Flato Developments Inc.

TRANSPORTATION IMPACT STUDY

PROPOSED MIXED-USE DEVELOPMENT

6710 Hurontario Street,
City of Mississauga

May 2019
19310

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May 16th, 2019 **Reference Number:** 19310/200

Mr. Bruce McCall-Richmond
Glenn Schnarr & Associates Inc.
700 – 100 Kingsbridge Garden Circle
Mississauga, ON
L5R 3K6

Dear Mr. McCall-Richmond:

RE: Transportation Impact Study
Proposed Mixed-Use Development
6710 Hurontario Street, City of Mississauga

LEA Consulting Ltd. is pleased to present the findings of our Transportation Impact Study (TIS) for the proposed mixed-use development at 6710 Hurontario Street in the City of Mississauga. This report concludes that the traffic associated with the proposed development will have minimum traffic impact to the immediate roadways.

Should you have any comments with our assumptions or have any concerns, please contact the undersigned.

Yours truly,

LEA CONSULTING LTD.

Nixon Chan, M.A.Sc., P.Eng., PTOE, PMP
Manager, Transportation Engineering

Natalie Tsui, B.A.Sc.
Transportation Analyst

Encl.

Disclaimer

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1 INTRODUCTION

LEA Consulting Ltd. (LEA) was retained by Flato Developments Inc. to undertake a Transportation Impact Assessment (TIA) for the proposed mixed-use development at 6710 Hurontario St, in the City of Mississauga (herein referred to as the "subject site"). The subject site, as illustrated in **Figure 1.1,** is located on Hurontario St, just south of Skyway Dr.

Figure 1.1: Site Context

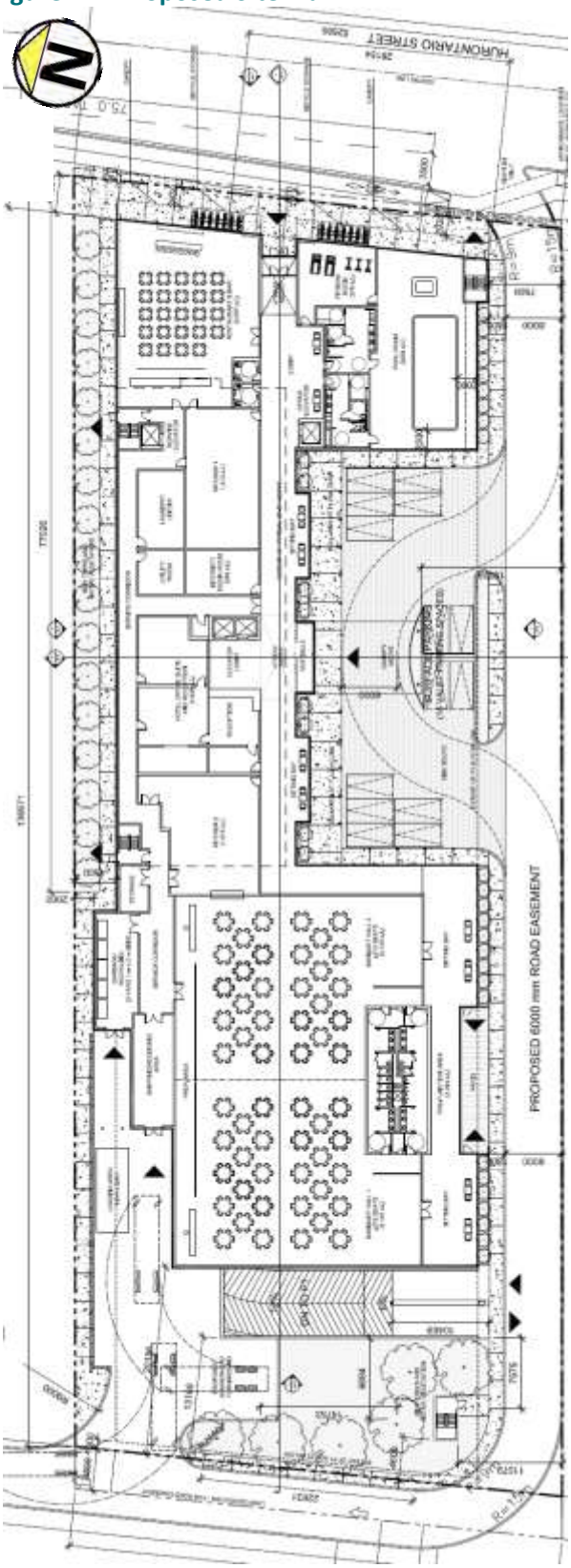
Source: Google Earth (Accessed February 4th, 2019)

Currently, the subject site is undeveloped. A nine-storey tall building containing the following uses are proposed on the site:

- 164 Guest Rooms;
- Approximately 630 m² of uses auxiliary to the overnight accommodation (e.g. restaurant & bar, pool, fitness room, and internet and media room)
- Approximately 760 m² of office uses; and
- Approximately 1,170 m² of banquet uses, including the associated pre-function area.

Figure 1.2 illustrates the proposed site plan.

Figure 1.2: Proposed Site Plan



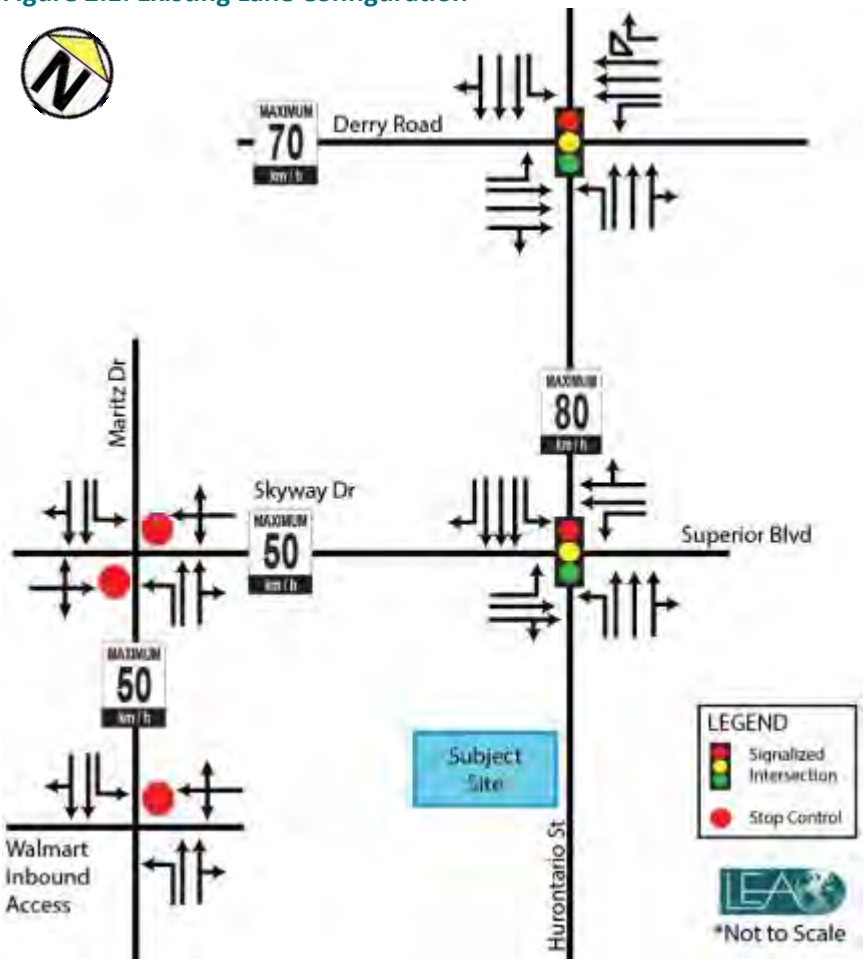
Source IBI Group Architects (Canada) Inc. (May 2019)

2 EXISTING CONDITIONS

2.1 ROAD NETWORK

Figure 2.1 illustrates the intersections and lane configurations contained within the study area.

Figure 2.1: Existing Lane Configuration



Below is a detailed description of the roadways in the study area. All roads are under the jurisdiction of the City of Mississauga, except otherwise noted:

- **Derry Road** is an east-west arterial road under the jurisdiction of the Regional Municipality of Peel with a six-lane cross-section not including turning lanes. A right turning lane is provided in both directions at Maritz Drive. The posted speed limit is 70 km/hr along this corridor.
- **Hurontario St** is a north-south arterial road with a posted speed limit of 80 km/h. It has a six-lane cross-section not including turning lanes, and is divided by a median.
- **Maritz Dr** is a major north-south collector road with a four-lane cross-section and a two-way left-turn lane. A speed limit of 50 km/h is assumed as a speed limit is not posted.

- **Skyway Dr** is a minor-collector road with a four-lane cross-section running in the east-west direction between Maritz Dr and Hurontario St. On the west side of Maritz Dr, Skyway Dr turns into a two-lane driveway connecting to a parking lot. The intersection is controlled by a two-way stop control with right-of-way provided to Maritz Dr. East of Hurontario St, Skyway Dr becomes Superior Blvd. A speed limit of 50 km/h is assumed since there is no speed limit posted.

Turning movement counts (TMCs) for intersections within the study area were collected by LEA. Surveys details are summarized in **Table 2.1**.The detailed TMCs and signal timing plans are can be found in **Appendix A**.

Table 2.1: Data Collection Summary

Location	Control Type	Date of Surveys
Derry Rd and Hurontario St	Signalized	Thursday, March 7th, 2019 Saturday, March 9th, 2019
Skyway Dr and Hurontario St		
Skyway Dr and Maritz Dr	Unsignalized	
Walmart Logistics Site Inbound Access and Maritz Dr		

2.2 TRANSIT NETWORK

The subject site is located in an area with high accessibility to public transit services operated by Mississauga MiWay and Brampton Transit. **Figure 2.2** illustrates the existing transit network within the vicinity of the study area.

Figure 2.2: Existing Transit Services

Source: Mississauga MiWay Weekday Service Map (October 29, 2018)

Brampton Transit Route 2 – Main: This bus route operates in a north-south direction, traversing between Heart Lake Terminal in the City of Brampton and Hurontario & Hwy 407 Park and Ride lot in the City of Mississauga. Route 2 operates with a frequency of approximately 20 minutes during the peak periods. The nearest bus stop for this route is located at the intersection of Skyway Dr and Hurontario St.

Brampton Transit Route 7/7A – Kennedy: This route operates in a north-south direction between Heart Lake Terminal in the City of Brampton and Hurontario St and Courtneypark Dr in the City of Mississauga. This route operates with a frequency of approximately 7 minutes. The nearest bus stop for this route is located in the northeast corner of the intersection of Skyway Dr and Hurontario St.

Brampton Züm Route 502 – Züm Main: This route operates with a north-south direction between Mississauga City Centre Transit Terminal and Sandalwood Loop. Route 502 operates with a frequency of 8 to 10 minutes during the peak periods. The nearest bus stop for this route is located at Courtneypark Dr and Hurontario St.

Miway Route 19 – Hurontario: This route operates with a north-south direction between Hwy 404 & Hurontario Park & Ride lot and Port Credit GO Station. Route 19 operates with a frequency of approximately 10 minutes. Route 19 can be accessed from the bus stop located at Ambassador Dr and Hurontario St.

