uniform Delay, d1	68.8	54.4	50.6	46.7	38.3	33.7	44.5	39.0	35.2	30.9	48.5	37.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	8.6	7.9	29.8	0.8	0.4	20.7	0.2	0.2	7.0	3.4	0.1
Delay (s)	70.5	63.0	58.5	76.5	39.0	34.1	65.2	39.2	35.3	37.9	51.9	37.8
Level of Service	E	E	E	E	D	C	E	D	D	D	D	D
Approach Delay (s)		62.3			48.0			43.1			48.7	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	152.4	Sum of lost time (s)	22.5
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	34	1655	168	1	127	846	28	80	18	76	19	5
Future Volume (vph)	34	1655	168	1	127	846	28	80	18	76	19	5
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	114.5	103.4	103.4		128.3	116.2	116.2	11.5	11.5	11.5	10.0	10.0
Actuated g/C Ratio	0.72	0.65	0.65		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.08	0.55	0.17		0.46	0.25	0.03	0.45	0.44	0.41	0.20	0.10
Control Delay	5.8	17.5	2.3		16.2	8.7	0.0	82.6	81.6	15.2	75.8	48.2
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	5.8	17.5	2.3		16.2	8.7	0.0	82.6	81.6	15.2	75.8	48.2
LOS	A	B	A		B	A	A	F	F	B	E	D
Approach Delay		15.9				9.5			52.8			65.8
Approach LOS		B				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 16.4	Intersection LOS: B
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	37	1819	185	141	930	31	54	54	84	21	12
v/c Ratio	0.08	0.55	0.17	0.46	0.25	0.03	0.45	0.44	0.41	0.20	0.10
Control Delay	5.8	17.5	2.3	16.2	8.7	0.0	82.6	81.6	15.2	75.8	48.2
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	5.8	17.5	2.3	16.2	8.7	0.0	82.6	81.6	15.2	75.8	48.2
Queue Length 50th (m)	2.5	121.0	0.3	10.2	40.1	0.0	17.7	17.7	0.0	6.5	1.5
Queue Length 95th (m)	6.0	149.5	10.9	31.8	51.3	0.0	32.8	32.8	13.6	16.0	8.7
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	447	3323	1089	305	3663	1166	431	444	489	172	181
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	0.08	0.55	0.17	0.46	0.25	0.03	0.13	0.12	0.17	0.12	0.07

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	34	1655	168	1	127	846	28	80	18	76	19	5
Future Volume (vph)	34	1655	168	1	127	846	28	80	18	76	19	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1737	1633	1722	1753
Flt Permitted	0.30	1.00	1.00		0.08	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	550	5142	1585		152	5043	1570	1683	1737	1633	1722	1753
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	37	1819	185	1	140	930	31	88	20	84	21	5
RTOR Reduction (vph)	0	0	68	0	0	0	9	0	0	78	0	7
Lane Group Flow (vph)	37	1819	117	0	141	930	22	54	54	6	21	5
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	106.3	100.6	100.6		121.5	112.8	112.8	11.5	11.5	11.5	6.0	6.0
Effective Green, g (s)	106.3	100.6	100.6		121.5	112.8	112.8	11.5	11.5	11.5	6.0	6.0
Actuated g/C Ratio	0.66	0.63	0.63		0.76	0.70	0.70	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	408	3233	996		298	3555	1106	120	124	117	64	65
v/s Ratio Prot	0.00	c0.35			c0.05	0.18		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.06		0.07		0.31		0.01			0.00		
v/c Ratio	0.09	0.56	0.12		0.47	0.26	0.02	0.45	0.44	0.05	0.33	0.08
Uniform Delay, d1	9.2	17.1	11.9		13.5	8.5	7.1	71.2	71.1	69.2	75.0	74.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7	0.2		1.2	0.2	0.0	2.7	2.4	0.2	3.0	0.5
Delay (s)	9.3	17.8	12.1		14.7	8.7	7.1	73.9	73.6	69.4	78.0	74.9
Level of Service	A	B	B		B	A	A	E	E	E	E	E
Approach Delay (s)		17.1				9.4			71.8			76.9
Approach LOS		B				A			E			E

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

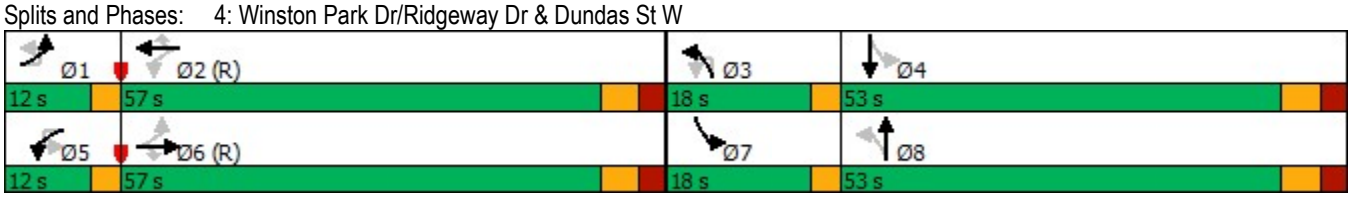
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	12	234	1475	401	2	61	593	236	1	126	226	303
Future Volume (vph)	12	234	1475	401	2	61	593	236	1	126	226	303
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	57.0	57.0	12.0	12.0	57.0	57.0	18.0	18.0	53.0	18.0
Total Split (%)	8.6%	8.6%	40.7%	40.7%	8.6%	8.6%	40.7%	40.7%	12.9%	12.9%	37.9%	12.9%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		80.1	66.7	66.7		70.9	58.5	58.5		49.0	31.9	52.2
Actuated g/C Ratio		0.57	0.48	0.48		0.51	0.42	0.42		0.35	0.23	0.37
v/c Ratio		0.55	0.65	0.50		0.39	0.31	0.32		0.61	0.35	0.76
Control Delay		21.4	31.5	13.0		22.7	29.1	4.6		39.5	43.2	45.5
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		21.4	31.5	13.0		22.7	29.1	4.6		39.5	43.2	45.5
LOS		C	C	B		C	C	A		D	D	D
Approach Delay			26.8				22.2				42.0	
Approach LOS			C				C				D	

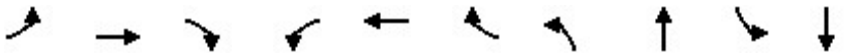
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	559
Future Volume (vph)	559
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	37.9%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	33.7
Actuated g/C Ratio	0.24
v/c Ratio	0.80
Control Delay	56.3
Queue Delay	0.0
Total Delay	56.3
LOS	E
Approach Delay	52.7
Approach LOS	D

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	267	1603	436	68	645	257	138	285	329	681
v/c Ratio	0.55	0.65	0.50	0.39	0.31	0.32	0.61	0.35	0.76	0.80
Control Delay	21.4	31.5	13.0	22.7	29.1	4.6	39.5	43.2	45.5	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	31.5	13.0	22.7	29.1	4.6	39.5	43.2	45.5	56.3
Queue Length 50th (m)	36.5	125.8	30.7	8.2	44.8	0.0	25.2	33.2	67.6	92.4
Queue Length 95th (m)	60.8	165.3	70.3	17.7	59.1	18.0	36.6	42.7	85.9	106.8
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	484	2451	879	185	2107	805	247	1158	432	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.65	0.50	0.37	0.31	0.32	0.56	0.25	0.76	0.58

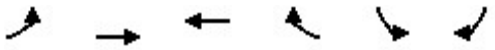
Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	12	234	1475	401	2	61	593	236	1	126	226	36
Future Volume (vph)	12	234	1475	401	2	61	593	236	1	126	226	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1678	5043	1570		1602	3500	
Flt Permitted		0.34	1.00	1.00		0.09	1.00	1.00		0.18	1.00	
Satd. Flow (perm)		639	5142	1555		164	5043	1570		296	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	254	1603	436	2	66	645	257	1	137	246	39
RTOR Reduction (vph)	0	0	0	139	0	0	0	150	0	0	10	0
Lane Group Flow (vph)	0	267	1603	297	0	68	645	107	0	138	275	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	4%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		76.1	66.1	66.1		65.5	58.5	58.5		45.1	31.9	
Effective Green, g (s)		76.1	66.1	66.1		65.5	58.5	58.5		45.1	31.9	
Actuated g/C Ratio		0.54	0.47	0.47		0.47	0.42	0.42		0.32	0.23	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		465	2427	734		152	2107	656		218	797	
v/s Ratio Prot		c0.06	c0.31			0.02	0.13			0.06	0.08	
v/s Ratio Perm		0.25		0.19		0.19		0.07		0.14		
v/c Ratio		0.57	0.66	0.40		0.45	0.31	0.16		0.63	0.34	
Uniform Delay, d1		17.6	28.3	24.1		22.8	27.2	25.5		36.6	45.3	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	1.4	1.7		2.1	0.4	0.5		5.9	0.3	
Delay (s)		19.3	29.8	25.8		24.9	27.6	26.0		42.5	45.6	
Level of Service		B	C	C		C	C	C		D	D	
Approach Delay (s)			27.8				27.0				44.6	
Approach LOS			C				C				D	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	303	559	67
Future Volume (vph)	303	559	67
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.50	1.00	
Satd. Flow (perm)	920	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	329	608	73
RTOR Reduction (vph)	0	8	0
Lane Group Flow (vph)	329	673	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	48.7	33.7	
Effective Green, g (s)	48.7	33.7	
Actuated g/C Ratio	0.35	0.24	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	409	848	
v/s Ratio Prot	c0.09	0.19	
v/s Ratio Perm	c0.19		
v/c Ratio	0.80	0.79	
Uniform Delay, d1	38.5	49.9	
Progression Factor	1.00	1.00	
Incremental Delay, d2	10.9	5.2	
Delay (s)	49.5	55.1	
Level of Service	D	E	
Approach Delay (s)		53.2	
Approach LOS		D	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1105	1062	33	0	42
Future Volume (Veh/h)	0	1105	1062	33	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1163	1118	35	0	44
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		173	159			
pX, platoon unblocked	0.89				0.92	0.89
vC, conflicting volume	1153				1523	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	739				446	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	768				497	971

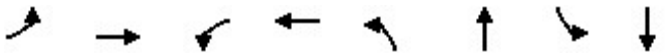
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	388	388	388	447	447	259	44
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	35	44
cSH	1700	1700	1700	1700	1700	1700	971
Volume to Capacity	0.23	0.23	0.23	0.26	0.26	0.15	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	8.9
Lane LOS							A
Approach Delay (s)	0.0			0.0			8.9
Approach LOS							A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	185	101	118	120	1	231	858	122	637
Future Volume (vph)	185	101	118	120	1	231	858	122	637
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	42.0	42.0	42.0	42.0	19.0	19.0	59.0	19.0	59.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	15.8%	15.8%	49.2%	15.8%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	26.7	26.7	26.7	26.7		83.1	68.6	77.9	65.8
Actuated g/C Ratio	0.22	0.22	0.22	0.22		0.69	0.57	0.65	0.55
v/c Ratio	0.88	0.38	0.63	0.46		0.50	0.36	0.31	0.32
Control Delay	79.9	12.4	54.8	37.3		11.2	15.0	9.4	15.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	79.9	12.4	54.8	37.3		11.2	15.0	9.4	15.1
LOS	E	B	D	D		B	B	A	B
Approach Delay		36.9		44.2			14.3		14.4
Approach LOS		D		D			B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 21.2	Intersection LOS: C
Intersection Capacity Utilization 69.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	195	341	124	193	244	1025	128	877
v/c Ratio	0.88	0.38	0.63	0.46	0.50	0.36	0.31	0.32
Control Delay	79.9	12.4	54.8	37.3	11.2	15.0	9.4	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.9	12.4	54.8	37.3	11.2	15.0	9.4	15.1
Queue Length 50th (m)	44.2	10.5	26.2	34.3	18.6	44.5	9.1	36.1
Queue Length 95th (m)	67.5	20.6	43.4	51.4	35.3	66.1	19.3	56.4
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	294	1127	263	554	536	2880	512	2742
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	0.66	0.30	0.47	0.35	0.46	0.36	0.25	0.32

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	185	101	223	118	120	64	1	231	858	116	122	637
Future Volume (vph)	185	101	223	118	120	64	1	231	858	116	122	637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.91		1.00	0.91
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3250		1807	1821			1807	5018		1825	4935
Flt Permitted	0.52	1.00		0.47	1.00			0.27	1.00		0.25	1.00
Satd. Flow (perm)	997	3250		891	1821			522	5018		481	4935
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	195	106	235	124	126	67	1	243	903	122	128	671
RTOR Reduction (vph)	0	183	0	0	18	0	0	0	11	0	0	37
Lane Group Flow (vph)	195	158	0	124	175	0	0	244	1014	0	128	840
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	26.7	26.7		26.7	26.7			80.2	68.7		74.4	65.8
Effective Green, g (s)	26.7	26.7		26.7	26.7			80.2	68.7		74.4	65.8
Actuated g/C Ratio	0.22	0.22		0.22	0.22			0.67	0.57		0.62	0.55
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	221	723		198	405			472	2872		394	2706
v/s Ratio Prot		0.05			0.10			c0.05	0.20		0.02	0.17
v/s Ratio Perm	c0.20			0.14				c0.30			0.18	
v/c Ratio	0.88	0.22		0.63	0.43			0.52	0.35		0.32	0.31
Uniform Delay, d1	45.1	38.1		42.1	40.1			8.1	13.7		9.4	14.8
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	31.1	0.2		6.1	0.7			1.0	0.3		0.5	0.3
Delay (s)	76.2	38.3		48.2	40.9			9.1	14.1		9.9	15.1
Level of Service	E	D		D	D			A	B		A	B
Approach Delay (s)		52.1			43.7				13.1			14.4
Approach LOS		D			D				B			B

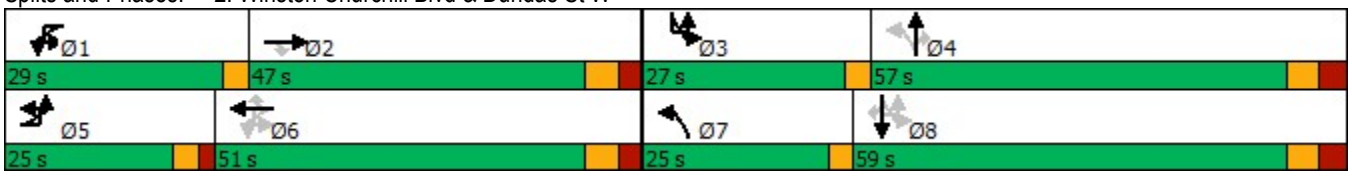
Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	196
Future Volume (vph)	196
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	206
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	301	1224	238	3	319	1143	318	248	741	361	2	289
Future Volume (vph)	301	1224	238	3	319	1143	318	248	741	361	2	289
Turn Type	Prot	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt
Protected Phases	5	2		1	1	6		7	4		3	3
Permitted Phases			2	6	6		6	4		4	8	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	47.0	47.0	29.0	29.0	51.0	51.0	25.0	57.0	57.0	27.0	27.0
Total Split (%)	15.6%	29.4%	29.4%	18.1%	18.1%	31.9%	31.9%	15.6%	35.6%	35.6%	16.9%	16.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	17.3	40.2	40.2		72.8	46.4	46.4	53.0	30.2	30.2		59.0
Actuated g/C Ratio	0.13	0.29	0.29		0.53	0.34	0.34	0.39	0.22	0.22		0.43
v/c Ratio	0.75	0.85	0.39		0.85	0.68	0.45	0.62	0.69	0.63		0.80
Control Delay	69.9	52.6	6.9		57.2	43.0	9.2	33.2	52.6	13.9		43.5
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	69.9	52.6	6.9		57.2	43.0	9.2	33.2	52.6	13.9		43.5
LOS	E	D	A		E	D	A	C	D	B		D
Approach Delay		49.5				39.5			38.7			
Approach LOS		D				D			D			

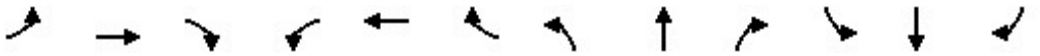
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 137	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 42.1	Intersection LOS: D
Intersection Capacity Utilization 98.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	538	214
Future Volume (vph)	538	214
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	32.3	32.3
Actuated g/C Ratio	0.24	0.24
v/c Ratio	0.47	0.43
Control Delay	46.2	11.3
Queue Delay	0.0	0.0
Total Delay	46.2	11.3
LOS	D	B
Approach Delay	38.3	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	328	1288	251	339	1203	335	261	780	380	306	566	225
v/c Ratio	0.75	0.85	0.39	0.85	0.68	0.45	0.62	0.69	0.63	0.80	0.47	0.43
Control Delay	69.9	52.6	6.9	57.2	43.0	9.2	33.2	52.6	13.9	43.5	46.2	11.3
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	69.9	52.6	6.9	57.2	43.0	9.2	33.2	52.6	13.9	43.5	46.2	11.3
Queue Length 50th (m)	44.9	121.9	0.8	71.9	104.3	9.0	47.0	72.4	13.2	56.1	48.9	6.9
Queue Length 95th (m)	65.5	#163.4	22.1	#139.3	138.4	37.5	67.5	88.7	45.6	83.0	62.3	28.7
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	509	1523	648	405	1760	743	465	1867	780	422	1942	724
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	0.64	0.85	0.39	0.84	0.68	0.45	0.56	0.42	0.49	0.73	0.29	0.31