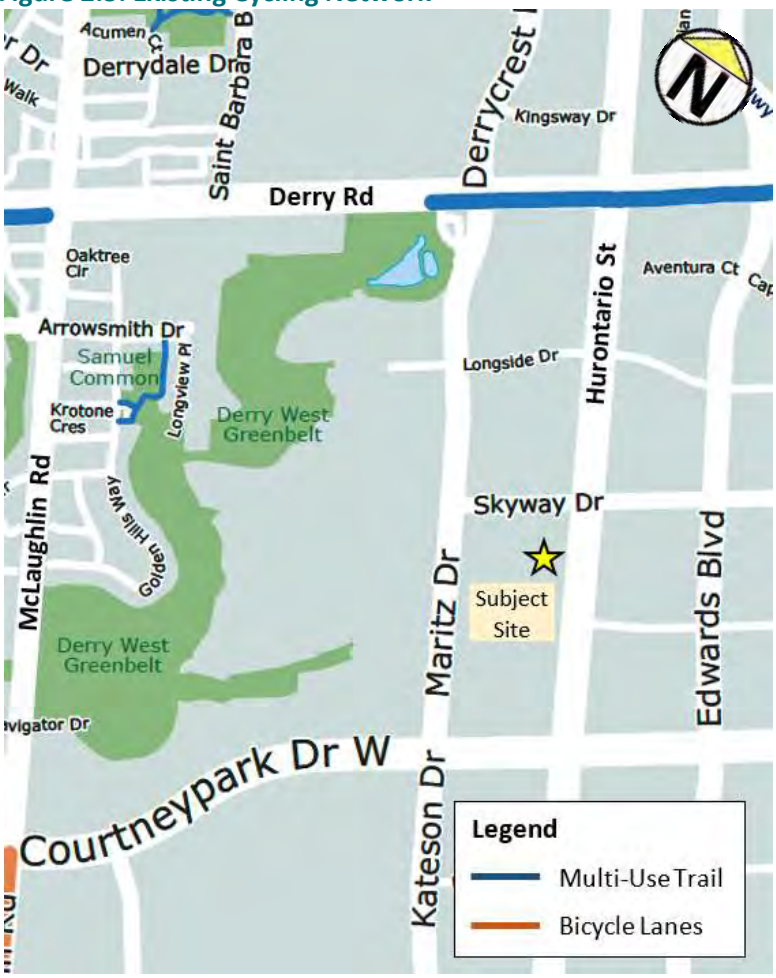
Miway Route 57 – Courtneypark: This route operates in a general east-west direction between Meadowvale Town Centre and Islington TTC Station in the City of Toronto, and also services Kipling TTC Station. Route 19 is only operational during the weekday peak periods with a frequency of approximately 30 minutes. This route can be accessed from the bus stop at the intersection of Courtneypark Dr and Hurontario St.

Miway Route 103 – Hurontario Express: This route operates in a north-south direction between Brampton Gateway Terminal in the City of Brampton and Port Credit GO station in the City of Mississauga. Route 103 operates with a frequency of approximately 10 minutes. The nearest bus stop for this route from the subject site is located at the intersection of Courtneypark Dr and Hurontario St.

2.3 CYCLING NETWORK

Limited cycling infrastructure exists within the study area. Cycling facilities in the area are illustrated in **Figure 2.3.**

Figure 2.3: Existing Cycling Network



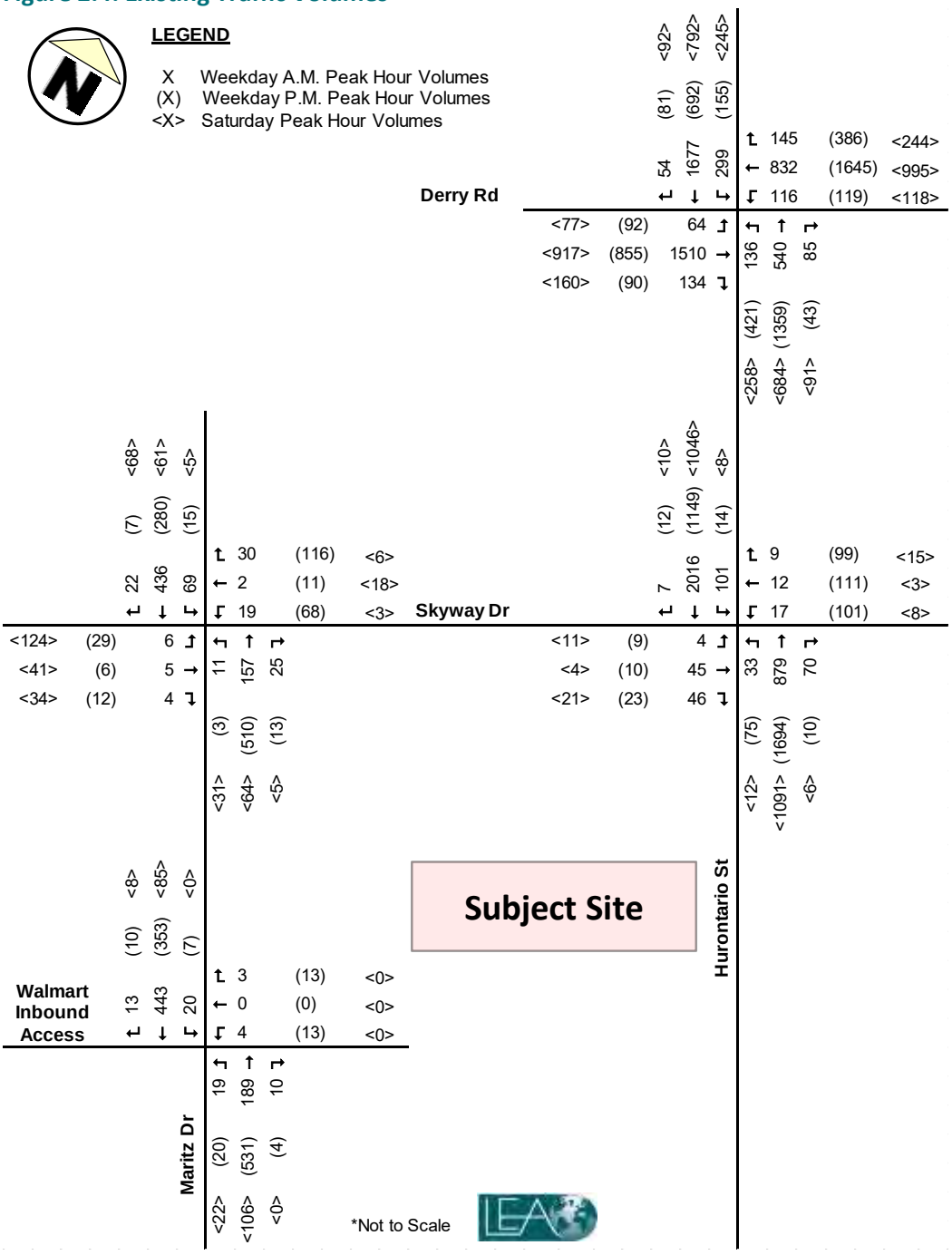
Source: Mississauga Cycling Map: South (2018)

A boulevard multi-use trail is present on the south side of Derry Rd from east of Maritz Dr to Kennedy Rd. Bike lanes are present on both sides of McLaughlin Rd south of Courtneypark Dr W and extend southwards until Cantay Rd. It is noted that the nearby cycling infrastructure are not interconnected.

2.4 EXISTING TRAFFIC CONDITIONS

The existing traffic volumes utilized in the intersection capacity analyses for the weekday AM, PM, and Saturday peak hours are illustrated in **Figure 2.4**.

Figure 2.4: Existing Traffic Volumes



Intersection capacity analyses were conducted using the Synchro version 9.0 software, based on the Highway Capacity Manual 2000 methodology for the weekday and weekend hours. Signal timing plans for the signalized intersections were obtained from the City of Mississauga and the Region of Peel (see

Appendix A). The Synchro was calibrated using lost time adjustments where V/C is above 1.0 under existing conditions, which is also based on field observations. Detailed capacity results can be found in **Appendix B**.

Movements of interest for signalized intersections are defined as movements with either a volume-to-capacity (V/C) ratio greater than 0.85 or level-of-service (LOS) worse than D. The movements of interests for the signalized intersections are summarized in **Table 2.2**.

Table 2.2: Existing Capacity Analysis – Signalized Intersections

Intersection	Peak Hour	Overall: V/C / Delay / LOS	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Derry Rd & Hurontario St	AM	0.91 / 48 / D	EBT	E (57)	230	0.91
			WBL	E (66)	66	0.81
			NBL	F (86)	69	0.92
			SBT	D (48)	205	0.86
	PM	0.87 / 47 / D	NBL	F (93)	160	1.00
			SBL	E (61)	60	0.80
	Sat	0.76 / 40 / D	NBL	F (94)	95	0.99
			SBL	E (59)	86	0.86
Skyway Dr & Hurontario St	AM	0.48 / 10 / A	EBL	E (73)	6	0.06
			EBT	E (77)	29	0.46
			EBR	E (73)	13	0.03
			WBL	E (77)	14	0.32
			WBT	E (73)	7	0.08
	PM	0.46 / 13 / B	EBL	E (65)	9	0.14
			EBT	E (64)	10	0.07
			EBR	E (64)	2	0.02
			WBL	F (82)	53	0.69
			WBT	E (67)	31	0.34
	Sat	0.25 / 4 / A	EBL	E (80)	11	0.28
			EBT	E (77)	6	0.10
			EBR	E (75)	1	0.01
			WBL	E (77)	9	0.17
			WBT	E (75)	0	0.01

The following is noted for the signalized intersections under the existing conditions:

- Northbound left-turn movement at Derry/Hurontario intersection will be operating with capacity constraints in the PM and Saturday peak hour; and
- All other intersection movements will be operating below capacity and with acceptable delay. It is noted that at the Skyway/Hurontario intersection, delays on the minor street (Skyway Dr) movements is expected to be more than one minute long, which is reasonable given the long cycle length (140s) of this intersection.

For unsignalized intersections, movements of interest refer to movements into and out of the minor streets. **Table 2.3** summarizes the movements of interests for unsignalized intersections. All intersection movements are operating below capacity and with a delay less than 15 seconds at all studied peak hours.

Table 2.3: Existing Capacity Analysis – Unsignalized Intersections

Intersection	Peak Hour	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Skyway Dr & Maritz Dr	AM	EBLTR	B (13)	1	0.03
		WBLTR	B (11)	2	0.08
		NBL	A (9)	0	0.01
		SBL	A (8)	1	0.05
	PM	EBLTR	B (13)	2	0.09
		WBLTR	B (14)	12	0.33
		NBL	A (8)	0	0.00
		SBL	A (9)	0	0.02
	Sat	EBLTR	B (11)	8	0.25
		WBLTR	A (10)	1	0.04
		NBL	A (8)	1	0.02
		SBL	A (8)	0	0.00
Wal-Mart Inbound Access & Maritz Dr	AM	WBLTR	B (10)	0	0.01
		NBL	B (11)	1	0.03
		SBL	A (8)	0	0.01
	PM	WBLTR	B (12)	1	0.05
		NBL	B (10)	1	0.03
		SBL	A (9)	0	0.01
	Sat	WBLTR	A (0)	0	0.00
		NBL	A (9)	1	0.02
		SBL	A (0)	0	0.00

3 FUTURE BACKGROUND TRAFFIC CONDITIONS

The future background scenario analyzes the traffic conditions for a five-year horizon without the proposed development constructed. The City of Mississauga has also requested an analysis of future conditions up to the year 2031. Therefore, the horizons are set at 2024 and 2031.

3.1 CORRIDOR GROWTH

City of Mississauga staff provided the corridor growth rates for Maritz Dr, Hurontario St, and Skyway Dr which accounts for traffic volumes due to developments outside of the study area. It is noted that traffic growth rates for Maritz Dr and Skyway Dr are not recommended by staff as those roads mainly carry local traffic. A one-time growth rate for Hurontario St is provided between the existing condition and 2024, and traffic volumes are expected to remain stable between 2024 and 2031. As the City only determines weekday AM and PM peak hour growth rates, City staff advised that growth rates for the Saturday peak hour be the average of the weekday AM and PM peak hour growth rates. A summary of the applied growth rates for City of Mississauga roadways are provided in **Table 3.1**.

Table 3.1: Growth Rate for City of Mississauga Roadways

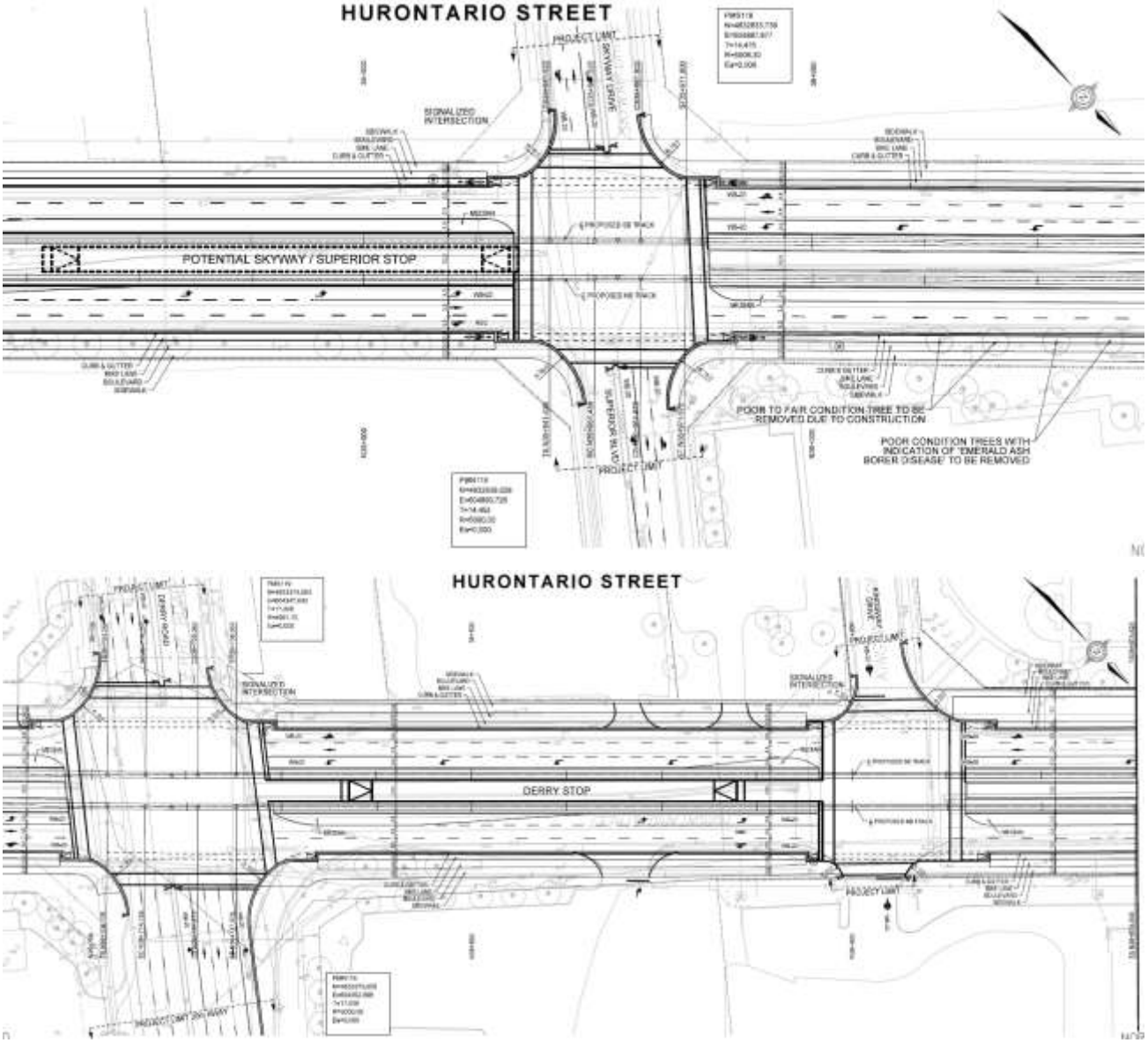
Corridor	Directions	% Growth from 2019 to 2024			% Growth from 2024 to 2031		
		AM Peak Hour	PM Peak Hour	Sat Peak Hour	AM Peak Hour	PM Peak Hour	Sat Peak Hour
Hurontario St	NB	-19%	-34%	-27%	-	-	-
	SB	-34%	-36%	-35%	-	-	-
Skyway Dr	EB	-	-	-	-	-	-
	WB	-	-	-	-	-	-
Maritz Dr	NB	-	-	-	-	-	-
	SB	-	-	-	-	-	-

The growth rate of Derry Rd was obtained from LEA's previous nearby projects which were provided by Region of Peel Staff using the Region's transportation model. A compounded annual growth rate of 2.0% was applied to the Derry Rd corridor.

3.2 FUTURE ROAD NETWORK CHANGES

By the horizon year of 2024, the Hurontario Light Rail Transit (HLRT) Project is expected to be completed. Network changes include lane reductions on Hurontario St to accommodate the LRT system. Hurontario St will reduce from its current six-lane general cross-section to a four-lane general lane cross-section plus two LTR-lanes in centre of the roadway. Bicycle lanes will also be added to both sides of Hurontario St. These changes have been accounted for in the future background analysis. A segment of the infrastructure designs along Hurontario St is illustrated in **Figure 3.1**.

Figure 3.1: Proposed Lane Configuration for Hurontario St at Skyway Dr and Derry Rd for HLRT



Source: Hurontario/Main Street LRT Preliminary Engineering & TPAP – Preferred Alignment (June 2014)

3.3 BACKGROUND DEVELOPMENTS

Two background developments were identified on the City's Development Applications database, and were confirmed with City staff. These background developments considered in our analysis are listed in **Figure 3.2**.

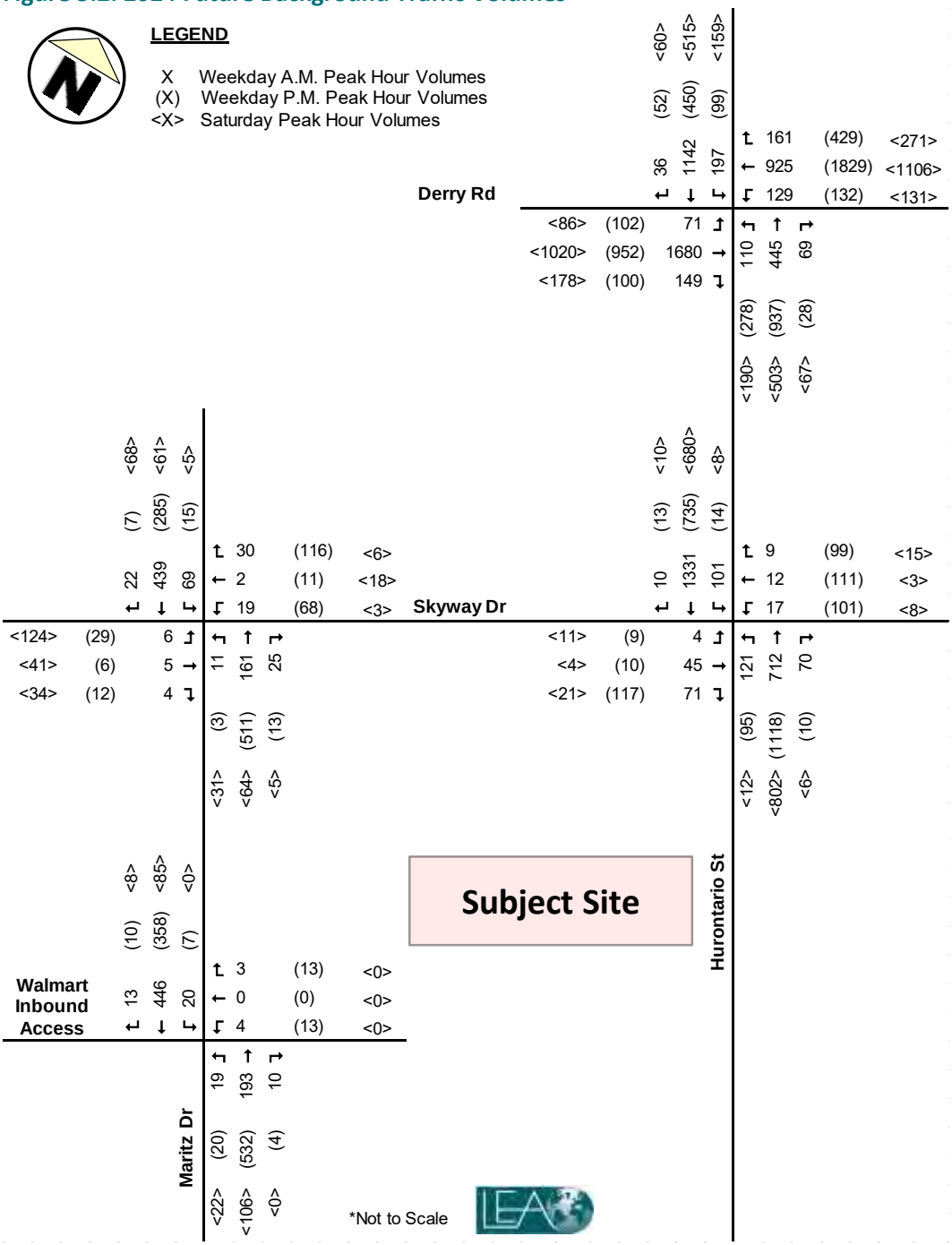
Table 3.2: Background Developments

Location	Proposed Development	Transportation Study Consultant (Date)
75 Skyway Dr	4,500 ft² of office and 93,600 ft² of warehouse	Paradigm (November 2017)
6825 Maritz Dr	7,000 ft² of office and 74,000 ft² of warehouse use	LEA (February 2017)

3.4 2024 FUTURE BACKGROUND TRAFFIC CONDITIONS

The 2024 Future Background volume, including corridor growth and background developments, are provided in **Figure 3.2**.

Figure 3.2: 2024 Future Background Traffic Volumes



Capacity analysis was conducted for the 2024 Future Background volumes. The signal timing plans were optimized while maintaining the cycle length to reflect the infrastructure changes occurring within the study horizon. **Table 3.3** summarizes the movements of interest for the signalized intersections and **Table 3.4** summarizes the movements of interest for unsignalized intersections in the for the 2024 study horizon. Detailed capacity analysis results can be found in **Appendix C**.