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	10	301	1224	238	3	319	1143	318	248	741	361	2
Future Volume (vph)	10	301	1224	238	3	319	1143	318	248	741	361	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.91	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	5142	1585	
Flt Permitted		0.95	1.00	1.00		0.09	1.00	1.00	0.37	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		176	5193	1633	708	5142	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	317	1288	251	3	336	1203	335	261	780	380	2
RTOR Reduction (vph)	0	0	0	175	0	0	0	190	0	0	250	0
Lane Group Flow (vph)	0	328	1288	76	0	339	1203	145	261	780	130	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases				2	6	6		6	4		4	8
Actuated Green, G (s)		17.3	40.2	40.2		68.8	46.5	46.5	48.6	30.3	30.3	
Effective Green, g (s)		17.3	40.2	40.2		68.8	46.5	46.5	48.6	30.3	30.3	
Actuated g/C Ratio		0.13	0.29	0.29		0.50	0.34	0.34	0.35	0.22	0.22	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		438	1523	474		393	1762	554	397	1137	350	
v/s Ratio Prot		0.09	0.25			c0.16	0.23		0.09	c0.15		
v/s Ratio Perm				0.05		c0.27		0.09	0.15		0.08	
v/c Ratio		0.75	0.85	0.16		0.86	0.68	0.26	0.66	0.69	0.37	
Uniform Delay, d1		57.8	45.5	35.9		39.7	38.9	32.8	33.4	49.0	45.3	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.9	6.0	0.7		17.4	2.2	1.2	3.9	1.7	0.7	
Delay (s)		64.6	51.5	36.6		57.1	41.1	34.0	37.3	50.7	45.9	
Level of Service		E	D	D		E	D	C	D	D	D	
Approach Delay (s)			51.8				42.7			47.0		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	137.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

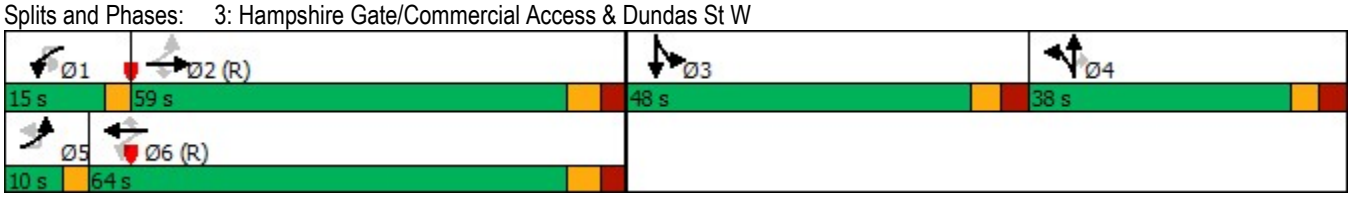
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	289	538	214
Future Volume (vph)	289	538	214
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.91	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	5142	1601
Flt Permitted	0.19	1.00	1.00
Satd. Flow (perm)	367	5142	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	304	566	225
RTOR Reduction (vph)	0	0	147
Lane Group Flow (vph)	306	566	78
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	52.8	32.4	32.4
Effective Green, g (s)	54.7	32.4	32.4
Actuated g/C Ratio	0.40	0.24	0.24
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	371	1216	378
v/s Ratio Prot	c0.13	0.11	
v/s Ratio Perm	0.20		0.05
v/c Ratio	0.82	0.47	0.21
Uniform Delay, d1	31.2	44.9	42.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	13.8	0.3	0.3
Delay (s)	45.1	45.2	42.2
Level of Service	D	D	D
Approach Delay (s)		44.5	
Approach LOS		D	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	95	1325	157	2	144	1270	83	679	96	318	172
Future Volume (vph)	2	95	1325	157	2	144	1270	83	679	96	318	172
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	59.0	59.0	15.0	15.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	36.9%	36.9%	9.4%	9.4%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		63.2	52.2	52.2		71.0	57.0	57.0	50.4	50.4	50.4	21.6
Actuated g/C Ratio		0.40	0.33	0.33		0.44	0.36	0.36	0.32	0.32	0.32	0.14
v/c Ratio		0.73	0.84	0.26		0.84	0.74	0.14	0.76	0.75	0.50	0.75
Control Delay		66.3	30.9	1.1		71.5	47.9	5.6	60.5	59.6	16.8	84.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		66.3	30.9	1.1		71.5	47.9	5.6	60.5	59.6	16.8	84.9
LOS		E	C	A		E	D	A	E	E	B	F
Approach Delay			30.1				47.9			47.5		
Approach LOS			C				D			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 42.4	Intersection LOS: D
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



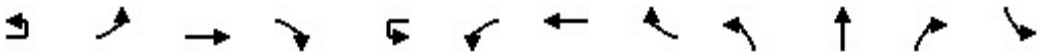
Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	21.6
Actuated g/C Ratio	0.14
v/c Ratio	0.46
Control Delay	30.4
Queue Delay	0.0
Total Delay	30.4
LOS	C
Approach Delay	61.3
Approach LOS	E

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	1410	167	155	1351	88	412	412	338	183	140
v/c Ratio	0.73	0.84	0.26	0.84	0.74	0.14	0.76	0.75	0.50	0.75	0.46
Control Delay	66.3	30.9	1.1	71.5	47.9	5.6	60.5	59.6	16.8	84.9	30.4
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	66.3	30.9	1.1	71.5	47.9	5.6	60.5	59.6	16.8	84.9	30.4
Queue Length 50th (m)	16.8	53.6	0.3	32.2	137.5	0.0	124.8	124.2	25.0	56.9	16.2
Queue Length 95th (m)	m#34.1	m61.2	m1.8	#71.6	154.9	10.6	#195.3	#192.7	59.4	80.2	36.4
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	141	1678	635	186	1831	637	540	549	674	463	500
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	0.73	0.84	0.26	0.83	0.74	0.14	0.76	0.75	0.50	0.40	0.28

Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	95	1325	157	2	144	1270	83	679	96	318	172
Future Volume (vph)	2	95	1325	157	2	144	1270	83	679	96	318	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.09	1.00	1.00		0.07	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		174	5142	1601		138	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	101	1410	167	2	153	1351	88	722	102	338	183
RTOR Reduction (vph)	0	0	0	113	0	0	0	57	0	0	160	0
Lane Group Flow (vph)	0	103	1410	54	0	155	1351	31	412	412	178	183
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		59.2	52.2	52.2		67.0	57.0	57.0	50.4	50.4	50.4	21.6
Effective Green, g (s)		59.2	52.2	52.2		67.0	57.0	57.0	50.4	50.4	50.4	21.6
Actuated g/C Ratio		0.37	0.33	0.33		0.42	0.36	0.36	0.31	0.31	0.31	0.14
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		136	1677	522		180	1831	576	540	549	514	243
v/s Ratio Prot		0.03	0.27			c0.06	0.26		c0.24	0.24		c0.10
v/s Ratio Perm		0.25		0.03		c0.30		0.02			0.11	
v/c Ratio		0.76	0.84	0.10		0.86	0.74	0.05	0.76	0.75	0.35	0.75
Uniform Delay, d1		36.9	50.0	37.6		40.6	45.0	33.8	49.4	49.2	42.1	66.6
Progression Factor		1.63	0.54	0.08		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		15.6	3.8	0.3		31.9	2.7	0.2	6.3	5.7	0.4	12.4
Delay (s)		75.6	30.7	3.4		72.4	47.7	34.0	55.7	54.9	42.5	79.0
Level of Service		E	C	A		E	D	C	E	D	D	E
Approach Delay (s)			30.8				49.3			51.6		
Approach LOS			C				D			D		

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

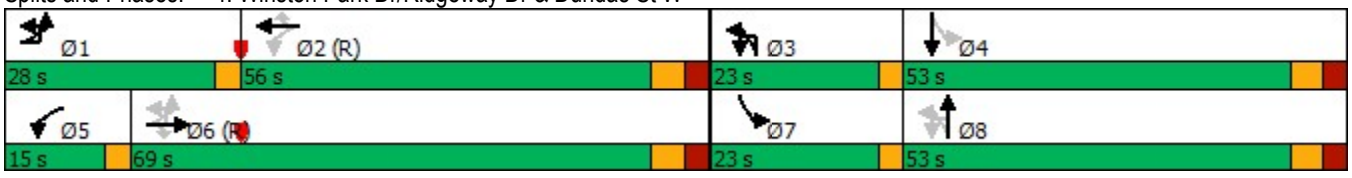
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	35	97
Future Volume (vph)	35	97
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1709	
Flt Permitted	1.00	
Satd. Flow (perm)	1709	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	37	103
RTOR Reduction (vph)	73	0
Lane Group Flow (vph)	67	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	21.6	
Effective Green, g (s)	21.6	
Actuated g/C Ratio	0.14	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	230	
v/s Ratio Prot	0.04	
v/s Ratio Perm		
v/c Ratio	0.29	
Uniform Delay, d1	62.3	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	63.0	
Level of Service	E	
Approach Delay (s)	72.1	
Approach LOS	E	

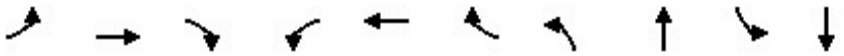
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	302	1317	133	93	1461	477	2	363	767	269	321
Future Volume (vph)	8	302	1317	133	93	1461	477	2	363	767	269	321
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	pm+pt	NA
Protected Phases	1	1	6		5	2		3	3	8	7	4
Permitted Phases	6	6		6	2		2	8	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	28.0	28.0	69.0	69.0	15.0	56.0	56.0	23.0	23.0	53.0	23.0	53.0
Total Split (%)	17.5%	17.5%	43.1%	43.1%	9.4%	35.0%	35.0%	14.4%	14.4%	33.1%	14.4%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		83.2	66.4	66.4	64.7	50.9	50.9		69.8	43.8	71.8	43.8
Actuated g/C Ratio		0.52	0.42	0.42	0.40	0.32	0.32		0.44	0.27	0.45	0.27
v/c Ratio		0.95	0.64	0.20	0.48	0.91	0.69		0.90	0.89	0.92	0.54
Control Delay		84.9	39.5	12.5	22.0	43.1	14.3		58.2	67.1	78.9	44.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		84.9	39.5	12.5	22.0	43.1	14.3		58.2	67.1	78.9	44.3
LOS		F	D	B	C	D	B		E	E	E	D
Approach Delay			45.4			35.3				64.4		56.3
Approach LOS			D			D				E		E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 47.3	Intersection LOS: D
Intersection Capacity Utilization 102.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	319	1358	137	96	1506	492	376	872	277	519
v/c Ratio	0.95	0.64	0.20	0.48	0.91	0.69	0.90	0.89	0.92	0.54
Control Delay	84.9	39.5	12.5	22.0	43.1	14.3	58.2	67.1	78.9	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.9	39.5	12.5	22.0	43.1	14.3	58.2	67.1	78.9	44.3
Queue Length 50th (m)	85.3	128.3	9.2	9.5	109.2	30.7	80.5	137.4	68.6	63.2
Queue Length 95th (m)	#146.2	148.0	24.6	m13.3	#180.6	53.8	#107.8	163.7	#122.7	81.5
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	339	2135	674	226	1653	712	417	1029	300	1014
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.64	0.20	0.42	0.91	0.69	0.90	0.85	0.92	0.51

Intersection Summary

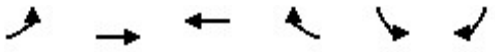
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	302	1317	133	93	1461	477	2	363	767	79	269
Future Volume (vph)	8	302	1317	133	93	1461	477	2	363	767	79	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3564		1789
Flt Permitted		0.07	1.00	1.00	0.14	1.00	1.00		0.32	1.00		0.09
Satd. Flow (perm)		141	5142	1498	266	5193	1617		600	3564		174
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	311	1358	137	96	1506	492	2	374	791	81	277
RTOR Reduction (vph)	0	0	0	53	0	0	198	0	0	5	0	0
Lane Group Flow (vph)	0	319	1358	84	96	1506	294	0	376	867	0	277
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA		pm+pt
Protected Phases	1	1	6		5	2		3	3	8		7
Permitted Phases	6	6		6	2		2	8	8			4
Actuated Green, G (s)		79.2	66.5	66.5	60.7	51.0	51.0		63.8	43.8		63.8
Effective Green, g (s)		79.2	66.5	66.5	60.7	51.0	51.0		65.8	43.8		67.8
Actuated g/C Ratio		0.50	0.42	0.42	0.38	0.32	0.32		0.41	0.27		0.42
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		332	2137	622	194	1655	515		402	975		295
v/s Ratio Prot		c0.15	0.26		0.03	0.29			0.12	c0.24		c0.13
v/s Ratio Perm		c0.32		0.06	0.16		0.18		0.26			0.27
v/c Ratio		0.96	0.64	0.14	0.49	0.91	0.57		0.94	0.89		0.94
Uniform Delay, d1		52.2	37.1	29.0	33.3	52.3	45.4		38.8	55.8		48.5
Progression Factor		1.00	1.00	1.00	0.75	0.69	0.55		1.00	1.00		1.00
Incremental Delay, d2		38.9	1.5	0.5	1.3	6.4	3.1		28.9	10.0		36.1
Delay (s)		91.1	38.6	29.4	26.3	42.4	27.9		67.7	65.7		84.6
Level of Service		F	D	C	C	D	C		E	E		F
Approach Delay (s)			47.1			38.2				66.3		
Approach LOS			D			D				E		

Intersection Summary			
HCM 2000 Control Delay	50.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	321	182
Future Volume (vph)	321	182
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3354	
Flt Permitted	1.00	
Satd. Flow (perm)	3354	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	331	188
RTOR Reduction (vph)	51	0
Lane Group Flow (vph)	468	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	43.8	
Effective Green, g (s)	43.8	
Actuated g/C Ratio	0.27	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	918	
v/s Ratio Prot	0.14	
v/s Ratio Perm		
v/c Ratio	0.51	
Uniform Delay, d1	49.0	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	49.5	
Level of Service	D	
Approach Delay (s)	61.7	
Approach LOS	E	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1229	1569	47	0	33
Future Volume (Veh/h)	0	1229	1569	47	0	33
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1294	1652	49	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		173	159			
pX, platoon unblocked	0.80				0.89	0.80
vC, conflicting volume	1701				2108	575
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1012				309	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	546				585	875

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	431	431	431	661	661	379	35
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	49	35
cSH	1700	1700	1700	1700	1700	1700	875
Volume to Capacity	0.25	0.25	0.25	0.39	0.39	0.22	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.3
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.3
Approach LOS							A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

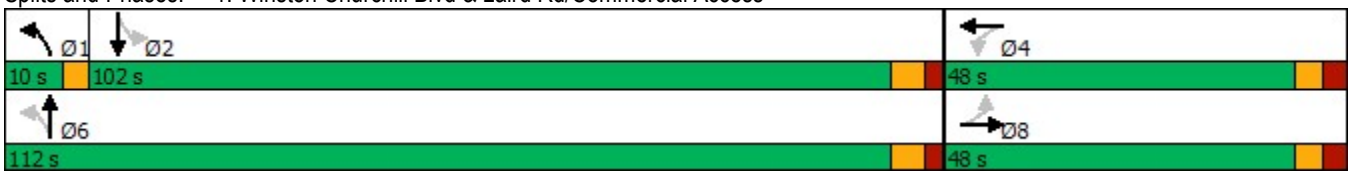
Appendix L

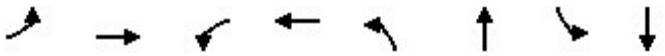
2036 Future Background Mitigated Conditions – Synchro HCM Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	42	20	38	19	152	682	51	1160
Future Volume (vph)	42	20	38	19	152	682	51	1160
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		8		4	1	6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	1	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.0	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	10.0	112.0	102.0	102.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	6.3%	70.0%	63.8%	63.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	3.0	6.5	6.5	6.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	10.9	10.9	10.9	10.9	109.0	105.5	95.5	95.5
Actuated g/C Ratio	0.08	0.08	0.08	0.08	0.84	0.82	0.74	0.74
v/c Ratio	0.37	0.43	0.38	0.19	0.44	0.27	0.10	0.51
Control Delay	65.5	15.7	66.6	43.2	5.8	3.1	5.6	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.5	15.7	66.6	43.2	5.8	3.1	5.6	8.0
LOS	E	B	E	D	A	A	A	A
Approach Delay		25.9		56.6		3.6		7.9
Approach LOS		C		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 129.4	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 9.1	Intersection LOS: A
Intersection Capacity Utilization 80.7%	ICU Level of Service D
Analysis Period (min) 15	

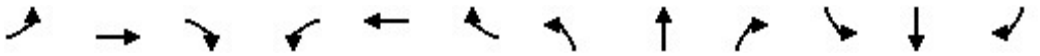
Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	167	39	29	155	765	52	1312
v/c Ratio	0.37	0.43	0.38	0.19	0.44	0.27	0.10	0.51
Control Delay	65.5	15.7	66.6	43.2	5.8	3.1	5.6	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.5	15.7	66.6	43.2	5.8	3.1	5.6	8.0
Queue Length 50th (m)	10.6	2.5	9.6	4.6	4.9	18.0	3.2	62.5
Queue Length 95th (m)	22.6	13.3	21.4	14.3	9.8	27.2	7.8	84.7
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	441	1051	397	568	352	2833	512	2564
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	0.10	0.16	0.10	0.05	0.44	0.27	0.10	0.51

Intersection Summary



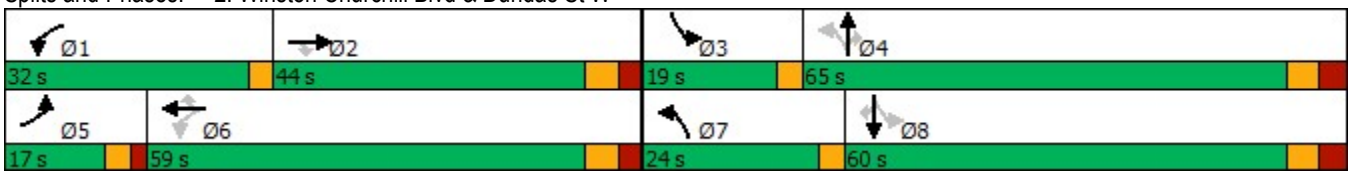
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	20	144	38	19	10	152	682	68	51	1160	125
Future Volume (vph)	42	20	144	38	19	10	152	682	68	51	1160	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		3.0	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	2968		1825	1753		1789	3474		1825	3471	
Flt Permitted	0.74	1.00		0.65	1.00		0.17	1.00		0.36	1.00	
Satd. Flow (perm)	1377	2968		1242	1753		324	3474		695	3471	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	43	20	147	39	19	10	155	696	69	52	1184	128
RTOR Reduction (vph)	0	135	0	0	9	0	0	3	0	0	3	0
Lane Group Flow (vph)	43	32	0	39	20	0	155	762	0	52	1309	0
Heavy Vehicles (%)	3%	5%	7%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	10.9	10.9		10.9	10.9		105.5	105.5		95.5	95.5	
Effective Green, g (s)	10.9	10.9		10.9	10.9		105.5	105.5		95.5	95.5	
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.82	0.82		0.74	0.74	
Clearance Time (s)	6.5	6.5		6.5	6.5		3.0	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	115	250		104	147		343	2832		512	2561	
v/s Ratio Prot		0.01			0.01		c0.02	0.22			c0.38	
v/s Ratio Perm	0.03			c0.03			0.34			0.07		
v/c Ratio	0.37	0.13		0.38	0.13		0.45	0.27		0.10	0.51	
Uniform Delay, d1	56.0	54.9		56.0	54.9		4.4	2.8		4.8	7.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.2		2.3	0.4		0.9	0.2		0.4	0.7	
Delay (s)	58.1	55.1		58.3	55.3		5.3	3.1		5.2	7.9	
Level of Service	E	E		E	E		A	A		A	A	
Approach Delay (s)		55.7			57.0			3.4			7.8	
Approach LOS		E			E			A			A	