Table 3.3: 2024 Future Background Capacity Analysis – Signalized

Intersection	Peak Hour	Overall: V/C / Delay / LOS	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Derry Rd & Hurontario St	AM	0.91 / 52 / D	EBT	D (52)	213	0.88
			WBL	E (78)	72	0.85
			NBL	F (92)	67	0.72
			SBL	F (110)	116	0.92
			SBT	E (59)	212	0.91
	PM	0.83 / 52 / D	EBL	F (102)	57	0.93
			WBL	E (78)	59	0.86
			WBT	E (60)	217	0.93
			NBL	E (79)	141	0.87
			SBL	F (83)	54	0.68
	Sat	0.62 / 43 / D	EBL	E (600	48	0.61
			NBL	F (83)	98	0.81
			SBL	F (89)	84	0.80
Skyway Dr & Hurontario St	AM	0.53 / 15 / B	EBL	E (72)	6	0.06
			EBT	E (72)	19	0.27
			WBL	E (77)	15	0.33
			WBT	E (72)	7	0.08
			NBL	E (79)	61	0.68
			SBL	E (78)	41	0.65
	PM	0.49 / 21 / C	EBL	E (64)	9	0.12
			EBT	E (63)	12	0.08
			WBL	F (84)	52	0.72
			WBT	E (65)	30	0.32
			NBL	E (78)	51	0.62
			SBL	F (115)	10	0.44
	Sat	0.27 / 6 / A	EBL	E (80)	11	0.28
			EBT	E (75)	0	0.01
			WBL	E (77)	9	0.17
			WBT	E (75)	0	0.01
			NBL	F (84)	12	0.35
			SBL	F (100)	7	0.50

Table 3.4: 2024 Future Background Capacity Analysis – Unsignalized

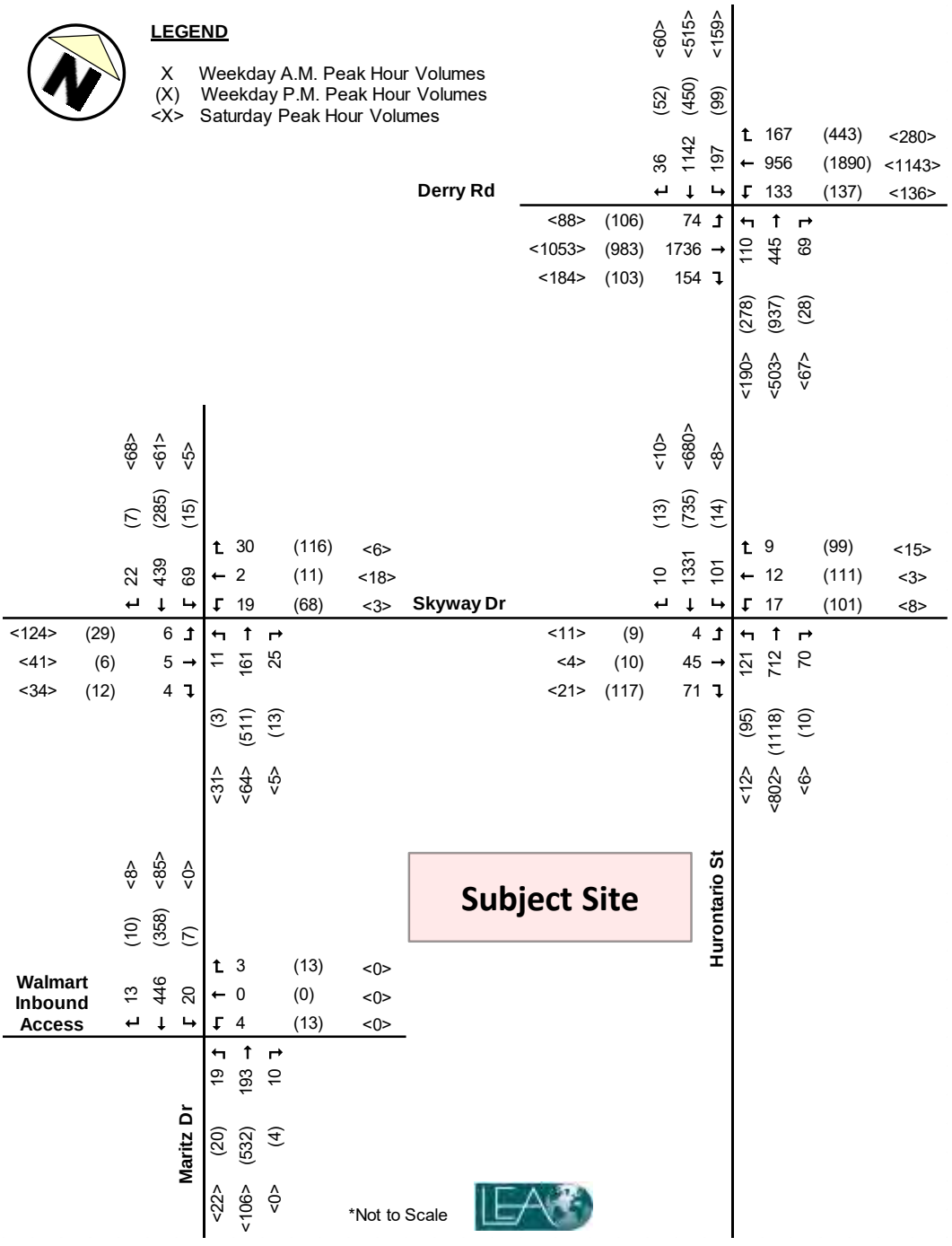
Intersection	Peak Hour	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Skyway Dr & Maritz Dr	AM	EBLTR	B (13)	1	0.03
		WBL	B (13)	1	0.04
		WBTR	A (9)	1	0.04
		NBL	A (9)	0	0.01
		SBL	A (8)	1	0.05
	PM	EBLTR	B (13)	2	0.09
		WBL	B (14)	4	0.15
		WBTR	B (11)	5	0.18
		NBL	B (8)	0	0.00
		SBL	B (9)	0	0.02
	Sat	EBLTR	B (11)	8	0.25
		WBL	A (10)	0	0.00
		WBTR	A (10)	1	0.03
		NBL	A (8)	1	0.02
		SBL	A (8)	0	0.00
Wal-Mart Inbound Access & Maritz Dr	AM	WBLTR	B (11)	0	0.01
		NBL	B (11)	1	0.03
		SBL	A (8)	0	0.01
	PM	WBLTR	B (12)	1	0.05
		NBL	B (10)	1	0.03
		SBL	A (9)	0	0.01
	Sat	WBLTR	A (0)	0	0.00
		NBL	A (9)	0	0.00
		SBL	A (0)	1	0.02

All intersection movements are expected to operate below capacity and within acceptable levels of service (LOS) during the studied peak hours in the future background traffic condition for the 2024 study horizon. As with the existing condition, the intersection movements at Skyway Dr and Hurontario St intersection is expected to operate with ample residual capacity but with delays more than one-minute long. This is reasonable given the cycle length of 140 seconds at this intersection. It is noted that the increased delay to the northbound and southbound left-turn movements at Skyway/Hurontario intersection is due to the implementation of protected left turn phasing due to the presence of the HLRT. The movements of interest of the unsignalized intersection is expected to operate similarly to the existing condition.

3.5 2031 FUTURE BACKGROUND TRAFFIC CONDITIONS

Future Background traffic volumes for the 2031 study horizon are illustrated in **Figure 3.3**.

Figure 3.3: 2031 Future Background Traffic Volumes



Movements of interest for the 2031 Future Background Traffic Condition are summarized for the signalized and unsignalized intersections in **Table 3.5** and **Table 3.6**, respectively. Detailed capacity analysis results can be found in **Appendix D**.

Table 3.5: 2031 Future Background Capacity Analysis – Signalized

Intersection	Peak Hour	Overall: V/C / Delay / LOS	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Derry Rd & Hurontario St	AM	0.98 / 58 / E	EBT	E (62)	245	0.96
			WBL	F (121)	85	0.99
			NBL	F (100)	73	0.77
			SBL	F (103)	119	0.90
			SBT	E (63)	238	0.94
	PM	0.86 / 49 / D	WBT	D (48)	238	0.85
			NBL	E (79)	141	0.87
			NBT	E (73)	201	0.86
			SBL	F (83)	54	0.68
			SBT	E (55)	90	0.61
	Sat	0.65 / 43 / D	EBL	E (66)	55	0.67
			WBL	E (60)	54	0.83
			NBL	F (83)	98	0.81
			SBL	F (89)	84	0.80
Skyway Dr & Hurontario St	AM	0.57 / 16 / B	EBL	E (72)	6	0.06
			EBT	E (74)	19	0.28
			WBL	E (77)	15	0.35
			WBT	E (72)	7	0.08
			NBL	E (77)	64	0.68
			SBL	E (76)	40	0.66
	PM	0.49 / 21 / C	EBL	E (65)	9	0.12
			EBT	E (63)	12	0.08
			WBL	F (84)	52	0.72
			WBT	E (65)	30	0.32
			NBL	F (78)	51	0.62
			SBL	E (118)	11	0.44
	Sat	0.27 / 6 / A	EBL	E (80)	11	0.28
			EBT	E (75)	0	0.01
			WBL	E (77)	9	0.17
			WBT	E (75)	0	0.01
			NBL	F (84)	12	0.35
			SBL	F (98)	7	0.50

Table 3.6: 2031 Future Background Capacity Analysis – Unsignalized

Intersection	Peak Hour	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Skyway Dr & Maritz Dr	AM	EBLTR	B (13)	1	0.03
		WBL	B (13)	1	0.04
		WBTR	A (9)	1	0.04
		NBL	A (9)	0	0.01
		SBL	A (8)	1	0.05
	PM	EBLTR	B (13)	2	0.09
		WBL	B (14)	4	0.15
		WBTR	B (11)	5	0.18
		NBL	A (8)	0	0.00
		SBL	A (9)	0	0.02
	Sat	EBLTR	B (11)	8	0.25
		WBL	A (10)	0	0.00
		WBTR	A (10)	1	0.03
		NBL	A (8)	1	0.02
		SBL	A (8)	0	0.00
Wal-Mart Inbound Access & Maritz Dr	AM	WBLTR	B (11)	0	0.01
		NBL	B (11)	1	0.03
		SBL	A (8)	0	0.02
	PM	WBLTR	B (12)	1	0.05
		NBL	B (10)	1	0.03
		SBL	A (9)	0	0.01
	Sat	WBLTR	A (0)	0	0.00
		NBL	A (9)	1	0.02
		SBL	A (0)	0	0.00

For the 2031 future background traffic condition, all intersection movements are expected to operate below capacity and within acceptable LOS during the studied peak hour in the 2031 study horizon. The overall V/C and delay at the Derry/Hurontario intersection is expected to slightly increase from the 2024 study horizon as a result of background growth on Derry Rd. Operation of the other intersections is expected to be similar to the 2024 study horizon.

4 FUTURE TOTAL TRAFFIC CONDITIONS

4.1 NEW ROAD NETWORK

The existing road network in the vicinity of the subject site consists of large properties with major roadways and a limited road network. New local roads are proposed to redefine block sizes for future developments and to allow easier access these new developments.

It is our understanding that upon the development of the subject site at the 2024 study horizon, a new north-south local street mid-block between Maritz Dr and Hurontario St will be constructed and will connect between Skyway Dr and the access. This street is labelled as Road 'A'. The proposed access will be inbound only from Hurontario St.

By 2031, upon development of the neighboring lands, the east-west site access will extend and connect with Road 'B' to provide alternate route to connect Maritz Dr directly. Road 'B' is assumed to form part of the road easement to the City. The east-west access will have a slight offset configuration with Road 'B', with stop-controlled for both east and west legs. Since these internal roadways are expected to have very low traffic volumes, the proposed offset intersection configuration is considered appropriate and safe. **Figure 4.1** and **Figure 4.2** illustrates the future lane configurations for the 2024 and 2031 study horizons, respectively. It is noted the actual configuration and alignment is not confirmed at this stage.

Figure 4.1: Future Lane Configurations – 2024 Study Horizon

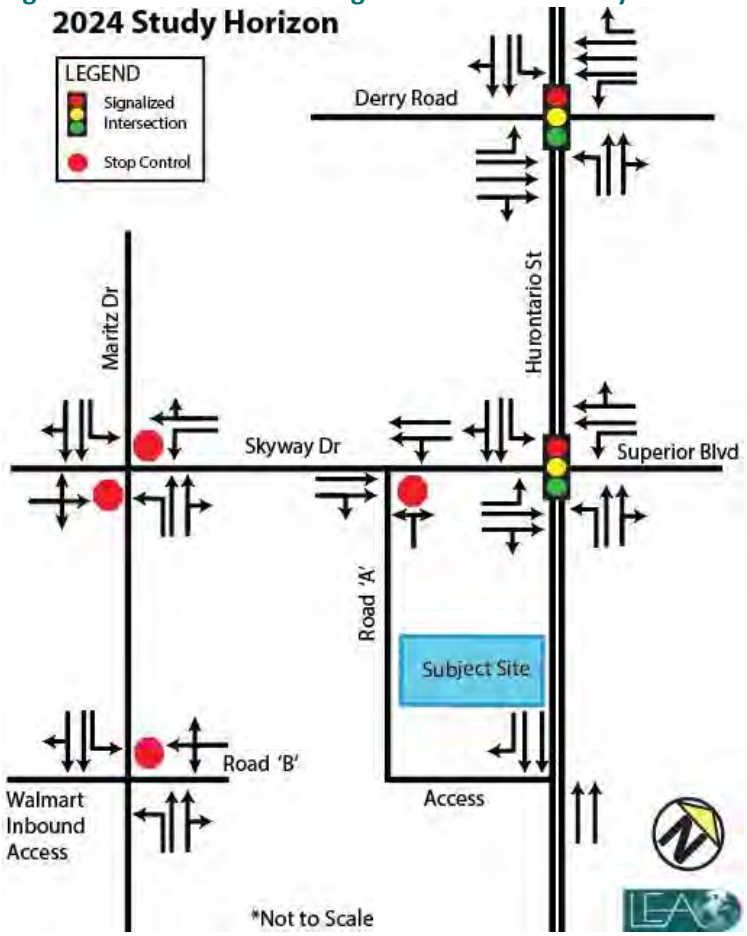
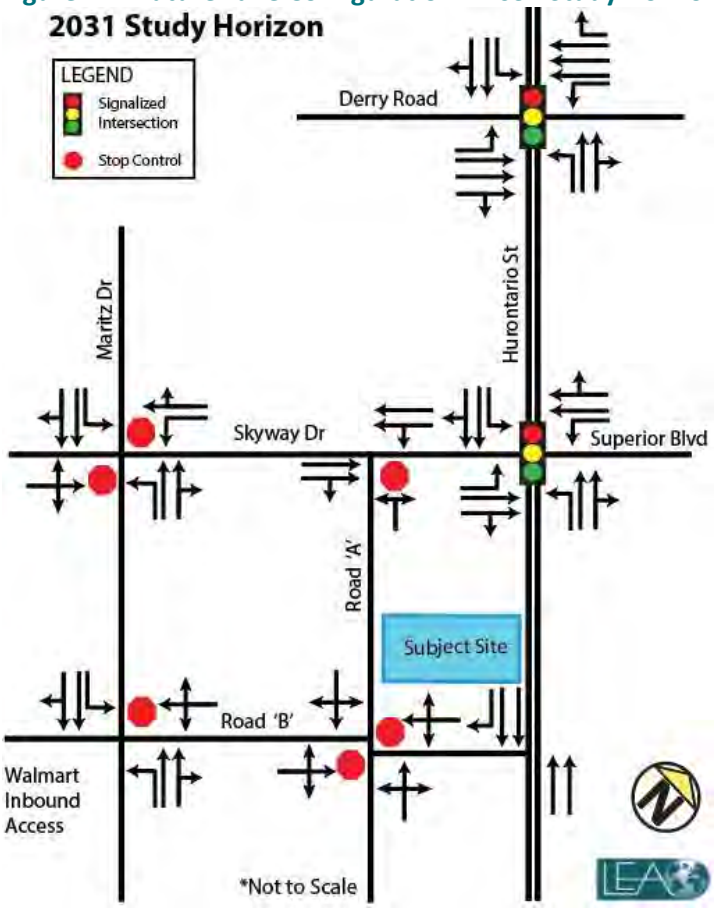


Figure 4.2: Future Lane Configuration – 2031 Study Horizon



4.2 SITE-GENERATED TRAFFIC

Trip generation for the development was based on Hotel (LUC 310) and Office (LUC 710) in the ITE Trip Generation Manual 10th Edition. It is noted that the Hotel use in the ITE Trip Generation Manual included supporting facilities such as restaurants, meeting and banquet rooms or convention facilities. As a result, trips for the proposed banquet use was not determined. It is recognized that with the transit improvements on Hurontario St, travel to the subject site using non-auto modes will likely occur. However, due to the nature of the proposed uses and to present a conservative analysis, modal split was not applied. **Table 4.1** summarizes the trip generation for the subject site.

Table 4.1: Trip Generation

Land Use		Weekday AM Peak			Weekday PM Peak			Saturday Peak		
		In	Out	Total	In	Out	Total	In	Out	Total
Hotel (LUC 310)	Trip Rate	0.29	0.25	0.54	0.35	0.26	0.61	0.40	0.32	0.72
Size: 164 Rooms	Trips Generated	48	41	89	57	43	100	66	52	118
Office (LUC 710)	Trip Rate	0.45	0.39	0.84	0.25	1.16	1.41	0.29	0.24	0.53
Size: 759 m² (8,170 ft²)	Trips Generated	4	3	7	2	9	12	2	2	4
	Total	**52**	**44**	**96**	**59**	**52**	**112**	**68**	**54**	**122**

The proposed development is expected to generate a maximum of 128 two-way trips during the studied peak hours. Since the Transportation Tomorrow Survey (TTS) does not provide information on hotel trips, they are expected to follow the existing distribution of traffic in the studied network. Furthermore, since the immediate area is also of employment use, the office trips are expected to follow the existing traffic distribution. Site trips for 2024 and 2031 study horizons are illustrated in **Figure 4.3** and **Figure 4.4**, respectively.

Figure 4.3: Site Trip Volumes – 2024 Study Horizon

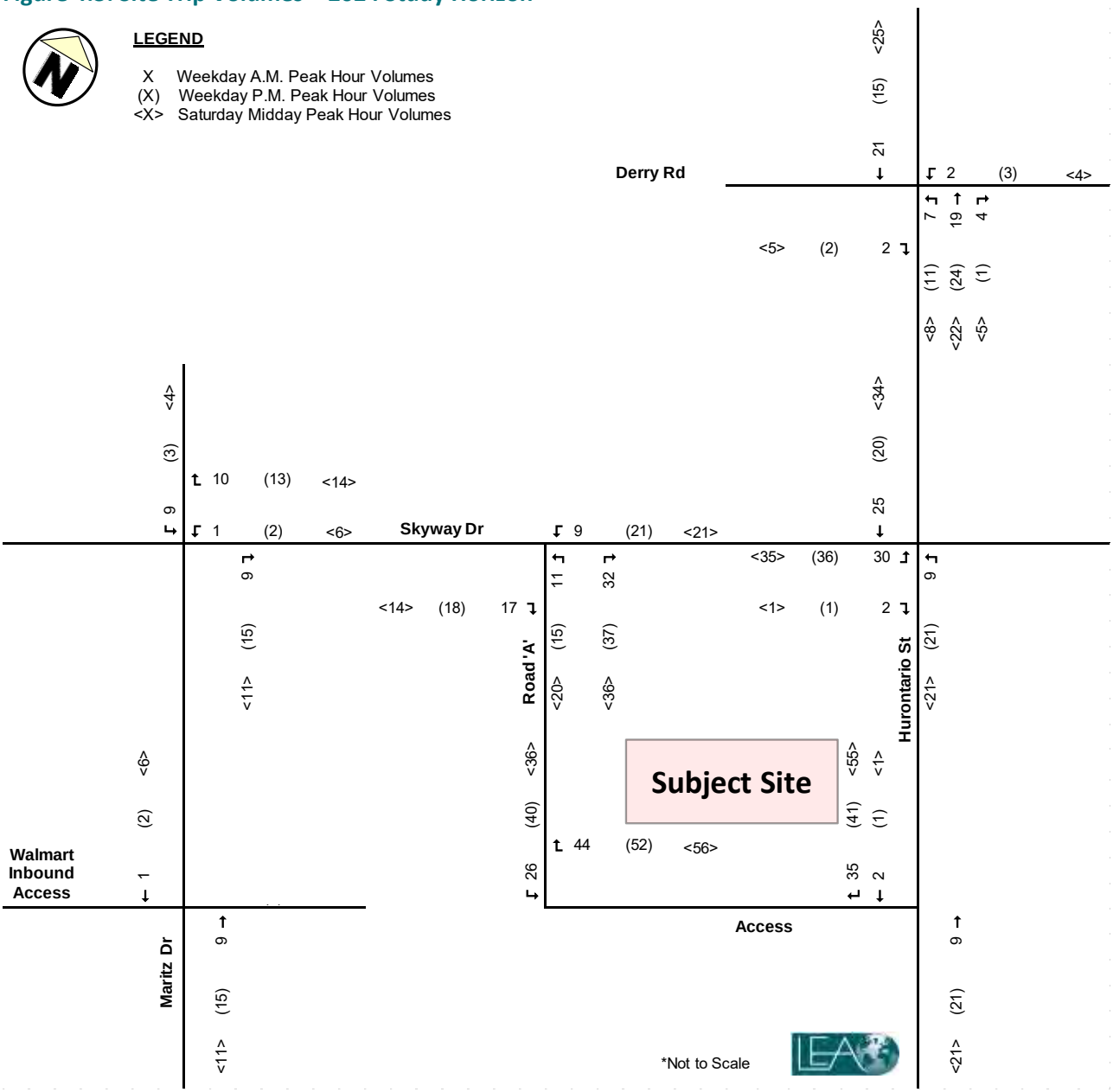
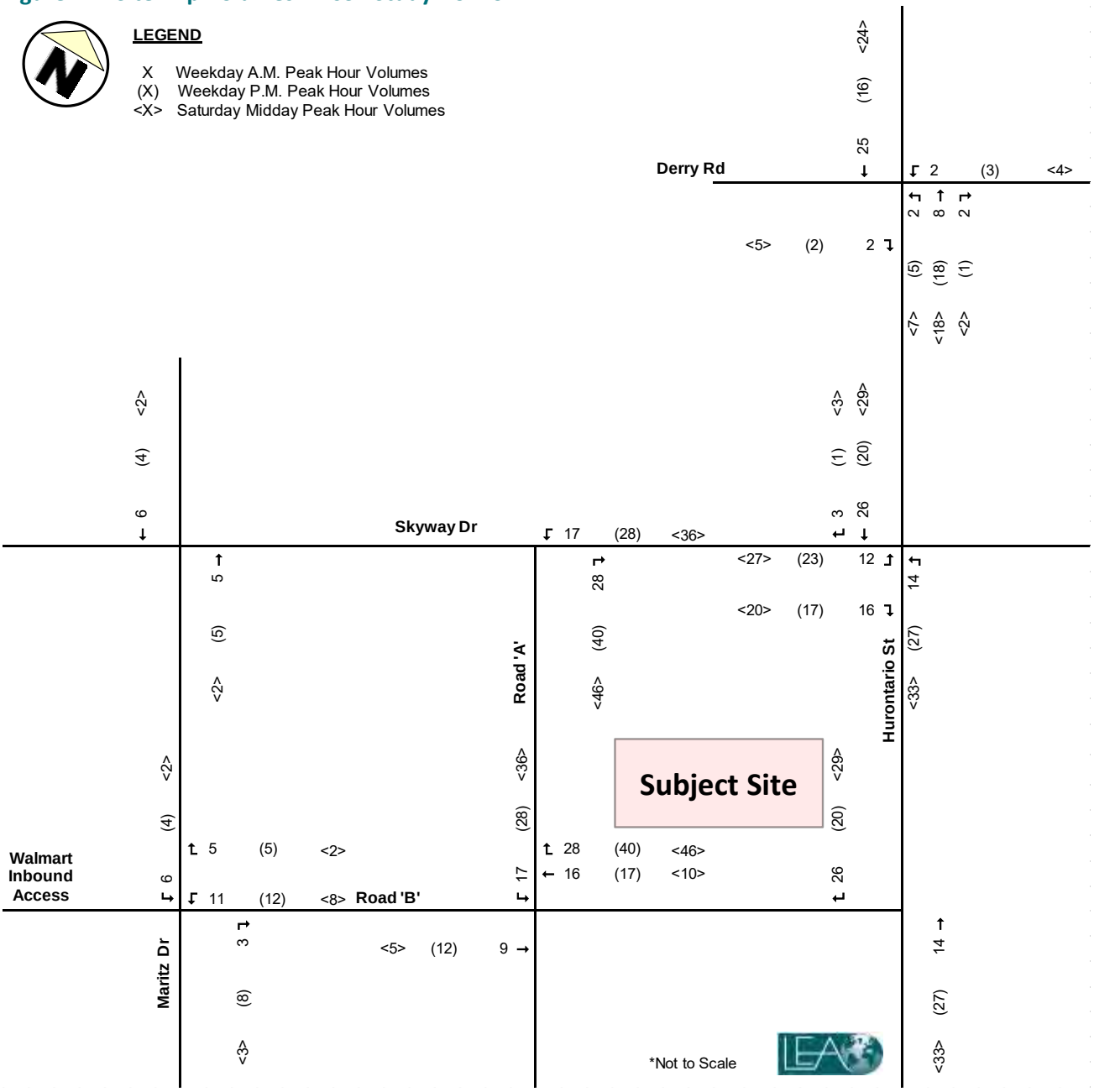