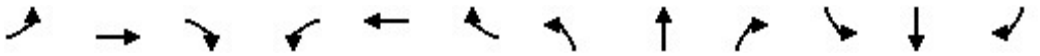
Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	129.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1044	406	293	691	144	203	682	251	184	1097	110
Future Volume (vph)	85	1044	406	293	691	144	203	682	251	184	1097	110
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	44.0	44.0	32.0	59.0	59.0	24.0	65.0	65.0	19.0	60.0	60.0
Total Split (%)	10.6%	27.5%	27.5%	20.0%	36.9%	36.9%	15.0%	40.6%	40.6%	11.9%	37.5%	37.5%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.6	38.9	38.9	71.2	52.6	52.6	80.0	57.3	57.3	71.2	52.5	52.5
Actuated g/C Ratio	0.06	0.25	0.25	0.46	0.34	0.34	0.51	0.37	0.37	0.46	0.34	0.34
v/c Ratio	0.45	0.86	0.73	0.91	0.42	0.25	0.78	0.55	0.36	0.58	0.97	0.20
Control Delay	78.5	64.3	30.2	74.5	41.4	6.2	58.7	41.7	5.1	29.4	70.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.5	64.3	30.2	74.5	41.4	6.2	58.7	41.7	5.1	29.4	70.6	5.8
LOS	E	E	C	E	D	A	E	D	A	C	E	A
Approach Delay		56.1			45.5			36.6			60.0	
Approach LOS		E			D			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 156.2	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 50.6	Intersection LOS: D
Intersection Capacity Utilization 96.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W

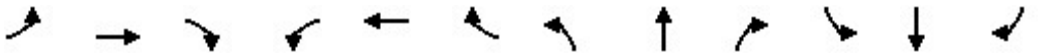




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	89	1099	427	308	727	152	214	718	264	194	1155	116
v/c Ratio	0.45	0.86	0.73	0.91	0.42	0.25	0.78	0.55	0.36	0.58	0.97	0.20
Control Delay	78.5	64.3	30.2	74.5	41.4	6.2	58.7	41.7	5.1	29.4	70.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.5	64.3	30.2	74.5	41.4	6.2	58.7	41.7	5.1	29.4	70.6	5.8
Queue Length 50th (m)	14.3	126.0	54.5	78.5	65.4	0.0	48.6	95.6	0.0	33.5	192.4	0.0
Queue Length 95th (m)	23.8	#151.4	97.4	#126.2	79.7	16.0	#81.6	117.0	19.0	50.1	#241.5	12.7
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	249	1282	588	376	1715	620	296	1308	740	356	1191	580
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.86	0.73	0.82	0.42	0.25	0.72	0.55	0.36	0.54	0.97	0.20

Intersection Summary

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



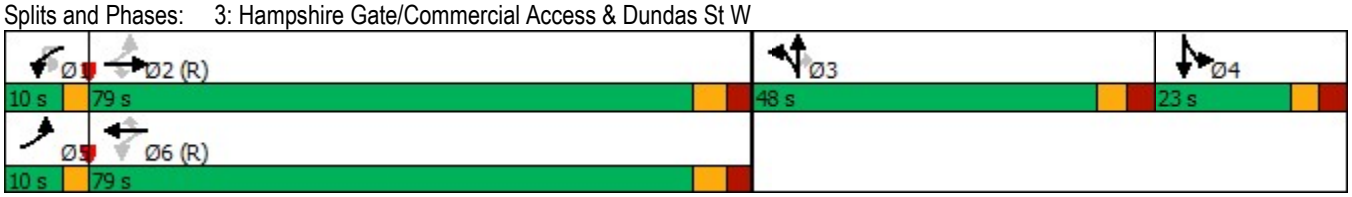
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1044	406	293	691	144	203	682	251	184	1097	110
Future Volume (vph)	85	1044	406	293	691	144	203	682	251	184	1097	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	3544	1555	1706	3544	1484
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.07	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	178	5092	1541	133	3544	1555	498	3544	1484
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	1099	427	308	727	152	214	718	264	194	1155	116
RTOR Reduction (vph)	0	0	189	0	0	101	0	0	167	0	0	77
Lane Group Flow (vph)	89	1099	238	308	727	51	214	718	97	194	1155	39
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	7%	3%	10%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.6	38.9	38.9	67.2	52.6	52.6	74.5	57.3	57.3	66.8	52.6	52.6
Effective Green, g (s)	9.6	38.9	38.9	67.2	52.6	52.6	75.5	57.3	57.3	66.8	52.6	52.6
Actuated g/C Ratio	0.06	0.25	0.25	0.43	0.34	0.34	0.48	0.37	0.37	0.43	0.34	0.34
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	1280	398	334	1714	518	270	1300	570	322	1193	499
v/s Ratio Prot	0.03	0.21		c0.15	0.14		c0.10	0.20		0.05	c0.33	
v/s Ratio Perm			0.15	c0.25		0.03	0.28		0.06	0.20		0.03
v/c Ratio	0.45	0.86	0.60	0.92	0.42	0.10	0.79	0.55	0.17	0.60	0.97	0.08
Uniform Delay, d1	70.7	56.0	51.7	47.8	40.1	35.5	45.3	39.3	33.4	29.8	51.0	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	7.6	6.5	30.0	0.8	0.4	14.7	0.5	0.1	3.2	18.7	0.1
Delay (s)	72.3	63.6	58.2	77.8	40.9	35.9	60.0	39.8	33.5	32.9	69.6	35.4
Level of Service	E	E	E	E	D	D	E	D	C	C	E	D
Approach Delay (s)		62.7			49.8			42.0			62.1	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	55.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	156.2	Sum of lost time (s)	22.5
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	1562	159	1	115	779	27	72	16	68	17	4
Future Volume (vph)	32	1562	159	1	115	779	27	72	16	68	17	4
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	117.9	106.9	106.9		128.7	116.7	116.7	11.1	11.1	11.1	10.0	10.0
Actuated g/C Ratio	0.74	0.67	0.67		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.07	0.50	0.16		0.43	0.23	0.03	0.41	0.41	0.37	0.18	0.08
Control Delay	5.4	15.2	2.1		10.1	8.4	0.0	81.7	81.3	11.6	75.3	50.0
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	5.4	15.2	2.1		10.1	8.4	0.0	81.7	81.3	11.6	75.3	50.0
LOS	A	B	A		B	A	A	F	F	B	E	D
Approach Delay		13.8				8.4			51.0			67.2
Approach LOS		B				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	1716	175	127	856	30	48	49	75	19	9
v/c Ratio	0.07	0.50	0.16	0.43	0.23	0.03	0.41	0.41	0.37	0.18	0.08
Control Delay	5.4	15.2	2.1	10.1	8.4	0.0	81.7	81.3	11.6	75.3	50.0
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	5.4	15.2	2.1	10.1	8.4	0.0	81.7	81.3	11.6	75.3	50.0
Queue Length 50th (m)	2.3	105.1	0.0	9.0	35.8	0.0	15.7	16.1	0.0	5.8	1.2
Queue Length 95th (m)	5.6	132.0	10.0	18.7	46.0	0.0	30.3	30.9	10.3	15.0	7.4
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	488	3435	1117	295	3677	1170	431	444	489	172	180
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	0.50	0.16	0.43	0.23	0.03	0.11	0.11	0.15	0.11	0.05

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	32	1562	159	1	115	779	27	72	16	68	17	4
Future Volume (vph)	32	1562	159	1	115	779	27	72	16	68	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1736	1633	1722	1761
Flt Permitted	0.32	1.00	1.00		0.10	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	594	5142	1585		184	5043	1570	1683	1736	1633	1722	1761
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	35	1716	175	1	126	856	30	79	18	75	19	4
RTOR Reduction (vph)	0	0	61	0	0	0	9	0	0	70	0	5
Lane Group Flow (vph)	35	1716	114	0	127	856	21	48	49	5	19	4
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	109.7	104.1	104.1		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Effective Green, g (s)	109.7	104.1	104.1		121.9	113.3	113.3	11.1	11.1	11.1	6.0	6.0
Actuated g/C Ratio	0.69	0.65	0.65		0.76	0.71	0.71	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	448	3345	1031		288	3571	1111	116	120	113	64	66
v/s Ratio Prot	0.00	c0.33			c0.04	0.17		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.05		0.07		0.30		0.01			0.00		
v/c Ratio	0.08	0.51	0.11		0.44	0.24	0.02	0.41	0.41	0.05	0.30	0.06
Uniform Delay, d1	8.1	14.7	10.5		9.3	8.2	6.9	71.3	71.3	69.5	74.9	74.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.6	0.2		1.1	0.2	0.0	2.4	2.3	0.2	2.6	0.4
Delay (s)	8.1	15.2	10.7		10.4	8.4	6.9	73.7	73.6	69.7	77.5	74.7
Level of Service	A	B	B		B	A	A	E	E	E	E	E
Approach Delay (s)		14.7				8.6			71.9			76.6
Approach LOS		B				A			E			E

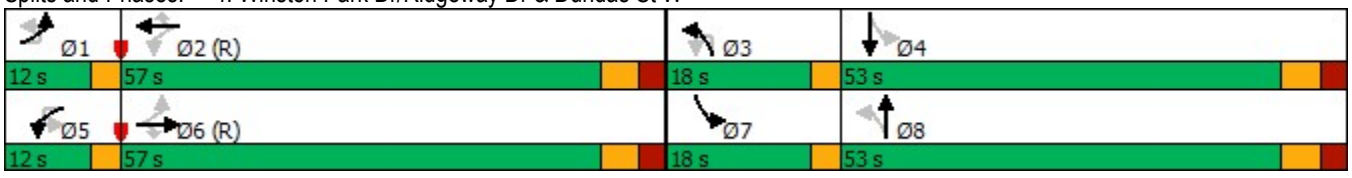
Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	11	215	1396	380	2	59	572	191	1	113	203	265
Future Volume (vph)	11	215	1396	380	2	59	572	191	1	113	203	265
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	57.0	57.0	12.0	12.0	57.0	57.0	18.0	18.0	53.0	18.0
Total Split (%)	8.6%	8.6%	40.7%	40.7%	8.6%	8.6%	40.7%	40.7%	12.9%	12.9%	37.9%	12.9%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		83.9	70.7	70.7		74.9	62.6	62.6		44.9	28.1	48.6
Actuated g/C Ratio		0.60	0.50	0.50		0.54	0.45	0.45		0.32	0.20	0.35
v/c Ratio		0.48	0.58	0.45		0.34	0.28	0.26		0.55	0.36	0.70
Control Delay		17.7	27.4	10.7		19.0	26.5	4.6		39.1	45.7	44.0
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		17.7	27.4	10.7		19.0	26.5	4.6		39.1	45.7	44.0
LOS		B	C	B		B	C	A		D	D	D
Approach Delay			23.1				20.9				43.6	
Approach LOS			C				C				D	

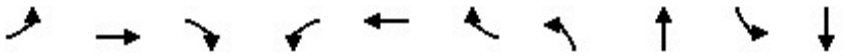
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 33 (24%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 30.7	Intersection LOS: C
Intersection Capacity Utilization 74.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	497
Future Volume (vph)	497
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	37.9%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	30.3
Actuated g/C Ratio	0.22
v/c Ratio	0.79
Control Delay	58.3
Queue Delay	0.0
Total Delay	58.3
LOS	E
Approach Delay	53.7
Approach LOS	D

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	246	1517	413	66	622	208	124	256	288	605
v/c Ratio	0.48	0.58	0.45	0.34	0.28	0.26	0.55	0.36	0.70	0.79
Control Delay	17.7	27.4	10.7	19.0	26.5	4.6	39.1	45.7	44.0	58.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	27.4	10.7	19.0	26.5	4.6	39.1	45.7	44.0	58.3
Queue Length 50th (m)	30.5	108.8	23.5	7.4	39.6	0.0	23.7	30.5	60.7	82.7
Queue Length 95th (m)	52.4	145.4	58.9	16.3	56.9	16.4	35.1	40.2	78.4	97.4
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	516	2595	915	209	2256	810	251	1158	414	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.58	0.45	0.32	0.28	0.26	0.49	0.22	0.70	0.52

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	11	215	1396	380	2	59	572	191	1	113	203	32
Future Volume (vph)	11	215	1396	380	2	59	572	191	1	113	203	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1679	5043	1555		1603	3500	
Flt Permitted		0.36	1.00	1.00		0.12	1.00	1.00		0.21	1.00	
Satd. Flow (perm)		673	5142	1555		206	5043	1555		349	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	234	1517	413	2	64	622	208	1	123	221	35
RTOR Reduction (vph)	0	0	0	132	0	0	0	115	0	0	10	0
Lane Group Flow (vph)	0	246	1517	281	0	66	622	93	0	124	246	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	5%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		79.9	70.0	70.0		69.5	62.6	62.6		40.9	28.1	
Effective Green, g (s)		79.9	70.0	70.0		69.5	62.6	62.6		40.9	28.1	
Actuated g/C Ratio		0.57	0.50	0.50		0.50	0.45	0.45		0.29	0.20	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		496	2571	777		174	2254	695		216	702	
v/s Ratio Prot		c0.05	c0.30			0.02	0.12			0.05	0.07	
v/s Ratio Perm		0.23		0.18		0.17		0.06		0.12		
v/c Ratio		0.50	0.59	0.36		0.38	0.28	0.13		0.57	0.35	
Uniform Delay, d1		15.3	24.8	21.4		19.8	24.4	22.8		38.9	48.1	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8	1.0	1.3		1.4	0.3	0.4		3.7	0.3	
Delay (s)		16.0	25.8	22.7		21.2	24.7	23.2		42.6	48.4	
Level of Service		B	C	C		C	C	C		D	D	
Approach Delay (s)			24.1				24.1				46.5	
Approach LOS			C				C				D	

Intersection Summary			
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

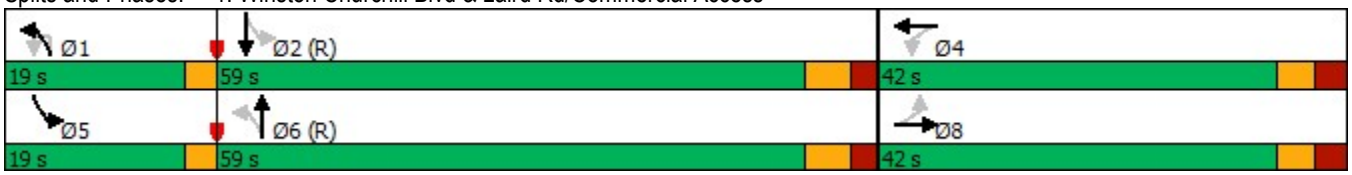
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	265	497	60
Future Volume (vph)	265	497	60
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.51	1.00	
Satd. Flow (perm)	942	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	288	540	65
RTOR Reduction (vph)	0	8	0
Lane Group Flow (vph)	288	597	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	45.3	30.3	
Effective Green, g (s)	45.3	30.3	
Actuated g/C Ratio	0.32	0.22	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	391	763	
v/s Ratio Prot	c0.08	c0.17	
v/s Ratio Perm	0.16		
v/c Ratio	0.74	0.78	
Uniform Delay, d1	39.4	51.7	
Progression Factor	1.00	1.00	
Incremental Delay, d2	7.1	5.3	
Delay (s)	46.4	57.0	
Level of Service	D	E	
Approach Delay (s)		53.6	
Approach LOS		D	

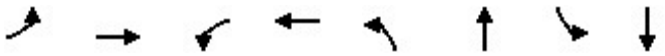
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	168	96	115	116	1	207	770	109	561
Future Volume (vph)	168	96	115	116	1	207	770	109	561
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	42.0	42.0	42.0	42.0	19.0	19.0	59.0	19.0	59.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	15.8%	15.8%	49.2%	15.8%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	25.1	25.1	25.1	25.1		84.5	70.7	80.0	68.2
Actuated g/C Ratio	0.21	0.21	0.21	0.21		0.70	0.59	0.67	0.57
v/c Ratio	0.85	0.36	0.61	0.47		0.43	0.45	0.27	0.39
Control Delay	77.3	13.4	54.3	38.6		9.5	15.8	8.4	15.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	77.3	13.4	54.3	38.6		9.5	15.8	8.4	15.9
LOS	E	B	D	D		A	B	A	B
Approach Delay		36.8		44.8			14.6		14.9
Approach LOS		D		D			B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 19 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 21.8	Intersection LOS: C
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	177	306	121	187	219	920	115	776
v/c Ratio	0.85	0.36	0.61	0.47	0.43	0.45	0.27	0.39
Control Delay	77.3	13.4	54.3	38.6	9.5	15.8	8.4	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.3	13.4	54.3	38.6	9.5	15.8	8.4	15.9
Queue Length 50th (m)	40.2	10.2	25.9	33.8	15.3	58.7	7.5	47.6
Queue Length 95th (m)	60.4	19.8	41.5	49.8	31.7	95.3	17.6	80.8
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	295	1109	282	554	572	2062	539	1970
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	0.60	0.28	0.43	0.34	0.38	0.45	0.21	0.39