Figure 4.4: Site Trip Volumes – 2031 Study Horizon



4.3 2024 FUTURE TOTAL TRAFFIC CONDITIONS

Future total traffic volumes for the 2024 study horizon are shown in **Figure 4.5**. An intersection capacity analysis was conducted for the study area under the 2024 future total traffic conditions. Lane configurations are maintained from the 2024 future background traffic condition, while the signal timing plans have been optimized. **Table 4.2** and **Table 4.3** summarizes the movements of interest for the signalized and unsignalized intersections, respectively, for the 2024 future total traffic condition. Detailed capacity results are provided in **Appendix E**.

Figure 4.5: 2024 Future Total Traffic Volumes

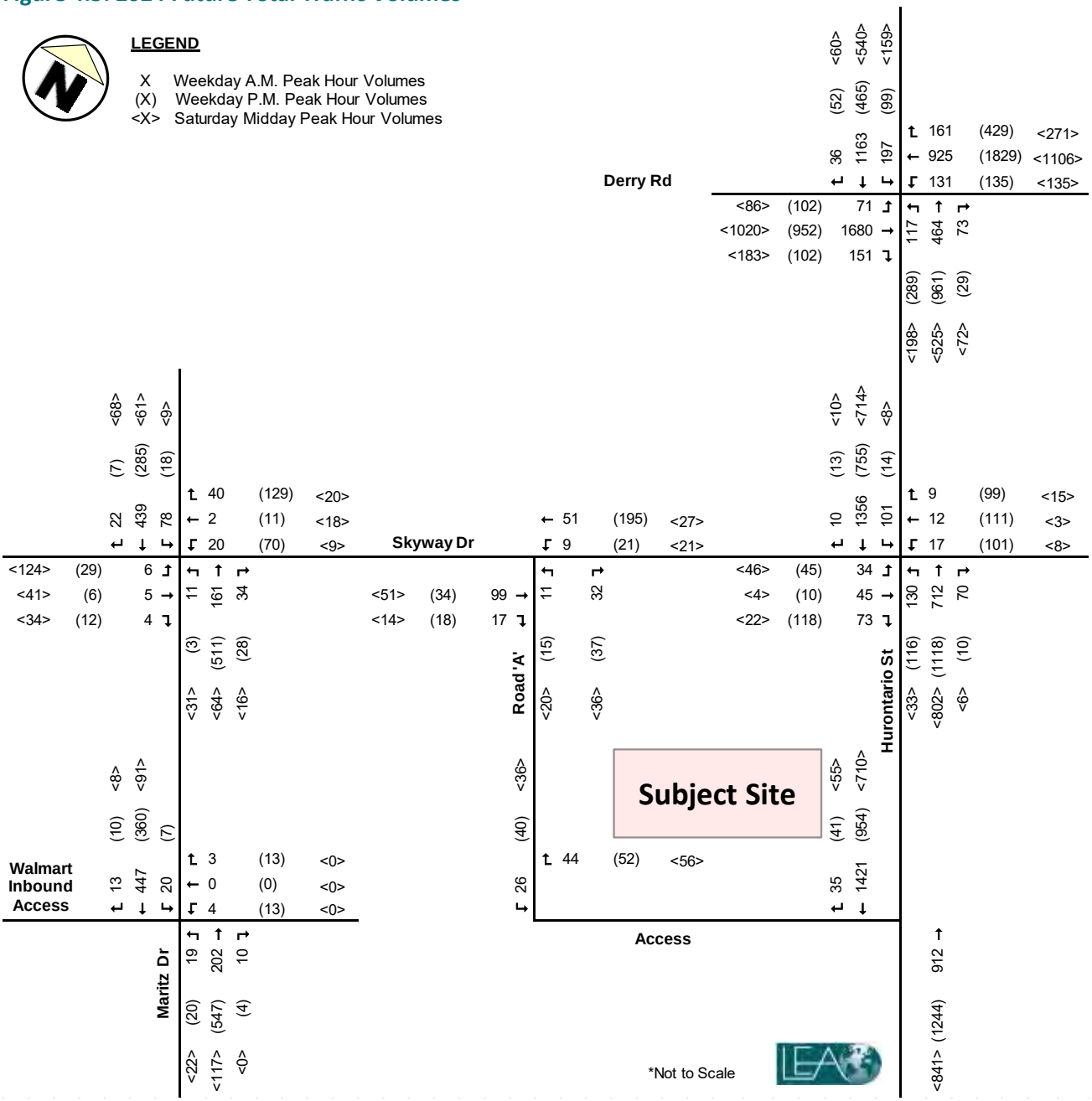


Table 4.2: 2024 Future Total Capacity Analysis - Signalized Intersections

Intersection	Peak Hour	Overall: V/C / Delay / LOS	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Derry Rd & Hurontario St	AM	0.98 / 59 / E	EBT	E (65)	257	0.98
			WBL	F (99)	76	0.93
			NBL	F (94)	71	0.76
			SBL	F (119)	119	0.95
			SBT	E (66)	250	0.95
	PM	0.84 / 52 / D	EBL	F (102)	57	0.93
			WBL	F (83)	61	0.88
			WBT	F (60)	217	0.93
			NBL	F (85)	150	0.89
			SBL	F (83)	54	0.68
	Sat	0.65 / 43 / D	EBL	E (60)	48	0.61
			NBL	F (83)	103	0.83
			SBL	F (89)	84	0.80
Skyway Dr & Hurontario St	AM	0.56 / 16 / B	EBL	E (77)	24	0.44
			EBT	E (72)	19	0.24
			WBL	E (75)	14	0.29
			WBT	E (71)	7	0.07
			NBL	E (77)	65	0.68
			SBL	E (76)	37	0.65
	PM	0.50 / 23 / C	EBL	F (870	30	0.65
			EBT	E (63)	12	0.08
			WBL	F (84)	52	0.72
			WBT	E (65)	30	0.32
			NBL	E (79)	59	0.66
			SBL	F (115)	10	0.44
	Sat	0.31 / 10 / A	EBL	F (86)	29	0.61
			EBT	E (70)	0	0.01
			WBL	E (71)	8	0.09
			WBT	E (70)	0	0.01
			NBL	E (78)	23	0.41
			SBL	F (95)	6	0.50

Table 4.3: 2024 Future Total Capacity Analysis - Unsignalized Intersections

Intersection	Peak Hour	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Skyway Dr & Maritz Dr	AM	EBLTR	B (13)	1	0.03
		WBL	B (13)	1	0.04
		WBTR	A (9)	1	0.05
		NBL	A (9)	0	0.01
		SBL	A (8)	2	0.06
	PM	EBLTR	B (13)	3	0.10
		WBL	B (14)	4	0.15
		WBTR	B (12)	6	0.20
		NBL	A (8)	0	0.00
		SBL	A (9)	1	0.02
	Sat	EBLTR	B (11)	8	0.26
		WBL	B (10)	0	0.01
		WBTR	A (10)	1	0.05
		NBL	A (8)	1	0.02
		SBL	A (8)	0	0.01
Wal-Mart Inbound Access & Maritz Dr	AM	WBLTR	B (10)	0	0.01
		NBL	B (11)	1	0.03
		SBL	A (1)	0	0.01
	PM	WBLTR	B (12)	1	0.05
		NBL	B (10)	1	0.03
		SBL	A (0)	0	0.01
	Sat	WBLTR	A (0)	0	0.01
		NBL	A (9)	0	0.00
		SBL	A (0)	0	0.00
Skyway Dr & Road 'A'	AM	WBLTR	A (3)	0	0.01
		NBLR	A (9)	1	0.05
	PM	WBLTR	A (2)	0	0.01
		NBLR	A (9)	2	0.06
	Sat	WBLTR	A (5)	0	0.01
		NBLR	A (9)	2	0.06

All intersection movements are expected to operate below capacity and within acceptable delay in the future total traffic condition for the study horizon of 2024. Minor increases to the delay can be expected at the studied intersections in the 2024 future total traffic condition when compared with the future background traffic condition. It is noted that the site trips expected to travel through the Derry Rd and Hurontario St intersection is less than 2% of the intersection volume. As a result, the proposed development is not expected to significantly impact the local traffic network for the study horizon of 2024.

4.4 2031 FUTURE TOTAL TRAFFIC CONDITIONS

Future total traffic volumes for the 2031 study horizon are shown in **Figure 4.6**. An intersection capacity analysis was conducted for the study area under the 2031 future total traffic conditions. Lane configurations are maintained from the 2031 future background traffic condition, while the signal timing plans have been optimized. **Table 4.4** and **Table 4.5** summarizes the movements of interest for the signalized and unsignalized intersections, respectively, for the 2031 future total traffic condition. Detailed capacity results are provided in **Appendix F**.