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	168	96	195	115	116	62	1	207	770	104	109	561
Future Volume (vph)	168	96	195	115	116	62	1	207	770	104	109	561
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.95		1.00	0.95
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3261		1807	1821			1807	3493		1825	3433
Flt Permitted	0.52	1.00		0.50	1.00			0.30	1.00		0.27	1.00
Satd. Flow (perm)	999	3261		955	1821			573	3493		515	3433
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	177	101	205	121	122	65	1	218	811	109	115	591
RTOR Reduction (vph)	0	162	0	0	18	0	0	0	7	0	0	19
Lane Group Flow (vph)	177	144	0	121	169	0	0	219	913	0	115	757
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	25.1	25.1		25.1	25.1			81.3	70.6		76.5	68.2
Effective Green, g (s)	25.1	25.1		25.1	25.1			81.3	70.6		76.5	68.2
Actuated g/C Ratio	0.21	0.21		0.21	0.21			0.68	0.59		0.64	0.57
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	208	682		199	380			498	2055		418	1951
v/s Ratio Prot		0.04			0.09			c0.04	c0.26		0.02	0.22
v/s Ratio Perm	c0.18			0.13				0.26			0.16	
v/c Ratio	0.85	0.21		0.61	0.44			0.44	0.44		0.28	0.39
Uniform Delay, d1	45.7	39.3		43.0	41.4			7.9	13.8		8.9	14.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	26.8	0.2		5.2	0.8			0.6	0.7		0.4	0.6
Delay (s)	72.5	39.4		48.2	42.2			8.5	14.5		9.2	14.9
Level of Service	E	D		D	D			A	B		A	B
Approach Delay (s)		51.5			44.5				13.3			14.2
Approach LOS		D			D				B			B

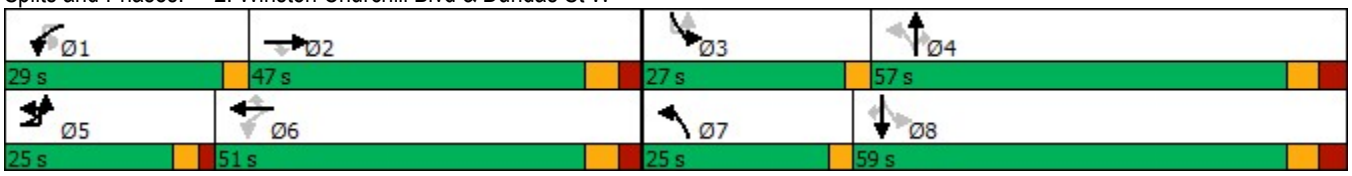
Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	176
Future Volume (vph)	176
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	185
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	285	1159	226	3	310	1097	309	214	665	324	2	251
Future Volume (vph)	285	1159	226	3	310	1097	309	214	665	324	2	251
Turn Type	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt
Protected Phases	5	2			1	6		7	4			3
Permitted Phases			2	1	6		6	4		4	3	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	47.0	47.0	29.0	29.0	51.0	51.0	25.0	57.0	57.0	27.0	27.0
Total Split (%)	15.6%	29.4%	29.4%	18.1%	18.1%	31.9%	31.9%	15.6%	35.6%	35.6%	16.9%	16.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	17.0	40.4	40.4		72.2	46.1	46.1	57.0	35.8	35.8		62.5
Actuated g/C Ratio	0.12	0.29	0.29		0.52	0.33	0.33	0.41	0.26	0.26		0.45
v/c Ratio	0.73	0.81	0.37		0.87	0.68	0.44	0.55	0.77	0.52		0.75
Control Delay	71.6	52.9	6.9		61.6	44.9	8.3	30.0	54.6	7.7		39.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	71.6	52.9	6.9		61.6	44.9	8.3	30.0	54.6	7.7		39.7
LOS	E	D	A		E	D	A	C	D	A		D
Approach Delay		50.0				41.4			37.6			
Approach LOS		D				D			D			

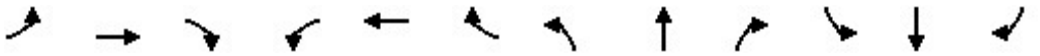
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 140.1	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 42.7	Intersection LOS: D
Intersection Capacity Utilization 92.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	483	174
Future Volume (vph)	483	174
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	37.5	37.5
Actuated g/C Ratio	0.27	0.27
v/c Ratio	0.53	0.35
Control Delay	45.9	16.6
Queue Delay	0.0	0.0
Total Delay	45.9	16.6
LOS	D	B
Approach Delay	38.6	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	309	1220	238	329	1155	325	225	700	341	266	508	183
v/c Ratio	0.73	0.81	0.37	0.87	0.68	0.44	0.55	0.77	0.52	0.75	0.53	0.35
Control Delay	71.6	52.9	6.9	61.6	44.9	8.3	30.0	54.6	7.7	39.7	45.9	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.6	52.9	6.9	61.6	44.9	8.3	30.0	54.6	7.7	39.7	45.9	16.6
Queue Length 50th (m)	43.3	117.3	0.0	71.4	102.0	5.3	39.7	96.1	1.9	47.4	64.1	13.3
Queue Length 95th (m)	65.6	#165.2	21.5	#146.7	142.6	32.7	57.5	122.7	26.2	70.5	85.0	34.1
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	500	1497	635	396	1708	736	470	1277	779	415	1328	670
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	0.62	0.81	0.37	0.83	0.68	0.44	0.48	0.55	0.44	0.64	0.38	0.27

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	9	285	1159	226	3	310	1097	309	214	665	324	2
Future Volume (vph)	9	285	1159	226	3	310	1097	309	214	665	324	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.95	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	3579	1585	
Flt Permitted		0.95	1.00	1.00		0.09	1.00	1.00	0.35	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		175	5193	1633	673	3579	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	300	1220	238	3	326	1155	325	225	700	341	2
RTOR Reduction (vph)	0	0	0	169	0	0	0	199	0	0	247	0
Lane Group Flow (vph)	0	309	1220	69	0	329	1155	126	225	700	94	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom
Protected Phases	5	5	2			1	6		7	4		
Permitted Phases				2	1	6		6	4		4	3
Actuated Green, G (s)		17.0	40.4	40.4		68.1	46.1	46.1	52.5	35.8	35.8	
Effective Green, g (s)		17.0	40.4	40.4		68.1	46.1	46.1	52.5	35.8	35.8	
Actuated g/C Ratio		0.12	0.29	0.29		0.49	0.33	0.33	0.38	0.26	0.26	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		422	1499	466		373	1711	538	387	915	405	
v/s Ratio Prot		0.09	0.23			c0.16	0.22		0.07	c0.20		
v/s Ratio Perm				0.04		c0.27		0.08	0.15		0.06	
v/c Ratio		0.73	0.81	0.15		0.88	0.68	0.23	0.58	0.77	0.23	
Uniform Delay, d1		59.3	46.3	37.0		41.1	40.4	34.1	31.5	48.2	41.2	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.4	5.0	0.7		20.9	2.2	1.0	2.2	3.9	0.3	
Delay (s)		65.7	51.2	37.6		62.0	42.6	35.1	33.8	52.0	41.5	
Level of Service		E	D	D		E	D	D	C	D	D	
Approach Delay (s)			51.9				44.8			45.9		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	139.9	Sum of lost time (s)	22.5
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

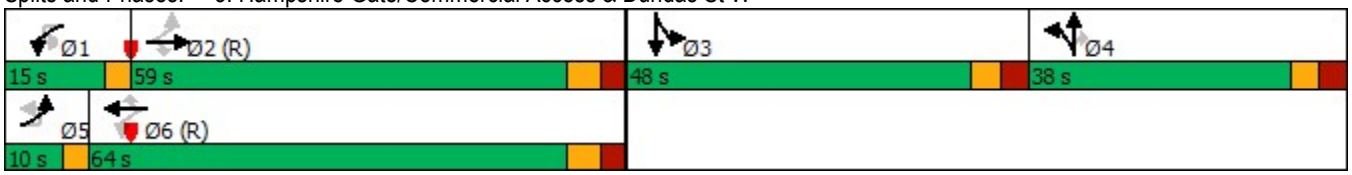
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	251	483	174
Future Volume (vph)	251	483	174
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	3579	1601
Flt Permitted	0.17	1.00	1.00
Satd. Flow (perm)	333	3579	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	264	508	183
RTOR Reduction (vph)	0	0	88
Lane Group Flow (vph)	266	508	95
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	56.1	37.6	37.6
Effective Green, g (s)	58.1	37.6	37.6
Actuated g/C Ratio	0.42	0.27	0.27
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	343	961	430
v/s Ratio Prot	c0.11	0.14	
v/s Ratio Perm	0.21		0.06
v/c Ratio	0.78	0.53	0.22
Uniform Delay, d1	30.5	43.6	39.8
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	10.5	0.5	0.3
Delay (s)	41.0	44.1	40.0
Level of Service	D	D	D
Approach Delay (s)		42.5	
Approach LOS		D	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	90	1245	149	2	133	1193	81	609	86	285	154
Future Volume (vph)	2	90	1245	149	2	133	1193	81	609	86	285	154
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	59.0	59.0	15.0	15.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	36.9%	36.9%	9.4%	9.4%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		66.8	54.8	54.8		73.4	58.7	58.7	49.4	49.4	49.4	19.9
Actuated g/C Ratio		0.42	0.34	0.34		0.46	0.37	0.37	0.31	0.31	0.31	0.12
v/c Ratio		0.57	0.75	0.24		0.75	0.67	0.13	0.70	0.69	0.46	0.73
Control Delay		41.0	34.2	3.5		55.1	45.0	5.2	57.5	56.9	13.4	85.5
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.0	34.2	3.5		55.1	45.0	5.2	57.5	56.9	13.4	85.5
LOS		D	C	A		E	D	A	E	E	B	F
Approach Delay			31.5				43.7			44.4		
Approach LOS			C				D			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 40.6	Intersection LOS: D
Intersection Capacity Utilization 78.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



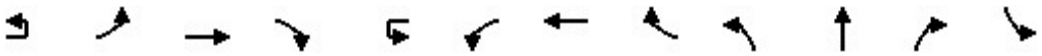
Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	31
Future Volume (vph)	31
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	19.9
Actuated g/C Ratio	0.12
v/c Ratio	0.44
Control Delay	27.3
Queue Delay	0.0
Total Delay	27.3
LOS	C
Approach Delay	60.2
Approach LOS	E

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	98	1324	159	143	1269	86	369	370	303	164	126
v/c Ratio	0.57	0.75	0.24	0.75	0.67	0.13	0.70	0.69	0.46	0.73	0.44
Control Delay	41.0	34.2	3.5	55.1	45.0	5.2	57.5	56.9	13.4	85.5	27.3
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	41.0	34.2	3.5	55.1	45.0	5.2	57.5	56.9	13.4	85.5	27.3
Queue Length 50th (m)	6.4	149.0	12.9	26.4	126.4	0.0	109.1	109.0	16.2	51.1	11.9
Queue Length 95th (m)	m20.8	167.6	m9.9	#58.8	143.2	9.9	155.1	154.6	45.2	73.6	31.5
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	172	1761	652	196	1884	653	530	539	665	463	500
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	0.57	0.75	0.24	0.73	0.67	0.13	0.70	0.69	0.46	0.35	0.25

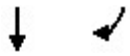
Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	90	1245	149	2	133	1193	81	609	86	285	154
Future Volume (vph)	2	90	1245	149	2	133	1193	81	609	86	285	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.11	1.00	1.00		0.08	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		220	5142	1601		149	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	96	1324	159	2	141	1269	86	648	91	303	164
RTOR Reduction (vph)	0	0	0	104	0	0	0	54	0	0	161	0
Lane Group Flow (vph)	0	98	1324	55	0	143	1269	32	369	370	142	164
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		62.9	54.9	54.9		69.7	58.7	58.7	49.4	49.4	49.4	19.9
Effective Green, g (s)		62.9	54.9	54.9		69.7	58.7	58.7	49.4	49.4	49.4	19.9
Actuated g/C Ratio		0.39	0.34	0.34		0.44	0.37	0.37	0.31	0.31	0.31	0.12
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		166	1764	549		187	1886	593	530	539	504	224
v/s Ratio Prot		0.03	0.26			c0.06	0.25		c0.21	0.21		c0.09
v/s Ratio Perm		0.20		0.03		c0.28		0.02			0.09	
v/c Ratio		0.59	0.75	0.10		0.76	0.67	0.05	0.70	0.69	0.28	0.73
Uniform Delay, d1		33.6	46.5	35.7		33.8	42.6	32.7	48.7	48.5	41.9	67.5
Progression Factor		1.12	0.67	0.54		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		4.4	2.4	0.3		16.8	1.9	0.2	4.0	3.6	0.3	11.7
Delay (s)		42.1	33.6	19.6		50.7	44.5	32.9	52.7	52.1	42.2	79.1
Level of Service		D	C	B		D	D	C	D	D	D	E
Approach Delay (s)			32.7				44.4			49.4		
Approach LOS			C				D			D		

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



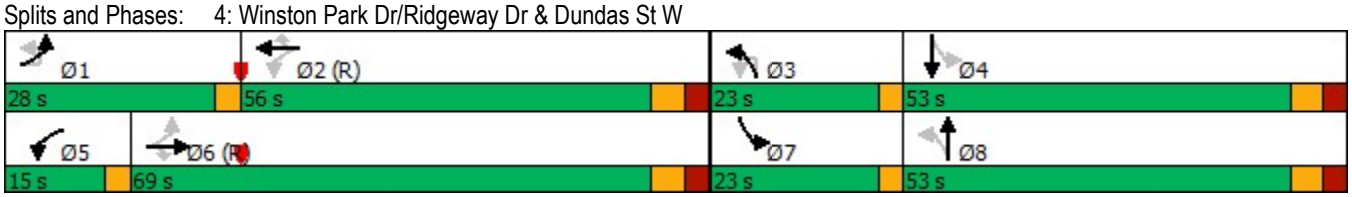
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	31	87
Future Volume (vph)	31	87
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1708	
Flt Permitted	1.00	
Satd. Flow (perm)	1708	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	33	93
RTOR Reduction (vph)	74	0
Lane Group Flow (vph)	52	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	19.9	
Effective Green, g (s)	19.9	
Actuated g/C Ratio	0.12	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	212	
v/s Ratio Prot	0.03	
v/s Ratio Perm		
v/c Ratio	0.24	
Uniform Delay, d1	63.3	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	63.9	
Level of Service	E	
Approach Delay (s)	72.5	
Approach LOS	E	

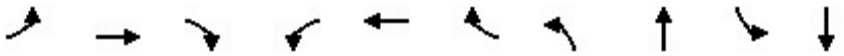
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	279	1247	126	90	1411	430	2	326	688	232	289
Future Volume (vph)	8	279	1247	126	90	1411	430	2	326	688	232	289
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt	NA
Protected Phases		1	6		5	2			3	8	7	4
Permitted Phases	1	6		6	2		2	3	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	28.0	28.0	69.0	69.0	15.0	56.0	56.0	23.0	23.0	53.0	23.0	53.0
Total Split (%)	17.5%	17.5%	43.1%	43.1%	9.4%	35.0%	35.0%	14.4%	14.4%	33.1%	14.4%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		87.0	70.5	70.5	69.0	55.5	55.5		66.5	41.0	67.0	40.0
Actuated g/C Ratio		0.54	0.44	0.44	0.43	0.35	0.35		0.42	0.26	0.42	0.25
v/c Ratio		0.91	0.57	0.18	0.41	0.81	0.59		0.82	0.85	0.79	0.52
Control Delay		76.7	35.7	11.3	34.6	63.8	29.2		49.7	65.6	53.7	45.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		76.7	35.7	11.3	34.6	63.8	29.2		49.7	65.6	53.7	45.2
LOS		E	D	B	C	E	C		D	E	D	D
Approach Delay			41.0			54.7				60.8		48.1
Approach LOS			D			D				E		D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 137 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 50.8	Intersection LOS: D
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W

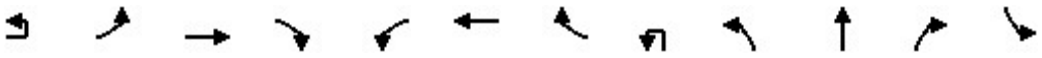




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	296	1286	130	93	1455	443	338	782	239	467
v/c Ratio	0.91	0.57	0.18	0.41	0.81	0.59	0.82	0.85	0.79	0.52
Control Delay	76.7	35.7	11.3	34.6	63.8	29.2	49.7	65.6	53.7	45.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.7	35.7	11.3	34.6	63.8	29.2	49.7	65.6	53.7	45.2
Queue Length 50th (m)	75.3	112.8	7.4	14.7	156.3	55.4	74.3	123.8	49.6	57.2
Queue Length 95th (m)	#132.4	137.9	22.6	m23.4	173.4	87.5	96.5	143.3	#79.4	72.2
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	341	2265	710	254	1800	757	413	1029	313	1013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.57	0.18	0.37	0.81	0.59	0.82	0.76	0.76	0.46

Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	279	1247	126	90	1411	430	2	326	688	71	232
Future Volume (vph)	8	279	1247	126	90	1411	430	2	326	688	71	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3563		1789
Flt Permitted		0.07	1.00	1.00	0.17	1.00	1.00		0.33	1.00		0.12
Satd. Flow (perm)		130	5142	1498	319	5193	1617		630	3563		235
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	288	1286	130	93	1455	443	2	336	709	73	239
RTOR Reduction (vph)	0	0	0	50	0	0	197	0	0	5	0	0
Lane Group Flow (vph)	0	296	1286	80	93	1455	246	0	338	777	0	239
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA		pm+pt
Protected Phases		1	6		5	2			3	8		7
Permitted Phases	1	6		6	2		2	3	8			4
Actuated Green, G (s)		83.0	70.5	70.5	65.0	55.5	55.5		61.0	41.0		59.0
Effective Green, g (s)		83.0	70.5	70.5	65.0	55.5	55.5		63.0	41.0		63.0
Actuated g/C Ratio		0.52	0.44	0.44	0.41	0.35	0.35		0.39	0.26		0.39
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		324	2265	660	217	1801	560		400	913		296
v/s Ratio Prot		c0.14	0.25		0.03	0.28			c0.11	c0.22		0.11
v/s Ratio Perm		c0.33		0.05	0.15		0.15		0.22			0.21
v/c Ratio		0.91	0.57	0.12	0.43	0.81	0.44		0.84	0.85		0.81
Uniform Delay, d1		50.9	33.4	26.4	30.1	47.4	40.3		38.0	56.6		38.1
Progression Factor		1.00	1.00	1.00	1.47	1.25	1.90		1.00	1.00		1.00
Incremental Delay, d2		28.9	1.0	0.4	1.0	3.0	1.9		15.0	7.7		14.8
Delay (s)		79.7	34.4	26.8	45.4	62.3	78.3		53.0	64.3		52.9
Level of Service		E	C	C	D	E	E		D	E		D
Approach Delay (s)			41.7			65.1				60.9		
Approach LOS			D			E				E		