Figure 4.6: 2031 Future Total Traffic Volumes

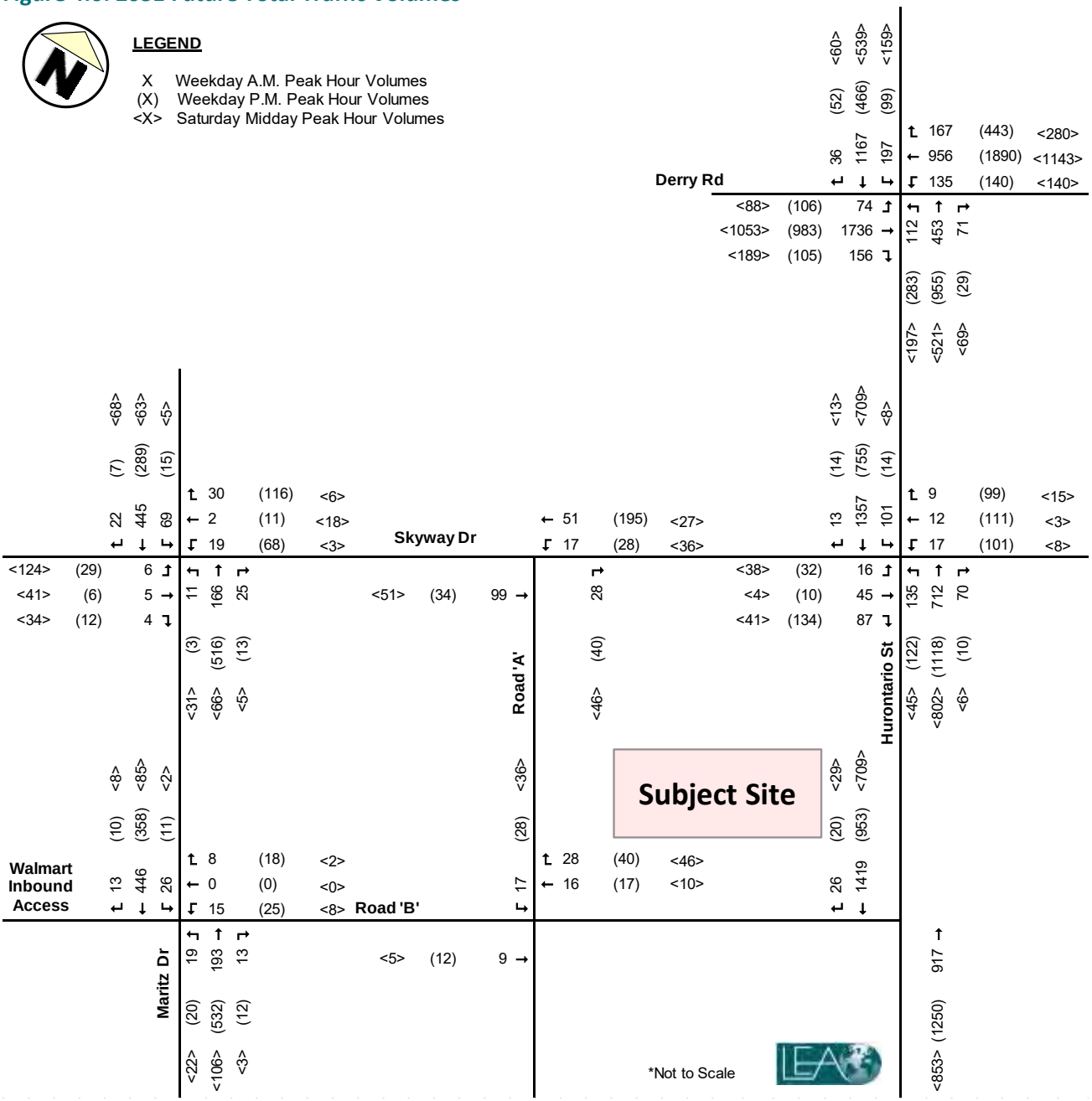


Table 4.4: 2031 Future Total Capacity Analysis - Signalized Intersections

Intersection	Peak Hour	Overall: V/C / Delay / LOS	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Derry Rd & Hurontario St	AM	0.96 / 55 / D	EBT	E (58)	222	0.93
			WBL	F (103)	76	0.94
			NBL	F (92)	69	0.73
			SBL	F (119)	119	0.95
			SBT	E (57)	220	0.89
	PM	0.88 / 56 / E	EBL	F (116)	60	0.96
			WBL	F (106)	68	0.96
			WBT	E (65)	238	0.97
			NBL	F (102)	157	0.96
			SBL	F (83)	54	0.68
	Sat	0.60 / 38 / D	NBL	F (83)	102	0.82
			NBT	E (62)	80	0.70
			SBL	F (89)	84	0.80
			SBT	E (70)	82	0.77
Skyway Dr & Hurontario St	AM	0.55 / 16 / B	EBL	E (74)	14	0.23
			EBT	E (74)	19	0.27
			WBL	E (77)	15	0.34
			WBT	E (72)	7	0.08
			NBL	E (76)	66	0.68
			SBL	E (77)	38	0.65
	PM	0.50 / 23 / C	EBL	E (70)	23	0.47
			EBT	E (63)	12	0.08
			WBL	F (84)	52	0.72
			WBT	E (65)	30	0.31
			NBL	E (79)	61	0.68
			SBL	F (116)	9	0.44
	Sat	0.31 / 11 / B	EBL	F (82)	25	0.55
			EBT	E (71)	0	0.02
			WBL	E (72)	9	0.10
			WBT	E (71)	0	0.01
			NBL	E (78)	29	0.50
			SBL	F (88)	7	0.50

Table 4.5: 2031 Future Total Capacity Analysis - Unsignalized Intersections

Intersection	Peak Hour	Movement of Interest	LOS (Delay (s))	95th Queue (m)	V/C
Skyway Dr & Maritz Dr	AM	EBLTR	B (13)	1	0.03
		WBL	B (13)	1	0.04
		WBTR	A (9)	1	0.04
		NBL	A (9)	0	0.01
		SBL	A (8)	1	0.05
	PM	EBLTR	B (13)	2	0.09
		WBL	B (14)	4	.15
		WBTR	B (11)	5	0.18
		NBL	A (8)	0	0.00
		SBL	A (9)	0	0.02
	Sat	EBLTR	B (11)	8	0.25
		WBL	A (10)	0	0.00
		WBTR	A (19)	1	0.03
		NBL	A (8)	1	0.02
		SBL	A (8)	0	0.00
Wal-Mart Inbound Access & Maritz Dr	AM	WBLTR	B (11)	1	0.04
		NBL	B (11)	1	0.03
		SBL	A (8)	1	0.02
	PM	WBLTR	A (9)	2	0.09
		NBL	B (13)	1	0.03
		SBL	B (10)	0	0.01
	Sat	WBLTR	A (9)	0	0.01
		NBL	A (9)	1	0.02
		SBL	A (7)	0	0.00
Road 'A' & Road 'B'	AM	EBLTR	A (9)	0	0.01
		WBLTR	A (9)	1	0.05
		SBLTR	A (7)	0	0.01
	PM	EBLTR	A (10)	0	0.02
		WBLTR	A (9)	0	0.02
		SBLTR	A (7)	1	0.04
	Sat	EBLTR	A (10)	0	0.01
		WBLTR	A (9)	1	0.05
		SBLTR	A (7)	1	0.02
Skyway Dr & Road 'A'	AM	WBLT	A (4)	0	0.01
		NBLR	A (9)	1	0.03
	PM	WBLT	A (2)	0	0.02
		NBLR	A (9)	1	0.04
	Sat	WBLT	A (6)	1	0.02
		NBLR	A (9)	1	0.04

Under the 2031 future total traffic condition, all intersection movements are expected to operate below capacity and with acceptable delay. The studied intersections are expected to operate in similar conditions as the 2031 future background traffic condition. Delay is expected to be at most 19 seconds for the individual movements at the unsignalized intersections.

It is noted that the site trips expected to travel through the Hurontario/Derry intersection is comprised of approximately 1% of the 2031 future total volumes through this intersection. As a result, the proposed development is expected to have minimal impacts on the local traffic network for the 2031 study horizon.

5 PARKING AND LOADING

5.1 PARKING

5.1.1 Requirements

Parking requirements for the subject site is governed by the City of Mississauga Zoning By-Law 0225-2007 which is currently in-force. A parking supply of 256 spaces is required based on the proposed uses on the subject site if the uses were free-standing buildings. However, the parking requirements for a mixed-use development may be determined using the shared parking formula in Section 3.1.2.3 of the City's By-law.

Table 5.1 summarizes the parking requirements of the proposed uses if the uses were free-standing buildings while **Table 5.2** summarizes parking requirements when considering the proposed uses as a mixed-use development in accordance with Section 3.1.2.3 of the City's By-law.

Table 5.1: Required and Proposed Parking Supply

Use	Size	City of Mississauga Zoning By-law 0225-2007		Proposed Parking
		Rate	# of Spaces	
Overnight Accommodations	164 guest rooms	0.8 space per guest room; plus	131	250
	1,449 m² GFA non-residential Use	10.0 spaces per 100 m² GFA – non-residential used for public use areas including meeting rooms, conference rooms, recreation facilities, dining and lounge areas and other commercial facilities, but excluding bedrooms, kitchens, laundry rooms, washrooms, lobbies, hallways, elevators, stairways and recreational facilities directly related to the function of the overnight accommodation	145	
Office	759 m² GFA non-residential use	3.2 spaces per 100 m² GFA – non-residential	24	
		Total	**300**	**250**

Table 5.2: Mixed-Use Development Shared Parking

Use	Full Parking Requirement	Percentage of Peak Period (Weekday) [Saturday]			
		Morning	Noon	Afternoon	Evening
Overnight Accommodations	276	(70%) [70%]	(70%) [70%]	(70%) [70%]	(100%) [100%]
Office	24	(100%) [10%]	(90%) [10%]	(95%) [10%]	(10%) [10%]
Total		**(217) [196] Spaces**	**(215) [196] Spaces**	**(216) [196] Spaces**	**(278) [278] spaces**

The proposed development will therefore require 278 parking spaces after applying the shared parking formula. A parking supply of 250 spaces are proposed on the subject site, which is a shortfall of 28 spaces from the minimum requirements. However, it is our view that peak parking demand for the guest rooms and non-residential uses of the overnight accommodations at the subject site is not expected to occur at the same time. There is also opportunity to determine whether the minimum requirement of 10.0 spaces per 100 m² non-residential GFA for the banquet hall use is an appropriate rate.

It is also noted that the proposed pool, fitness, and media rooms on the ground floor are meant to be auxiliary to the proposed overnight accommodation use and is not intended for use by the general public. This area was excluded from the parking requirement calculations as a result.

5.1.2 Parking Justification

Due to the nature of the proposed uses on the subject site, literature was reviewed to determine the expected and realistic joint parking supply for the proposed banquet hall and hotel uses. As per Tables 2-5 and 2-6 in Urban Land Institute's Shared Parking, 2nd Edition (2005), it was found that the recommended time-of-day factor reach a maximum of 100% between the hours of 5:00 PM to 9:00 PM for conference/banquet hall uses associated with hotel uses, before decreasing to 50% at 10:00 PM. For guest rooms in hotel uses, the maximum recommended time-of-day factor is from 11:00 PM onwards. The time periods for the maximum recommended time-of-day factors are consistent between weekdays and weekends. As a result, it is our opinion that opportunities exist for shared parking to occur between the banquet hall and guest room uses. Excerpts of the Tables referenced from ULI's Shared Parking, 2nd Edition is appended in **Appendix G**.

Furthermore, as discussed previously in Section 5.1.1, there was a desire to explore whether the By-law rate of 10.0 spaces per 100 m² is appropriate for the proposed banquet hall use. Therefore, a proxy parking survey was conducted at a nearby banquet hall. The proxy site, at 75 Derry Rd W, is a convention centre located approximately 960 m north of the subject site. The approximate GFA of the proxy site is 5,400 m². **Figure 5.1** illustrates the proximity between the proxy and subject sites.