Intersection Summary			
HCM 2000 Control Delay	55.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

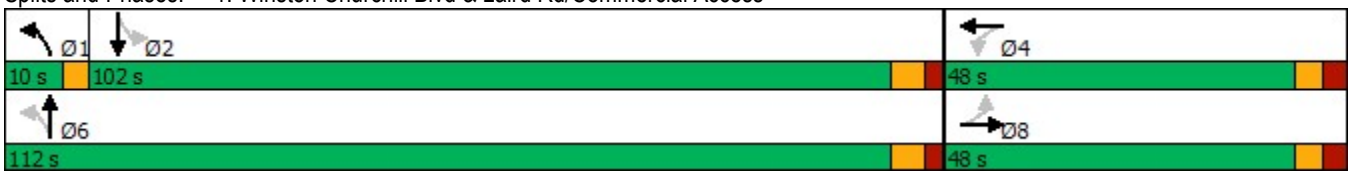
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	289	164
Future Volume (vph)	289	164
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3354	
Flt Permitted	1.00	
Satd. Flow (perm)	3354	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	298	169
RTOR Reduction (vph)	52	0
Lane Group Flow (vph)	415	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	40.0	
Effective Green, g (s)	40.0	
Actuated g/C Ratio	0.25	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	838	
v/s Ratio Prot	0.12	
v/s Ratio Perm		
v/c Ratio	0.50	
Uniform Delay, d1	51.4	
Progression Factor	1.00	
Incremental Delay, d2	0.5	
Delay (s)	51.8	
Level of Service	D	
Approach Delay (s)	52.2	
Approach LOS	D	

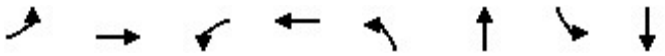
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	44	21	39	20	169	760	57	1306
Future Volume (vph)	44	21	39	20	169	760	57	1306
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		8		4	1	6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	1	6	2	2
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	9.5	39.5	39.5	39.5
Total Split (s)	48.0	48.0	48.0	48.0	10.0	112.0	102.0	102.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	6.3%	70.0%	63.8%	63.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	3.0	6.5	6.5	6.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	10.9	10.9	10.9	10.9	109.0	105.5	95.5	95.5
Actuated g/C Ratio	0.08	0.08	0.08	0.08	0.84	0.81	0.74	0.74
v/c Ratio	0.39	0.48	0.39	0.19	0.54	0.21	0.13	0.40
Control Delay	66.1	22.8	67.2	43.7	8.5	2.8	5.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	22.8	67.2	43.7	8.5	2.8	5.9	6.7
LOS	E	C	E	D	A	A	A	A
Approach Delay		31.6		57.1		3.7		6.6
Approach LOS		C		E		A		A

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 129.5	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 74.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	176	40	30	172	854	58	1476
v/c Ratio	0.39	0.48	0.39	0.19	0.54	0.21	0.13	0.40
Control Delay	66.1	22.8	67.2	43.7	8.5	2.8	5.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	22.8	67.2	43.7	8.5	2.8	5.9	6.7
Queue Length 50th (m)	11.1	6.3	9.8	4.8	5.4	13.1	3.7	43.0
Queue Length 95th (m)	23.7	17.6	21.7	14.5	10.8	19.3	8.8	56.3
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	441	1036	394	569	316	4070	452	3683
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	0.10	0.17	0.10	0.05	0.54	0.21	0.13	0.40

Intersection Summary

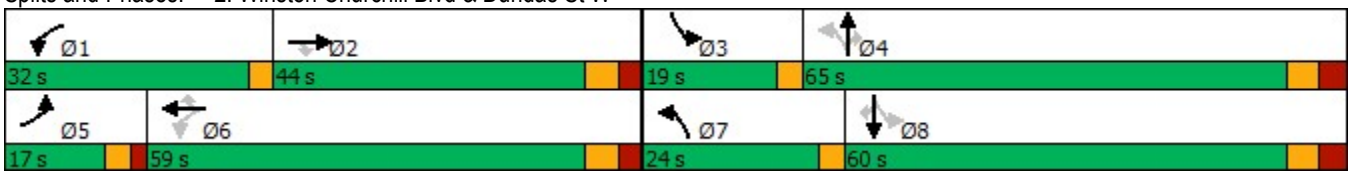
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	21	152	39	20	10	169	760	76	57	1306	140
Future Volume (vph)	44	21	152	39	20	10	169	760	76	57	1306	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		3.0	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.87		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	2967		1825	1755		1789	4991		1825	4988	
Flt Permitted	0.74	1.00		0.64	1.00		0.15	1.00		0.32	1.00	
Satd. Flow (perm)	1376	2967		1231	1755		278	4991		613	4988	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	45	21	155	40	20	10	172	776	78	58	1333	143
RTOR Reduction (vph)	0	115	0	0	9	0	0	4	0	0	5	0
Lane Group Flow (vph)	45	61	0	40	21	0	172	850	0	58	1471	0
Heavy Vehicles (%)	3%	5%	7%	0%	6%	0%	2%	4%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	10.9	10.9		10.9	10.9		105.5	105.5		95.5	95.5	
Effective Green, g (s)	10.9	10.9		10.9	10.9		105.5	105.5		95.5	95.5	
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.82	0.82		0.74	0.74	
Clearance Time (s)	6.5	6.5		6.5	6.5		3.0	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	115	249		103	147		308	4069		452	3681	
v/s Ratio Prot		0.02			0.01		c0.03	0.17			0.29	
v/s Ratio Perm	c0.03			0.03			c0.42			0.09		
v/c Ratio	0.39	0.24		0.39	0.14		0.56	0.21		0.13	0.40	
Uniform Delay, d1	56.1	55.4		56.1	54.9		3.5	2.7		4.9	6.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.5		2.4	0.4		2.2	0.1		0.6	0.3	
Delay (s)	58.3	55.9		58.5	55.4		5.7	2.8		5.5	6.6	
Level of Service	E	E		E	E		A	A		A	A	
Approach Delay (s)		56.4			57.2			3.3			6.6	
Approach LOS		E			E			A			A	

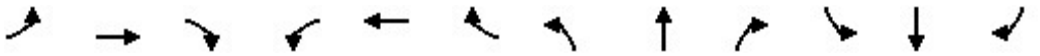
Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	129.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1103	429	302	712	148	226	760	280	207	1235	124
Future Volume (vph)	90	1103	429	302	712	148	226	760	280	207	1235	124
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.0	40.0	11.5	40.0	40.0	11.5	49.5	49.5	11.5	49.5	49.5
Total Split (s)	17.0	44.0	44.0	32.0	59.0	59.0	24.0	65.0	65.0	19.0	60.0	60.0
Total Split (%)	10.6%	27.5%	27.5%	20.0%	36.9%	36.9%	15.0%	40.6%	40.6%	11.9%	37.5%	37.5%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	3.0	3.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	9.7	39.2	39.2	71.5	52.8	52.8	75.5	52.2	52.2	66.6	47.4	47.4
Actuated g/C Ratio	0.06	0.26	0.26	0.47	0.35	0.35	0.50	0.34	0.34	0.44	0.31	0.31
v/c Ratio	0.46	0.88	0.76	0.91	0.42	0.24	0.82	0.46	0.41	0.64	0.82	0.24
Control Delay	77.6	63.6	33.6	73.5	40.0	6.2	61.4	39.8	5.2	32.3	53.5	8.2
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	77.6	63.6	33.6	73.5	40.0	6.2	61.4	39.8	5.2	32.3	53.5	8.2
LOS	E	E	C	E	D	A	E	D	A	C	D	A
Approach Delay		56.5			44.4			36.0			47.1	
Approach LOS		E			D			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 152.1	
Natural Cycle: 125	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 46.7	Intersection LOS: D
Intersection Capacity Utilization 93.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W

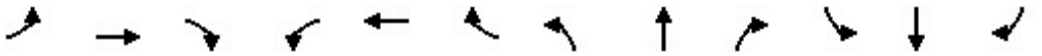




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	95	1161	452	318	749	156	238	800	295	218	1300	131
v/c Ratio	0.46	0.88	0.76	0.91	0.42	0.24	0.82	0.46	0.41	0.64	0.82	0.24
Control Delay	77.6	63.6	33.6	73.5	40.0	6.2	61.4	39.8	5.2	32.3	53.5	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.6	63.6	33.6	73.5	40.0	6.2	61.4	39.8	5.2	32.3	53.5	8.2
Queue Length 50th (m)	15.2	134.1	65.5	81.2	67.0	0.0	54.8	70.8	0.0	38.5	137.0	1.7
Queue Length 95th (m)	25.0	#166.4	112.1	#132.9	82.4	16.3	#95.8	83.6	19.8	56.2	154.9	17.0
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	257	1324	595	388	1768	637	307	1934	773	356	1766	595
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	0.37	0.88	0.76	0.82	0.42	0.24	0.78	0.41	0.38	0.61	0.74	0.22

Intersection Summary

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



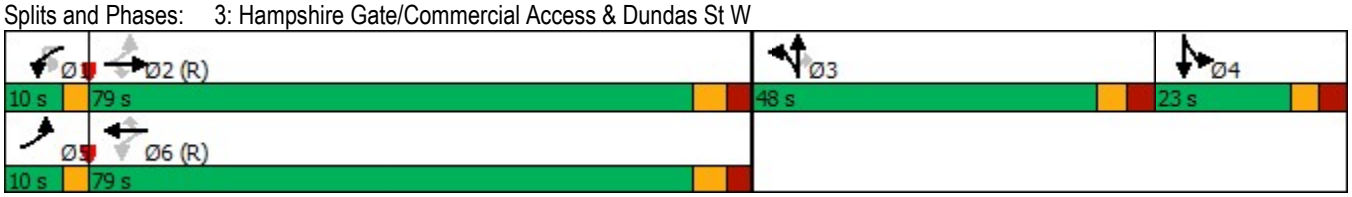
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1103	429	302	712	148	226	760	280	207	1235	124
Future Volume (vph)	90	1103	429	302	712	148	226	760	280	207	1235	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	2.0	7.5	7.5	3.0	7.5	7.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3248	5142	1601	1772	5092	1541	1755	5092	1555	1706	5092	1484
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.08	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	3248	5142	1601	177	5092	1541	147	5092	1555	516	5092	1484
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	1161	452	318	749	156	238	800	295	218	1300	131
RTOR Reduction (vph)	0	0	183	0	0	102	0	0	194	0	0	85
Lane Group Flow (vph)	95	1161	269	318	749	54	238	800	101	218	1300	46
Heavy Vehicles (%)	9%	2%	2%	3%	3%	6%	4%	3%	5%	7%	3%	10%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	9.7	39.2	39.2	67.5	52.8	52.8	69.9	52.2	52.2	62.0	47.3	47.3
Effective Green, g (s)	9.7	39.2	39.2	67.5	52.8	52.8	70.9	52.2	52.2	62.0	47.3	47.3
Actuated g/C Ratio	0.06	0.26	0.26	0.44	0.35	0.35	0.47	0.34	0.34	0.41	0.31	0.31
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	3.0	7.5	7.5	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	207	1326	413	344	1769	535	286	1749	534	325	1585	462
v/s Ratio Prot	0.03	0.23		c0.15	0.15		c0.11	0.16		0.06	c0.26	
v/s Ratio Perm			0.17	c0.26		0.04	0.28		0.07	0.21		0.03
v/c Ratio	0.46	0.88	0.65	0.92	0.42	0.10	0.83	0.46	0.19	0.67	0.82	0.10
Uniform Delay, d1	68.6	54.0	50.2	46.5	37.9	33.5	43.5	38.8	35.0	30.8	48.4	37.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	8.3	7.7	29.8	0.7	0.4	18.3	0.2	0.2	5.4	3.5	0.1
Delay (s)	70.2	62.3	58.0	76.3	38.7	33.9	61.8	39.0	35.2	36.1	51.9	37.3
Level of Service	E	E	E	E	D	C	E	D	D	D	D	D
Approach Delay (s)		61.6			47.8			42.2			48.7	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	151.9	Sum of lost time (s)	22.5
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	34	1650	168	1	118	803	28	80	18	76	19	5
Future Volume (vph)	34	1650	168	1	118	803	28	80	18	76	19	5
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Detector Phase	5	2	2	1	1	6	6	3	3	3	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	79.0	79.0	10.0	10.0	79.0	79.0	48.0	48.0	48.0	23.0	23.0
Total Split (%)	6.3%	49.4%	49.4%	6.3%	6.3%	49.4%	49.4%	30.0%	30.0%	30.0%	14.4%	14.4%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	3.5	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)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	116.6	105.5	105.5		128.3	116.2	116.2	11.5	11.5	11.5	10.0	10.0
Actuated g/C Ratio	0.73	0.66	0.66		0.80	0.73	0.73	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.08	0.53	0.17		0.46	0.24	0.03	0.45	0.44	0.41	0.20	0.10
Control Delay	5.6	16.5	2.2		13.8	8.6	0.0	82.6	81.6	15.2	75.8	48.2
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	5.6	16.5	2.2		13.8	8.6	0.0	82.6	81.6	15.2	75.8	48.2
LOS	A	B	A		B	A	A	F	F	B	E	D
Approach Delay		15.0				9.0			52.8			65.8
Approach LOS		B				A			D			E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 76.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	37	1813	185	131	882	31	54	54	84	21	12
v/c Ratio	0.08	0.53	0.17	0.46	0.24	0.03	0.45	0.44	0.41	0.20	0.10
Control Delay	5.6	16.5	2.2	13.8	8.6	0.0	82.6	81.6	15.2	75.8	48.2
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	5.6	16.5	2.2	13.8	8.6	0.0	82.6	81.6	15.2	75.8	48.2
Queue Length 50th (m)	2.5	117.2	0.1	9.4	37.6	0.0	17.7	17.7	0.0	6.5	1.5
Queue Length 95th (m)	6.0	146.4	10.6	26.4	48.4	0.0	32.8	32.8	13.6	16.0	8.7
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	473	3390	1107	287	3663	1166	431	444	489	172	181
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	0.08	0.53	0.17	0.46	0.24	0.03	0.13	0.12	0.17	0.12	0.07

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	34	1650	168	1	118	803	28	80	18	76	19	5
Future Volume (vph)	34	1650	168	1	118	803	28	80	18	76	19	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (prot)	1772	5142	1585		1790	5043	1570	1683	1737	1633	1722	1753
Flt Permitted	0.31	1.00	1.00		0.08	1.00	1.00	0.95	0.97	1.00	0.95	1.00
Satd. Flow (perm)	578	5142	1585		157	5043	1570	1683	1737	1633	1722	1753
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	37	1813	185	1	130	882	31	88	20	84	21	5
RTOR Reduction (vph)	0	0	66	0	0	0	9	0	0	78	0	7
Lane Group Flow (vph)	37	1813	119	0	131	882	22	54	54	6	21	5
Heavy Vehicles (%)	3%	2%	3%	0%	2%	4%	4%	3%	0%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split	NA
Protected Phases	5	2			1	6		3	3		4	4
Permitted Phases	2		2	1	6		6			3		
Actuated Green, G (s)	108.4	102.7	102.7		121.5	112.8	112.8	11.5	11.5	11.5	6.0	6.0
Effective Green, g (s)	108.4	102.7	102.7		121.5	112.8	112.8	11.5	11.5	11.5	6.0	6.0
Actuated g/C Ratio	0.68	0.64	0.64		0.76	0.70	0.70	0.07	0.07	0.07	0.04	0.04
Clearance Time (s)	3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	434	3300	1017		280	3555	1106	120	124	117	64	65
v/s Ratio Prot	0.00	c0.35			c0.05	0.17		c0.03	0.03		c0.01	0.00
v/s Ratio Perm	0.05		0.08		0.31		0.01			0.00		
v/c Ratio	0.09	0.55	0.12		0.47	0.25	0.02	0.45	0.44	0.05	0.33	0.08
Uniform Delay, d1	8.5	15.8	11.1		11.8	8.4	7.1	71.2	71.1	69.2	75.0	74.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7	0.2		1.2	0.2	0.0	2.7	2.4	0.2	3.0	0.5
Delay (s)	8.6	16.5	11.3		13.0	8.6	7.1	73.9	73.6	69.4	78.0	74.9
Level of Service	A	B	B		B	A	A	E	E	E	E	E
Approach Delay (s)		15.9				9.1			71.8			76.9
Approach LOS		B				A			E			E

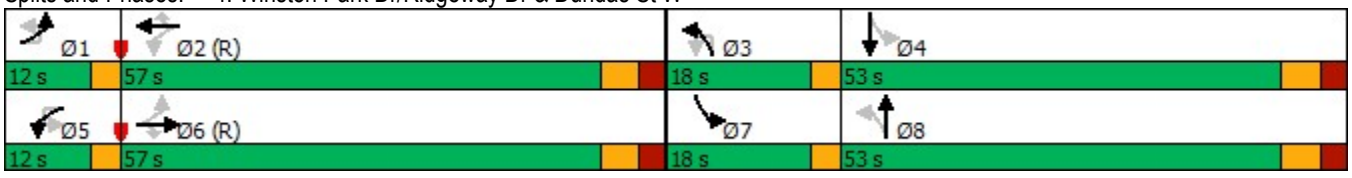
Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	SBL
Lane Configurations												
Traffic Volume (vph)	12	227	1475	401	2	61	589	197	1	126	226	298
Future Volume (vph)	12	227	1475	401	2	61	589	197	1	126	226	298
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt
Protected Phases		1	6			5	2			3	8	7
Permitted Phases	1	6		6	5	2		2	3	8		4
Detector Phase	1	1	6	6	5	5	2	2	3	3	8	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	11.5	44.0	44.0	11.5	11.5	48.0	11.5
Total Split (s)	12.0	12.0	57.0	57.0	12.0	12.0	57.0	57.0	18.0	18.0	53.0	18.0
Total Split (%)	8.6%	8.6%	40.7%	40.7%	8.6%	8.6%	40.7%	40.7%	12.9%	12.9%	37.9%	12.9%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	3.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		80.1	66.7	66.7		71.2	58.8	58.8		49.0	31.9	52.2
Actuated g/C Ratio		0.57	0.48	0.48		0.51	0.42	0.42		0.35	0.23	0.37
v/c Ratio		0.54	0.65	0.50		0.39	0.30	0.28		0.61	0.35	0.75
Control Delay		21.0	31.5	13.0		22.7	28.9	4.7		39.5	43.2	44.6
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		21.0	31.5	13.0		22.7	28.9	4.7		39.5	43.2	44.6
LOS		C	C	B		C	C	A		D	D	D
Approach Delay			26.8				22.8				42.0	
Approach LOS			C				C				D	

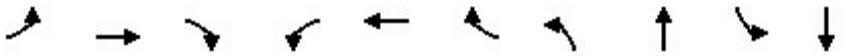
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 33 (24%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 77.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W



Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	559
Future Volume (vph)	559
Turn Type	NA
Protected Phases	4
Permitted Phases	
Detector Phase	4
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	48.0
Total Split (s)	53.0
Total Split (%)	37.9%
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	33.7
Actuated g/C Ratio	0.24
v/c Ratio	0.80
Control Delay	56.3
Queue Delay	0.0
Total Delay	56.3
LOS	E
Approach Delay	52.5
Approach LOS	D

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	260	1603	436	68	640	214	138	285	324	681
v/c Ratio	0.54	0.65	0.50	0.39	0.30	0.28	0.61	0.35	0.75	0.80
Control Delay	21.0	31.5	13.0	22.7	28.9	4.7	39.5	43.2	44.6	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	31.5	13.0	22.7	28.9	4.7	39.5	43.2	44.6	56.3
Queue Length 50th (m)	35.3	125.8	30.7	8.2	44.1	0.0	25.2	33.2	66.4	92.4
Queue Length 95th (m)	59.3	165.3	70.3	17.7	58.6	16.6	36.6	42.7	84.5	106.8
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	484	2451	879	185	2117	776	247	1158	432	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.65	0.50	0.37	0.30	0.28	0.56	0.25	0.75	0.58

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	12	227	1475	401	2	61	589	197	1	126	226	36
Future Volume (vph)	12	227	1475	401	2	61	589	197	1	126	226	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.95	
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		1774	5142	1555		1678	5043	1555		1602	3500	
Flt Permitted		0.35	1.00	1.00		0.09	1.00	1.00		0.18	1.00	
Satd. Flow (perm)		644	5142	1555		163	5043	1555		296	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	247	1603	436	2	66	640	214	1	137	246	39
RTOR Reduction (vph)	0	0	0	139	0	0	0	124	0	0	10	0
Lane Group Flow (vph)	0	260	1603	297	0	68	640	90	0	138	275	0
Heavy Vehicles (%)	0%	3%	2%	5%	0%	9%	4%	5%	0%	14%	2%	3%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	
Protected Phases		1	6			5	2			3	8	
Permitted Phases	1	6		6	5	2		2	3	8		
Actuated Green, G (s)		76.1	66.1	66.1		65.7	58.7	58.7		45.1	31.9	
Effective Green, g (s)		76.1	66.1	66.1		65.7	58.7	58.7		45.1	31.9	
Actuated g/C Ratio		0.54	0.47	0.47		0.47	0.42	0.42		0.32	0.23	
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0		3.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		466	2427	734		152	2114	651		218	797	
v/s Ratio Prot		c0.06	c0.31			0.02	0.13			0.06	0.08	
v/s Ratio Perm		0.25		0.19		0.19		0.06		0.14		
v/c Ratio		0.56	0.66	0.40		0.45	0.30	0.14		0.63	0.34	
Uniform Delay, d1		17.5	28.3	24.1		22.8	27.0	25.1		36.6	45.3	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5	1.4	1.7		2.1	0.4	0.4		5.9	0.3	
Delay (s)		18.9	29.8	25.8		24.9	27.4	25.5		42.5	45.6	
Level of Service		B	C	C		C	C	C		D	D	
Approach Delay (s)			27.8				26.8				44.6	
Approach LOS			C				C				D	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

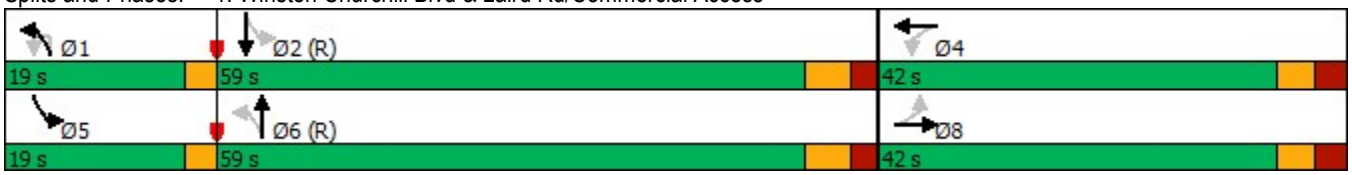
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	298	559	67
Future Volume (vph)	298	559	67
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	7.0	
Lane Util. Factor	1.00	0.95	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1755	3526	
Flt Permitted	0.50	1.00	
Satd. Flow (perm)	920	3526	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	324	608	73
RTOR Reduction (vph)	0	8	0
Lane Group Flow (vph)	324	673	0
Heavy Vehicles (%)	4%	1%	9%
Turn Type	pm+pt	NA	
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)	48.7	33.7	
Effective Green, g (s)	48.7	33.7	
Actuated g/C Ratio	0.35	0.24	
Clearance Time (s)	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	409	848	
v/s Ratio Prot	c0.08	c0.19	
v/s Ratio Perm	0.19		
v/c Ratio	0.79	0.79	
Uniform Delay, d1	38.3	49.9	
Progression Factor	1.00	1.00	
Incremental Delay, d2	10.1	5.2	
Delay (s)	48.4	55.1	
Level of Service	D	E	
Approach Delay (s)		52.9	
Approach LOS		D	

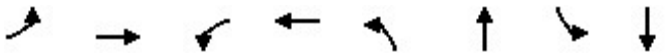
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBU	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	177	101	118	120	1	231	858	122	625
Future Volume (vph)	177	101	118	120	1	231	858	122	625
Turn Type	Perm	NA	Perm	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases		8		4		1	6	5	2
Permitted Phases	8		4		1	6		2	
Detector Phase	8	8	4	4	1	1	6	5	2
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	41.5	41.5	41.5	41.5	10.5	10.5	39.5	13.0	39.5
Total Split (s)	42.0	42.0	42.0	42.0	19.0	19.0	59.0	19.0	59.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	15.8%	15.8%	49.2%	15.8%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	0.0	2.5	0.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5		3.0	6.5	3.0	6.5
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	26.0	26.0	26.0	26.0		83.8	69.4	78.7	66.6
Actuated g/C Ratio	0.22	0.22	0.22	0.22		0.70	0.58	0.66	0.56
v/c Ratio	0.87	0.37	0.62	0.47		0.49	0.35	0.31	0.31
Control Delay	80.1	13.1	54.7	38.1		10.8	14.6	9.2	14.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	80.1	13.1	54.7	38.1		10.8	14.6	9.2	14.6
LOS	F	B	D	D		B	B	A	B
Approach Delay		37.6		44.6			13.9		13.9
Approach LOS		D		D			B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 19 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Winston Churchill Blvd & Laird Rd/Commercial Access





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	323	124	193	244	1025	128	864
v/c Ratio	0.87	0.37	0.62	0.47	0.49	0.35	0.31	0.31
Control Delay	80.1	13.1	54.7	38.1	10.8	14.6	9.2	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.1	13.1	54.7	38.1	10.8	14.6	9.2	14.6
Queue Length 50th (m)	42.2	10.6	26.4	34.7	18.0	43.4	8.8	34.5
Queue Length 95th (m)	64.2	20.5	42.8	51.4	35.3	66.1	19.3	55.3
Internal Link Dist (m)		119.0		49.7		274.6		251.6
Turn Bay Length (m)	70.0				60.0		107.0	
Base Capacity (vph)	291	1117	273	554	546	2914	516	2775
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	0.64	0.29	0.45	0.35	0.45	0.35	0.25	0.31

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	177	101	206	118	120	64	1	231	858	116	122	625
Future Volume (vph)	177	101	206	118	120	64	1	231	858	116	122	625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00	0.91		1.00	0.91
Frt	1.00	0.90		1.00	0.95			1.00	0.98		1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1807	3260		1807	1821			1807	5018		1825	4933
Flt Permitted	0.52	1.00		0.49	1.00			0.28	1.00		0.25	1.00
Satd. Flow (perm)	987	3260		924	1821			534	5018		482	4933
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	186	106	217	124	126	67	1	243	903	122	128	658
RTOR Reduction (vph)	0	170	0	0	18	0	0	0	11	0	0	37
Lane Group Flow (vph)	186	153	0	124	175	0	0	244	1014	0	128	827
Heavy Vehicles (%)	1%	0%	1%	1%	0%	0%	0%	1%	3%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA		pm+pt	NA
Protected Phases		8			4			1	6		5	2
Permitted Phases	8			4			1	6			2	
Actuated Green, G (s)	26.0	26.0		26.0	26.0			80.8	69.4		75.2	66.6
Effective Green, g (s)	26.0	26.0		26.0	26.0			80.8	69.4		75.2	66.6
Actuated g/C Ratio	0.22	0.22		0.22	0.22			0.67	0.58		0.63	0.55
Clearance Time (s)	6.5	6.5		6.5	6.5			3.0	6.5		3.0	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	213	706		200	394			480	2902		398	2737
v/s Ratio Prot		0.05			0.10			c0.05	0.20		0.02	0.17
v/s Ratio Perm	c0.19			0.13				c0.29			0.18	
v/c Ratio	0.87	0.22		0.62	0.44			0.51	0.35		0.32	0.30
Uniform Delay, d1	45.4	38.6		42.5	40.7			7.8	13.4		9.1	14.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	30.2	0.2		5.6	0.8			0.8	0.3		0.5	0.3
Delay (s)	75.6	38.8		48.2	41.5			8.7	13.7		9.6	14.6
Level of Service	E	D		D	D			A	B		A	B
Approach Delay (s)		52.2			44.1				12.7			13.9
Approach LOS		D			D				B			B

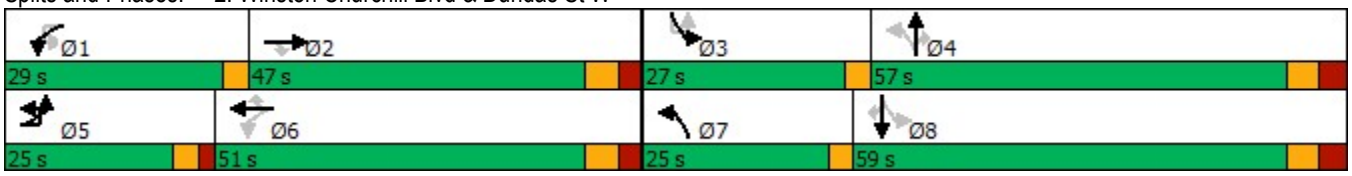
Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	196
Future Volume (vph)	196
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	206
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	301	1224	238	3	319	1130	318	238	741	361	2	280
Future Volume (vph)	301	1224	238	3	319	1130	318	238	741	361	2	280
Turn Type	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt
Protected Phases	5	2			1	6		7	4			3
Permitted Phases			2	1	6		6	4		4	3	8
Detector Phase	5	2	2	1	1	6	6	7	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0
Minimum Split (s)	12.0	40.0	40.0	11.5	11.5	40.0	40.0	11.5	49.5	49.5	11.5	11.5
Total Split (s)	25.0	47.0	47.0	29.0	29.0	51.0	51.0	25.0	57.0	57.0	27.0	27.0
Total Split (%)	15.6%	29.4%	29.4%	18.1%	18.1%	31.9%	31.9%	15.6%	35.6%	35.6%	16.9%	16.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.5	3.5	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		-1.0
Total Lost Time (s)	5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5		2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	17.3	40.2	40.2		72.8	46.5	46.5	52.5	30.1	30.1		58.5
Actuated g/C Ratio	0.13	0.29	0.29		0.53	0.34	0.34	0.38	0.22	0.22		0.43
v/c Ratio	0.75	0.84	0.39		0.85	0.67	0.45	0.60	0.69	0.63		0.78
Control Delay	69.6	52.2	6.9		56.7	42.5	9.2	32.7	52.4	13.4		42.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	69.6	52.2	6.9		56.7	42.5	9.2	32.7	52.4	13.4		42.3
LOS	E	D	A		E	D	A	C	D	B		D
Approach Delay		49.1				39.1			38.4			
Approach LOS		D				D			D			

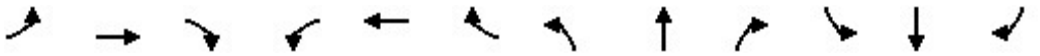
Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 136.5	
Natural Cycle: 115	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 41.8	Intersection LOS: D
Intersection Capacity Utilization 98.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Winston Churchill Blvd & Dundas St W



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	538	194
Future Volume (vph)	538	194
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	49.5	49.5
Total Split (s)	59.0	59.0
Total Split (%)	36.9%	36.9%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	3.5	3.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.5	7.5
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)	32.3	32.3
Actuated g/C Ratio	0.24	0.24
v/c Ratio	0.47	0.40
Control Delay	46.0	11.3
Queue Delay	0.0	0.0
Total Delay	46.0	11.3
LOS	D	B
Approach Delay	38.3	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	328	1288	251	339	1189	335	251	780	380	297	566	204
v/c Ratio	0.75	0.84	0.39	0.85	0.67	0.45	0.60	0.69	0.63	0.78	0.47	0.40
Control Delay	69.6	52.2	6.9	56.7	42.5	9.2	32.7	52.4	13.4	42.3	46.0	11.3
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	69.6	52.2	6.9	56.7	42.5	9.2	32.7	52.4	13.4	42.3	46.0	11.3
Queue Length 50th (m)	44.6	121.0	0.8	71.2	101.9	8.9	45.0	71.9	12.4	54.0	48.6	6.2
Queue Length 95th (m)	65.5	#163.4	22.1	#139.3	136.3	37.5	64.8	88.7	44.6	79.3	62.3	26.8
Internal Link Dist (m)		134.9			579.6			585.3			107.1	
Turn Bay Length (m)	130.0		110.0	150.0		145.0	90.0		90.0	90.0		33.0
Base Capacity (vph)	511	1529	650	406	1767	745	466	1874	783	422	1950	715
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	0.64	0.84	0.39	0.83	0.67	0.45	0.54	0.42	0.49	0.70	0.29	0.29

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	10	301	1224	238	3	319	1130	318	238	741	361	2
Future Volume (vph)	10	301	1224	238	3	319	1130	318	238	741	361	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Lane Util. Factor		0.97	0.91	1.00		1.00	0.91	1.00	1.00	0.91	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3473	5193	1617		1807	5193	1633	1807	5142	1585	
Flt Permitted		0.95	1.00	1.00		0.09	1.00	1.00	0.37	1.00	1.00	
Satd. Flow (perm)		3473	5193	1617		176	5193	1633	709	5142	1585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	317	1288	251	3	336	1189	335	251	780	380	2
RTOR Reduction (vph)	0	0	0	174	0	0	0	189	0	0	252	0
Lane Group Flow (vph)	0	328	1288	77	0	339	1189	146	251	780	128	0
Heavy Vehicles (%)	0%	2%	1%	1%	0%	1%	1%	0%	1%	2%	3%	0%
Turn Type	Prot	Prot	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom
Protected Phases	5	5	2			1	6		7	4		
Permitted Phases				2	1	6		6	4		4	3
Actuated Green, G (s)		17.3	40.2	40.2		68.8	46.5	46.5	48.1	30.2	30.2	
Effective Green, g (s)		17.3	40.2	40.2		68.8	46.5	46.5	48.1	30.2	30.2	
Actuated g/C Ratio		0.13	0.29	0.29		0.50	0.34	0.34	0.35	0.22	0.22	
Clearance Time (s)		5.0	7.0	7.0		3.0	7.0	7.0	3.0	7.5	7.5	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		440	1529	476		394	1769	556	393	1137	350	
v/s Ratio Prot		0.09	0.25			c0.16	0.23		0.08	c0.15		
v/s Ratio Perm				0.05		c0.27		0.09	0.14		0.08	
v/c Ratio		0.75	0.84	0.16		0.86	0.67	0.26	0.64	0.69	0.36	
Uniform Delay, d1		57.5	45.2	35.7		39.5	38.5	32.6	33.3	48.8	45.0	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.7	5.8	0.7		17.2	2.1	1.1	3.4	1.7	0.6	
Delay (s)		64.2	51.0	36.4		56.6	40.5	33.7	36.7	50.5	45.7	
Level of Service		E	D	D		E	D	C	D	D	D	
Approach Delay (s)			51.4				42.2			46.8		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	46.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	136.5	Sum of lost time (s)	22.5
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

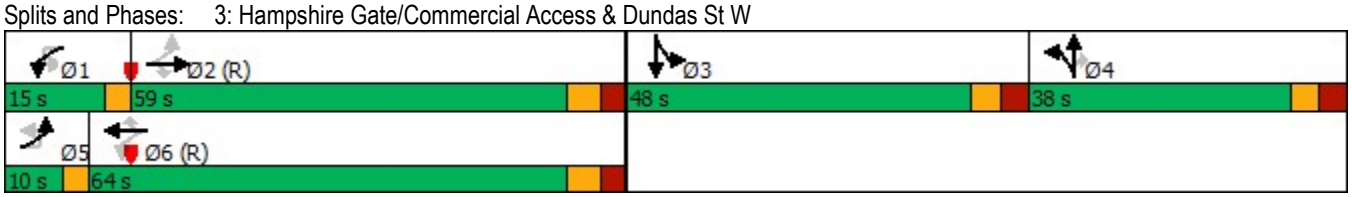
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	280	538	194
Future Volume (vph)	280	538	194
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	2.0	7.5	7.5
Lane Util. Factor	1.00	0.91	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1807	5142	1601
Flt Permitted	0.19	1.00	1.00
Satd. Flow (perm)	368	5142	1601
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	295	566	204
RTOR Reduction (vph)	0	0	134
Lane Group Flow (vph)	297	566	70
Heavy Vehicles (%)	1%	2%	2%
Turn Type	pm+pt	NA	Perm
Protected Phases	3	8	
Permitted Phases	8		8
Actuated Green, G (s)	52.3	32.3	32.3
Effective Green, g (s)	54.2	32.3	32.3
Actuated g/C Ratio	0.40	0.24	0.24
Clearance Time (s)	3.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	367	1216	378
v/s Ratio Prot	c0.12	0.11	
v/s Ratio Perm	0.20		0.04
v/c Ratio	0.81	0.47	0.19
Uniform Delay, d1	31.1	44.7	41.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	12.4	0.3	0.2
Delay (s)	43.5	45.0	41.8
Level of Service	D	D	D
Approach Delay (s)		44.0	
Approach LOS		D	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	95	1315	157	2	137	1229	83	679	96	318	172
Future Volume (vph)	2	95	1315	157	2	137	1229	83	679	96	318	172
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Detector Phase	5	5	2	2	1	1	6	6	4	4	4	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	44.0	44.0	10.0	10.0	44.0	44.0	47.0	47.0	47.0	47.0
Total Split (s)	10.0	10.0	59.0	59.0	15.0	15.0	64.0	64.0	38.0	38.0	38.0	48.0
Total Split (%)	6.3%	6.3%	36.9%	36.9%	9.4%	9.4%	40.0%	40.0%	23.8%	23.8%	23.8%	30.0%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.5	3.5	3.5	3.5
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.5	3.5	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
Total Lost Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		63.4	52.4	52.4		71.0	57.0	57.0	50.4	50.4	50.4	21.6
Actuated g/C Ratio		0.40	0.33	0.33		0.44	0.36	0.36	0.32	0.32	0.32	0.14
v/c Ratio		0.70	0.83	0.26		0.81	0.71	0.14	0.76	0.75	0.50	0.75
Control Delay		55.2	36.5	3.0		66.5	47.1	5.6	60.5	59.6	16.8	84.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		55.2	36.5	3.0		66.5	47.1	5.6	60.5	59.6	16.8	84.9
LOS		E	D	A		E	D	A	E	E	B	F
Approach Delay			34.3				46.6			47.5		
Approach LOS			C				D			D		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 43.5	Intersection LOS: D
Intersection Capacity Utilization 84.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Hampshire Gate/Commercial Access & Dundas St W



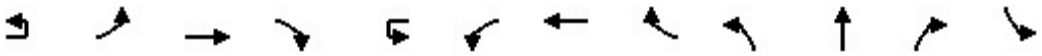
Lane Group	SBT
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Turn Type	NA
Protected Phases	3
Permitted Phases	
Detector Phase	3
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	47.0
Total Split (s)	48.0
Total Split (%)	30.0%
Yellow Time (s)	3.5
All-Red Time (s)	3.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	21.6
Actuated g/C Ratio	0.14
v/c Ratio	0.46
Control Delay	30.4
Queue Delay	0.0
Total Delay	30.4
LOS	C
Approach Delay	61.3
Approach LOS	E

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	1399	167	148	1307	88	412	412	338	183	140
v/c Ratio	0.70	0.83	0.26	0.81	0.71	0.14	0.76	0.75	0.50	0.75	0.46
Control Delay	55.2	36.5	3.0	66.5	47.1	5.6	60.5	59.6	16.8	84.9	30.4
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	55.2	36.5	3.0	66.5	47.1	5.6	60.5	59.6	16.8	84.9	30.4
Queue Length 50th (m)	9.1	160.8	8.3	29.8	131.5	0.0	124.8	124.2	25.0	56.9	16.2
Queue Length 95th (m)	m#27.1	179.2	m8.8	#66.2	148.5	10.6	#195.3	#192.7	59.4	80.2	36.4
Internal Link Dist (m)		357.4			148.9			183.0			72.3
Turn Bay Length (m)	71.0		115.0	130.0		115.0			70.0		
Base Capacity (vph)	148	1683	636	186	1831	637	540	549	674	463	500
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	0.83	0.26	0.80	0.71	0.14	0.76	0.75	0.50	0.40	0.28

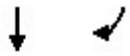
Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	95	1315	157	2	137	1229	83	679	96	318	172
Future Volume (vph)	2	95	1315	157	2	137	1229	83	679	96	318	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00	0.95	0.95	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (prot)		1825	5142	1601		1807	5142	1617	1717	1746	1633	1807
Flt Permitted		0.10	1.00	1.00		0.07	1.00	1.00	0.95	0.96	1.00	0.95
Satd. Flow (perm)		195	5142	1601		137	5142	1617	1717	1746	1633	1807
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	101	1399	167	2	146	1307	88	722	102	338	183
RTOR Reduction (vph)	0	0	0	112	0	0	0	57	0	0	160	0
Lane Group Flow (vph)	0	103	1399	55	0	148	1307	31	412	412	178	183
Heavy Vehicles (%)	0%	0%	2%	2%	0%	1%	2%	1%	1%	0%	0%	1%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	Split	NA	Perm	Split
Protected Phases		5	2			1	6		4	4		3
Permitted Phases	5	2		2	1	6		6			4	
Actuated Green, G (s)		59.4	52.4	52.4		67.0	57.0	57.0	50.4	50.4	50.4	21.6
Effective Green, g (s)		59.4	52.4	52.4		67.0	57.0	57.0	50.4	50.4	50.4	21.6
Actuated g/C Ratio		0.37	0.33	0.33		0.42	0.36	0.36	0.31	0.31	0.31	0.14
Clearance Time (s)		3.0	7.0	7.0		3.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		143	1684	524		178	1831	576	540	549	514	243
v/s Ratio Prot		0.03	0.27			c0.06	0.25		c0.24	0.24		c0.10
v/s Ratio Perm		0.24		0.03		c0.29		0.02			0.11	
v/c Ratio		0.72	0.83	0.10		0.83	0.71	0.05	0.76	0.75	0.35	0.75
Uniform Delay, d1		36.3	49.7	37.5		38.9	44.5	33.8	49.4	49.2	42.1	66.6
Progression Factor		1.32	0.66	0.45		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		12.1	3.6	0.3		26.8	2.4	0.2	6.3	5.7	0.4	12.4
Delay (s)		59.9	36.3	17.2		65.7	46.9	34.0	55.7	54.9	42.5	79.0
Level of Service		E	D	B		E	D	C	E	D	D	E
Approach Delay (s)			35.8				47.9			51.6		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



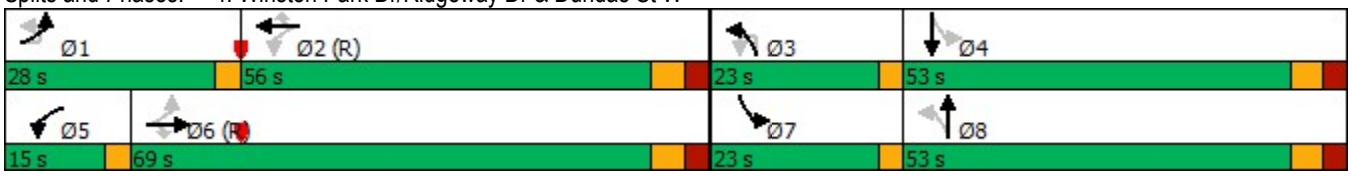
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	35	97
Future Volume (vph)	35	97
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	1.00	
Frt	0.89	
Flt Protected	1.00	
Satd. Flow (prot)	1709	
Flt Permitted	1.00	
Satd. Flow (perm)	1709	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	37	103
RTOR Reduction (vph)	73	0
Lane Group Flow (vph)	67	0
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	21.6	
Effective Green, g (s)	21.6	
Actuated g/C Ratio	0.14	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	230	
v/s Ratio Prot	0.04	
v/s Ratio Perm		
v/c Ratio	0.29	
Uniform Delay, d1	62.3	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	63.0	
Level of Service	E	
Approach Delay (s)	72.1	
Approach LOS	E	

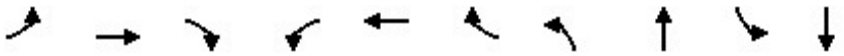
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	294	1317	133	93	1454	443	2	363	767	259	321
Future Volume (vph)	8	294	1317	133	93	1454	443	2	363	767	259	321
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	pm+pt	NA
Protected Phases		1	6		5	2			3	8	7	4
Permitted Phases	1	6		6	2		2	3	8		4	
Detector Phase	1	1	6	6	5	2	2	3	3	8	7	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.5	11.5	44.0	44.0	11.5	44.0	44.0	11.5	11.5	48.0	11.5	48.0
Total Split (s)	28.0	28.0	69.0	69.0	15.0	56.0	56.0	23.0	23.0	53.0	23.0	53.0
Total Split (%)	17.5%	17.5%	43.1%	43.1%	9.4%	35.0%	35.0%	14.4%	14.4%	33.1%	14.4%	33.1%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		-1.0	0.0	-2.0	0.0
Total Lost Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0	1.0	7.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		83.3	66.6	66.6	65.2	51.4	51.4		69.8	43.8	71.5	43.7
Actuated g/C Ratio		0.52	0.42	0.42	0.41	0.32	0.32		0.44	0.27	0.45	0.27
v/c Ratio		0.94	0.63	0.20	0.48	0.90	0.64		0.90	0.89	0.89	0.54
Control Delay		81.9	39.4	12.5	38.7	71.3	32.8		58.3	67.1	73.1	44.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		81.9	39.4	12.5	38.7	71.3	32.8		58.3	67.1	73.1	44.4
LOS		F	D	B	D	E	C		E	E	E	D
Approach Delay			44.7			61.2				64.4		54.1
Approach LOS			D			E				E		D

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 137 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 55.9	Intersection LOS: E
Intersection Capacity Utilization 101.2%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Winston Park Dr/Ridgeway Dr & Dundas St W





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	311	1358	137	96	1499	457	376	872	267	519
v/c Ratio	0.94	0.63	0.20	0.48	0.90	0.64	0.90	0.89	0.89	0.54
Control Delay	81.9	39.4	12.5	38.7	71.3	32.8	58.3	67.1	73.1	44.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.9	39.4	12.5	38.7	71.3	32.8	58.3	67.1	73.1	44.4
Queue Length 50th (m)	82.2	128.3	9.2	15.1	162.5	62.2	80.5	137.4	64.7	63.2
Queue Length 95th (m)	#140.9	148.0	24.6	m22.4	#183.4	100.8	#108.2	163.7	#115.6	81.5
Internal Link Dist (m)		271.1			357.4			214.3		271.5
Turn Bay Length (m)	120.0		60.0	145.0		110.0	80.0		85.0	
Base Capacity (vph)	339	2140	676	226	1669	717	417	1029	300	1014
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.63	0.20	0.42	0.90	0.64	0.90	0.85	0.89	0.51

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	294	1317	133	93	1454	443	2	363	767	79	259
Future Volume (vph)	8	294	1317	133	93	1454	443	2	363	767	79	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	7.0	7.0	3.0	7.0	7.0		2.0	7.0		1.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.95		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1807	5142	1498	1807	5193	1617		1789	3564		1789
Flt Permitted		0.07	1.00	1.00	0.14	1.00	1.00		0.32	1.00		0.09
Satd. Flow (perm)		140	5142	1498	265	5193	1617		596	3564		177
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	303	1358	137	96	1499	457	2	374	791	81	267
RTOR Reduction (vph)	0	0	0	53	0	0	198	0	0	5	0	0
Lane Group Flow (vph)	0	311	1358	84	96	1499	259	0	376	867	0	267
Heavy Vehicles (%)	0%	1%	2%	9%	1%	1%	1%	0%	2%	1%	1%	2%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA		pm+pt
Protected Phases		1	6		5	2			3	8		7
Permitted Phases	1	6		6	2		2	3	8			4
Actuated Green, G (s)		79.3	66.6	66.6	61.1	51.4	51.4		63.9	43.9		63.5
Effective Green, g (s)		79.3	66.6	66.6	61.1	51.4	51.4		65.9	43.9		67.5
Actuated g/C Ratio		0.50	0.42	0.42	0.38	0.32	0.32		0.41	0.27		0.42
Clearance Time (s)		3.0	7.0	7.0	3.0	7.0	7.0		3.0	7.0		3.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		328	2140	623	194	1668	519		402	977		294
v/s Ratio Prot		c0.15	0.26		0.03	0.29			c0.12	c0.24		0.12
v/s Ratio Perm		c0.32		0.06	0.16		0.16		0.26			0.26
v/c Ratio		0.95	0.63	0.14	0.49	0.90	0.50		0.94	0.89		0.91
Uniform Delay, d1		51.8	37.0	28.9	33.1	51.8	43.9		38.8	55.7		47.4
Progression Factor		1.00	1.00	1.00	1.50	1.26	1.81		1.00	1.00		1.00
Incremental Delay, d2		35.8	1.4	0.5	1.4	5.9	2.4		28.9	9.8		29.6
Delay (s)		87.6	38.5	29.3	51.1	71.1	81.7		67.7	65.5		77.0
Level of Service		F	D	C	D	E	F		E	E		E
Approach Delay (s)			46.3			72.5				66.2		
Approach LOS			D			E				E		

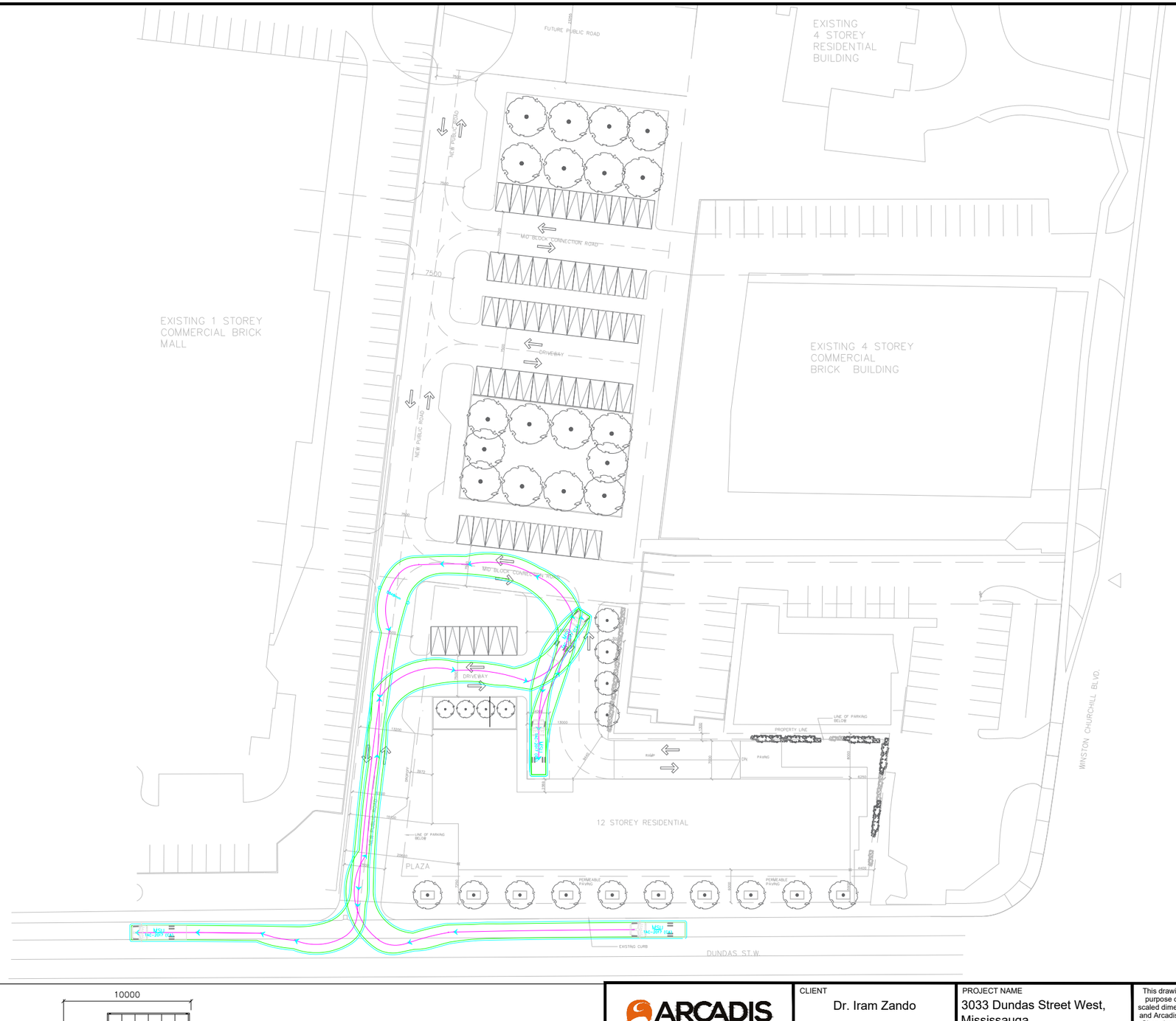
Intersection Summary			
HCM 2000 Control Delay	61.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	321	182
Future Volume (vph)	321	182
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	7.0	
Lane Util. Factor	0.95	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	3354	
Flt Permitted	1.00	
Satd. Flow (perm)	3354	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	331	188
RTOR Reduction (vph)	51	0
Lane Group Flow (vph)	468	0
Heavy Vehicles (%)	4%	1%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	43.7	
Effective Green, g (s)	43.7	
Actuated g/C Ratio	0.27	
Clearance Time (s)	7.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	916	
v/s Ratio Prot	0.14	
v/s Ratio Perm		
v/c Ratio	0.51	
Uniform Delay, d1	49.1	
Progression Factor	1.00	
Incremental Delay, d2	0.5	
Delay (s)	49.6	
Level of Service	D	
Approach Delay (s)	58.9	
Approach LOS	E	

Intersection Summary

Appendix M

Vehicle Swept Path Analysis



Project North

True North

10000

MSU

	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	: 6.0
Steering Angle	: 40.2

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Toronto ON M4V 2Y7 Canada
tel 416 596 1930
www.arcadis.com

CLIENT
Dr. Iram Zando

255 Erin Centre Boulevard,
Unit 16
Mississauga, ON L5M 5H1

PROJECT NAME
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3033 Dundas Street West,
Mississauga, ON L5L 3R8

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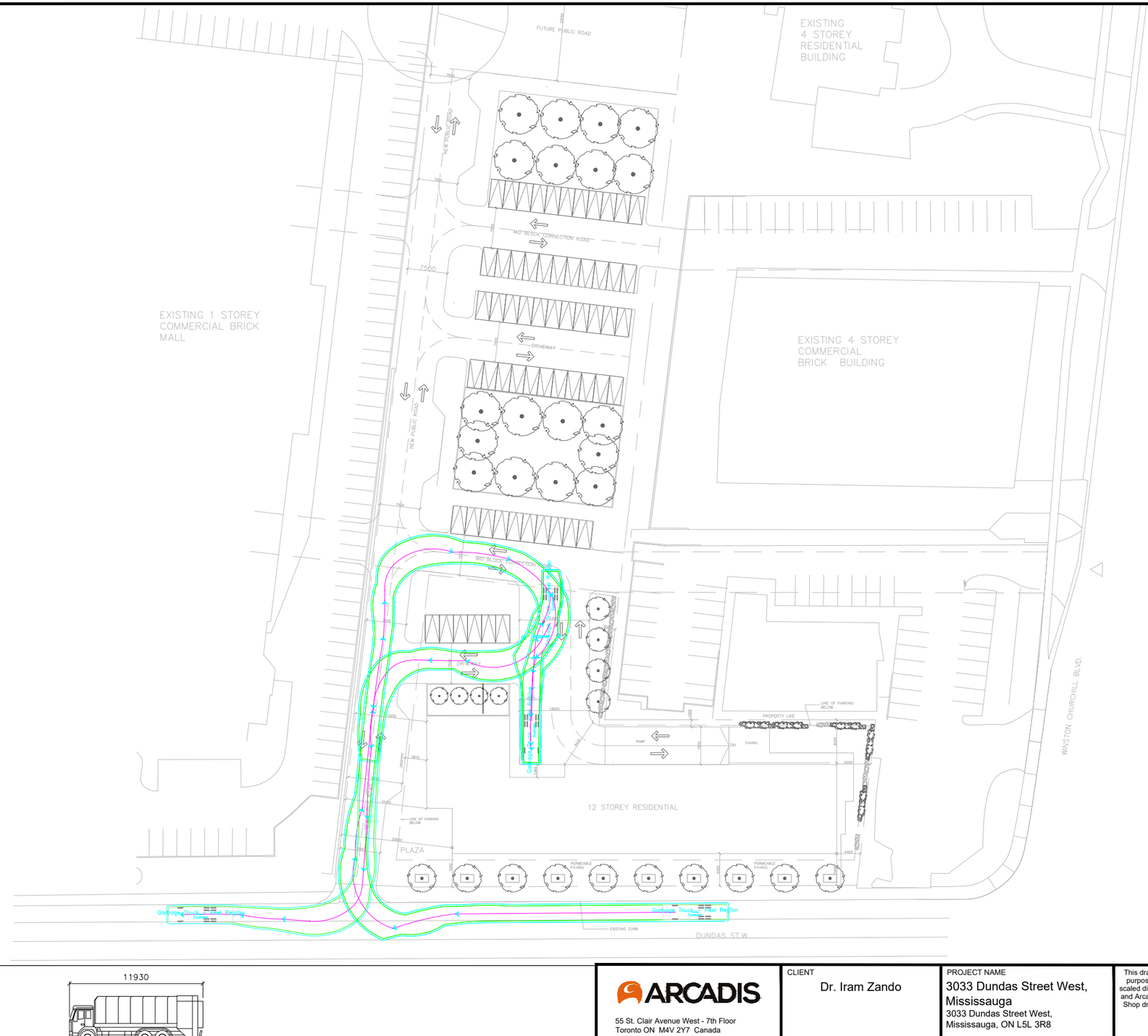
CHECKED BY: AA	APPROVED BY: AG
PROJECT NO: 141918	

FIGURE NAME
Transportation Maneuverability Plan - Delivery Vehicle - MSU

FIGURE NO.	REVISION
01	01

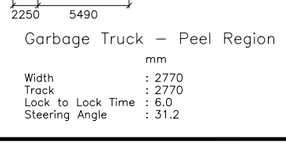
SCALE CHECK
1 in | 10mm

File Location: C:\Users\Gurminder.Jaglal\ARCADIS\141918 3033 Dundas Street West, Mississauga - Internal Documents\6.0_Technical\6.23_Traffic\04_Design-Analysis\AutoTURN\2024-11-26\AT_3033DundasStW.dwg Last Saved: November 27, 2024, by gurminder.jaglal Plotted: Wednesday, November 27, 2024 15:13:34 by Gurminder Jaglal



Project North

True North



Garbage Truck — Peel Region

mm

Width	: 2770
Track	: 2770
Lock to Lock Time	: 6.0
Steering Angle	: 31.2

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PROJECT NAME
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CHECKED BY: AA	APPROVED BY: AG
PROJECT NO: 141918	

FIGURE NAME
Transcription Maneuverability Plan - Waste Collection - Garbage Truck Peel Region

FIGURE NO.	REVISION
02	01

SCALE CHECK
1 in

10mm

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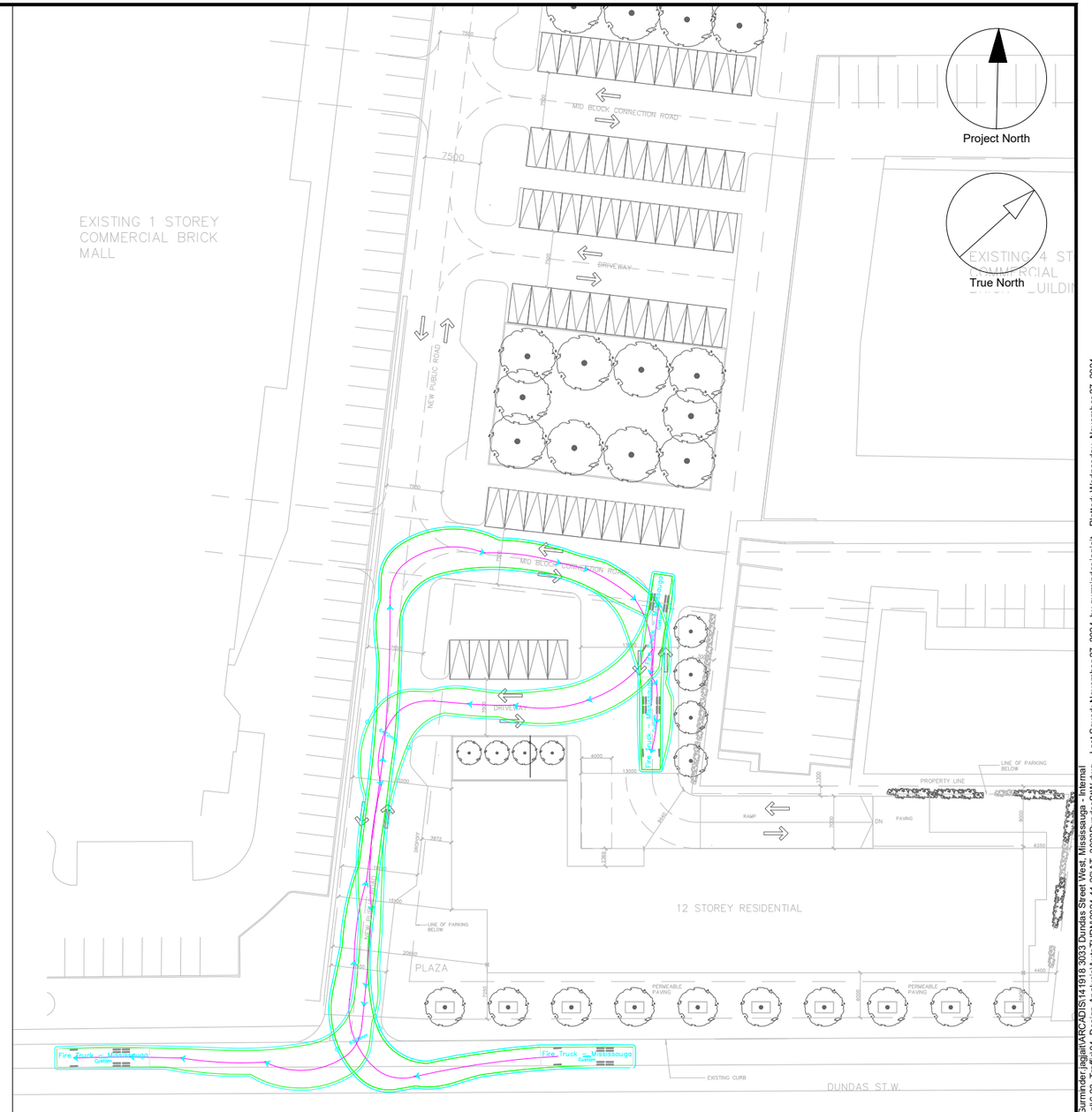

Fire Truck – Mississauga

	mm
Width	: 2440
Track	: 2440
Lock to Lock Time	: 6.0
Steering Angle	: 37.0

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CLIENT
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PROJECT NAME
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3033 Dundas Street West,
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PROJECT NO: 141918	

FIGURE NAME
Transcription error: Transportation Maneuverability Plan - Fire Truck Route - Mississauga Fire Truck

FIGURE NO.	REVISION
03	01

SCALE CHECK
1 in
10mm

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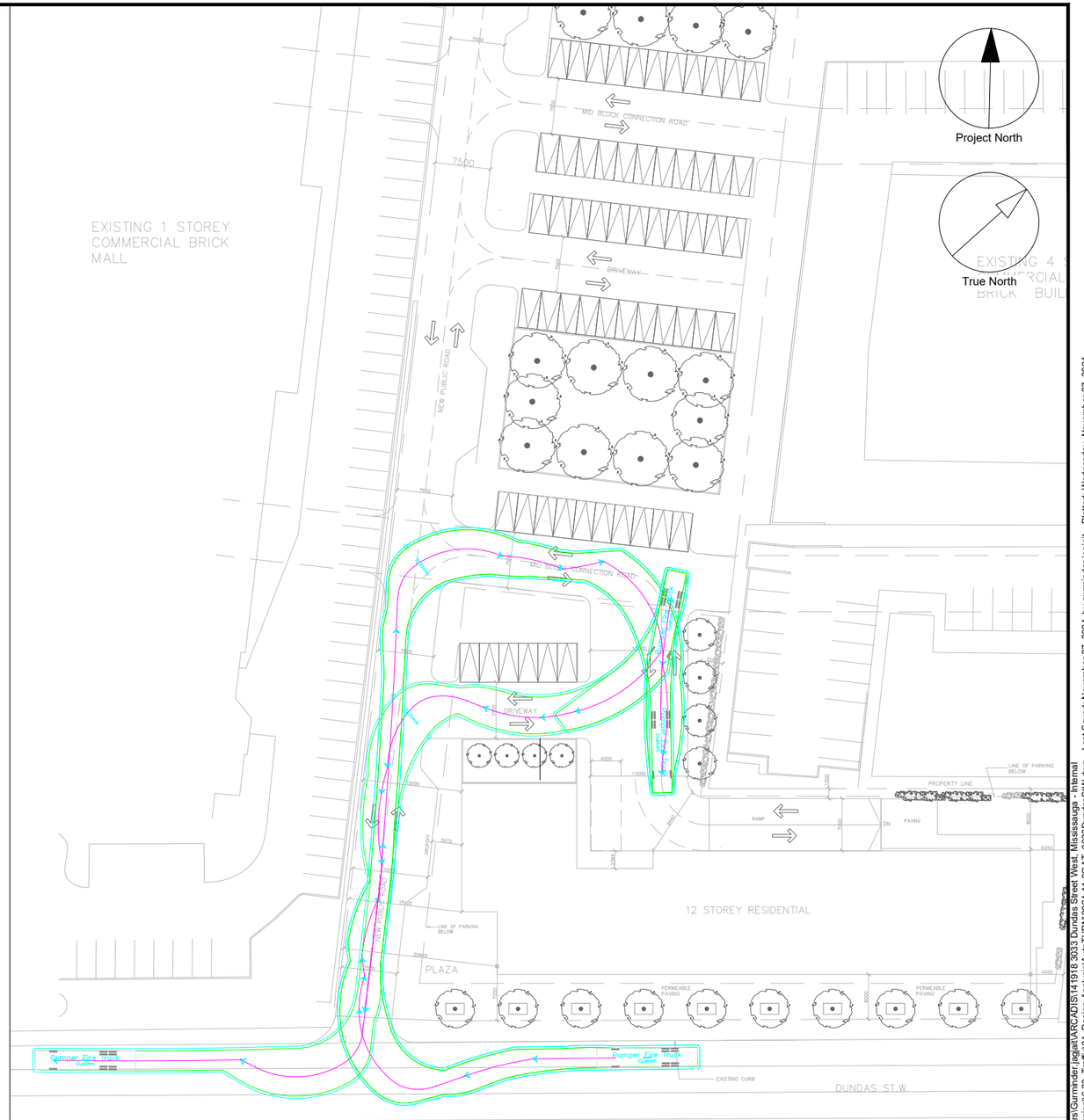

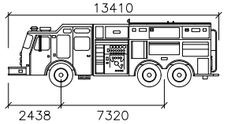

Pumper Fire Truck

	mm
Width	: 2590
Track	: 2590
Lock to Lock Time	: 6.0
Steering Angle	: 37.8

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FIGURE NAME
Transportation Maneuverability Plan - Fire Truck Route - Pumper Fire Truck

FIGURE NO. 04

REVISION 01

SCALE CHECK
1 in
10mm

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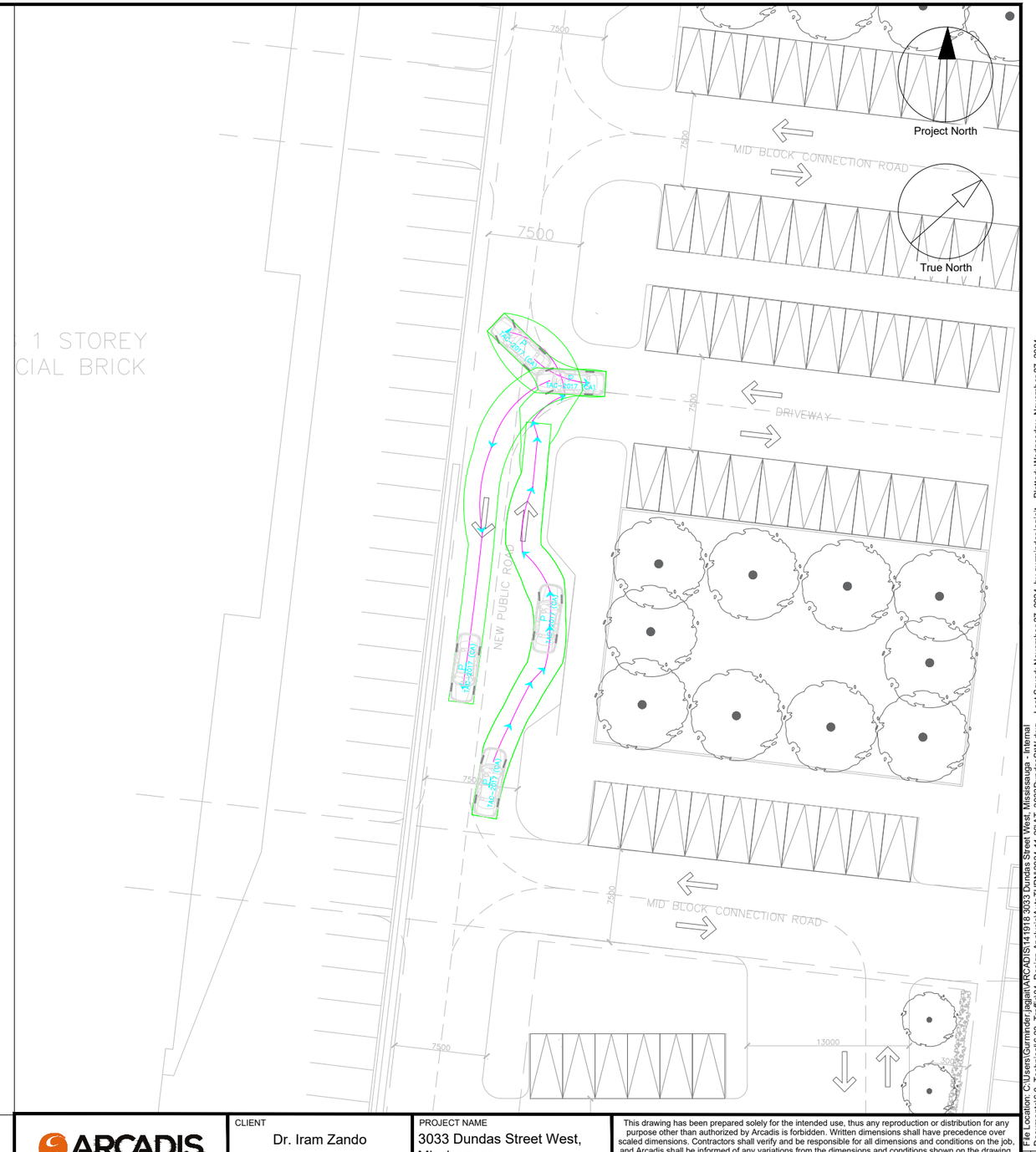

P

	mm
Width	: 2000
Track	: 2000
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

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FIGURE NAME
Transportation Maneuverability Plan - Passenger Vehicle

FIGURE NO.	REVISION
05	01

SCALE CHECK
1 in

10mm

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