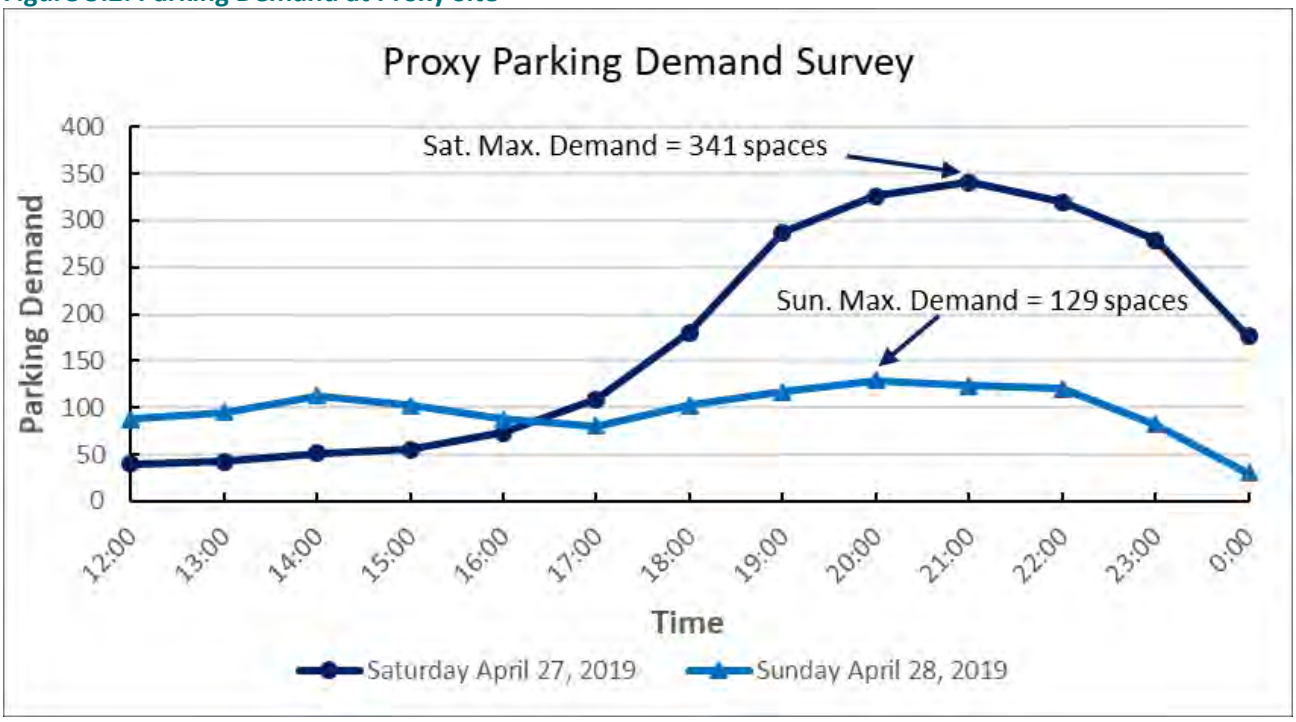
Figure 5.1: Location of Proxy Site in Comparison with the Subject Site

A proxy parking demand survey was conducted on Saturday April 27th and Sunday April 28th, 2019 from 12:00 PM to 12:00 AM. Parking demand was recorded at hourly intervals. It was confirmed that the proxy site was fully occupied during both survey dates. A peak parking demand of 341 parking spaces was recorded at 9:00 PM on Saturday April 26th, 2019, which equates to 6.31 spaces/100 m². As a result, parking for the banquet hall use proposed on the subject site should be provided at a minimum of 6.31 spaces/100 m². **Table 5.3** summarizes the survey results for the survey period while **Figure 5.2** illustrates the observed parking demand. Detailed results of the proxy parking demand survey are also enclosed in **Appendix G**.

Table 5.3: Summary of Proxy Parking Demand Surveys

	Saturday, April 27th, 2019	Sunday, April 28th, 2019
ssssApprox. Size	5,400 m²	
Peak Demand	341	129
Peak Demand Rate	6.31 sp/100 m²	2.39 sp/100 m²
Event Being Held	• Weddings	• Exhibition • Private Evssssent

Figure 5.2: Parking Demand at Proxy Site



5.1.3 Recommended Parking Supply

The parking supply for the proposed development was determined a combination of the parking supply rate from By-law requirements as well as the proxy parking demand rate. The recommended time-of-day factor at 9 PM for weekday, as per ULI's Shared Parking, was also applied to obtain the maximum parking supply of 218 spaces, as summarized and compared with the proposed supply in **Table 5.4**. A minimum parking supply of 218 spaces is recommended for the subject site as a result. The parking supply determined using the time-of-day factors for weekday and weekend are provided in **Appendix G**.

Table 5.4: Comparison Between Recommended and Proposed Parking Supply

Use	Size	Recommended Rate	Full Demand	Time-of-Day Factor	Expected Demand	Proposed
Guest Room	164 Rooms	0.8 sp/room	131	95%	124	250
Restaurant	284 m²	10.0 sp/100 m²	28	67%	19	
Conference/Banquet	1,165 m²	6.31 sp/100 m²	74	100%	74	
Office	759 m²	3.2 sp/100 m²	24	3%	1	
		Total	**257**	**-**	**218**	**250**

With a parking supply of 250 spaces proposed for the subject site, this represents a shortfall of seven (7) spaces if parking spaces are specifically reserved for the individual uses at 257 spaces. However, when time-of-day factor is considered, the proposed parking supply exceeds the expected parking demand of 218 spaces by 32 spaces. A parking supply of 250 spaces would thus be sufficient and appropriate for the uses proposed at the subject site.

5.2 LOADING

The subject site is required to provide loading spaces as per Section 3.1.4 of the City's By-law 0225-2007. As non-residential GFA of the proposed development is between 2,350 m² and 7,500 m², 2 loading spaces are required. Two (2) loading spaces are provided on the subject site, which meets the minimum requirements. Vehicle swept paths are enclosed in **Appendix H**.

6 TRANSPORTATION DEMAND MANAGEMENT INITIATIVES

Transportation Demand Management (TDM) initiatives are a set of strategies or measures which influences travel patterns. The proposed development is in an area that is mainly undeveloped or contain employment uses.

6.1 PEDESTRIAN-BASED INITIATIVES

Pedestrian connections to the existing pedestrian network on Hurontario St is proposed, which can be used to access the transit stops on Hurontario St. The TDM initiatives is mainly applicable only to employees as hotel use is the main land use proposed on the subject site.

6.2 TRANSIT-BASED INITIATIVES

Based on its proximity to the major streets, multiple transit options from Brampton Transit and MiWay are available to the subject site. The HLRT line will be operation along Hurontario St upon expected completion in 2022. The proposed station at Hurontario St and Courtneypark Dr will be the closest rapid transit station to the subject site, located approximately 460 m from the subject site. The presence of rapid transit within a reasonable walking distance increases the attractiveness of employees of the proposed use commuting to the subject site by transit.

6.3 CYCLING-BASED INITIATIVES

Bicycle lanes are planned along the Hurontario-Main corridor as part of the implementation of the HLRT. The improvement of cycling network within vicinity of the subject site increases the likelihood of commuting to the subject site by bicycles. Long-term and short-term bicycle spaces are proposed on the subject site to accommodate future cycling trips by employees of the proposed uses.

7 CONCLUSIONS

A mixed-use development containing 164 guest rooms, approximately 1,170 m² and 760 m² of banquet hall and office use, respectively, is proposed at 6710 Hurontario St in the City of Mississauga. The subject site is to be accessed from Hurontario St via an access along the southern boundary of the subject site.

Under existing traffic conditions, all intersection movements at the studied intersections will be operating below capacity. It is noted that movements of interest for unsignalized intersections are operating below capacity and with a delay up to 14 seconds at the studied peak hours. Delays for the minor street movements at the Skyway Dr and Hurontario St intersection is expected to be about one minute long due to the long cycle length at this intersection and is thus considered acceptable.

As a result of the proposed HLRT project, travel lane reductions are expected on Hurontario St in the future background traffic conditions for the 2024 and 2031 study horizons. The optimized future background intersection capacity analysis indicated that all intersection movements will be operating below capacity at acceptable levels of service for both study horizons. Delays for the minor street movement at the Skyway Dr and Hurontario St intersection is expected to remain similar to the existing condition.

It is our understanding that new local roads are proposed to redefine block sizes within vicinity of the subject site as the area becomes developed. The proposed access will form part of the road easement to extend Road 'B' and provide a connection between Maritz Dr, Road 'A' and Hurontario St by 2031 study horizon.

The subject site is projected to generate about 96 to 122 two-way trips during the peak hours analyzed. All intersection movements in the future total traffic condition are expected to operate in similar conditions as the future background traffic condition for both study horizons. The proposed development will have minimal impact on the surrounding transportation network.

Based on the parking by-law and proxy parking surveys from a local banquet hall for various different type of events, the expected peak parking demand for the subject site is determined at 218 spaces. The proposed parking supply of 250 exceeds the expected peak parking demand by 32 spaces and is therefore considered sufficient and appropriate for the subject site. A loading supply of two spaces is proposed on the subject site, which meets the City's minimum requirements.

APPENDIX A

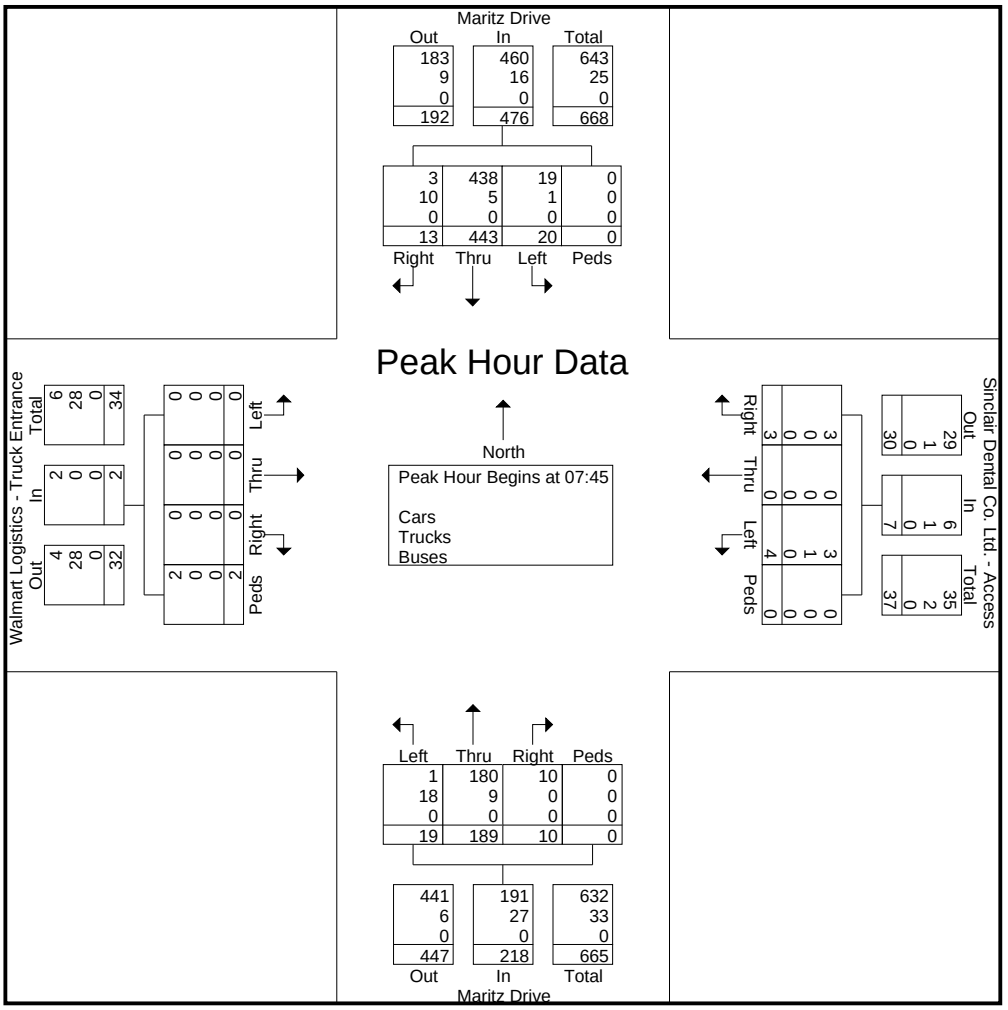
Existing Traffic Data

LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Maritz&PlazaAccess-THU-AM
Site Code : 19310028
Start Date : 2019-03-07
Page No : 3

	Maritz Drive Southbound					Sinclair Dental Co. Ltd. - Access Westbound					Maritz Drive Northbound					Walmart Logistics - Truck Entrance Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 09:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	3	116	1	0	120	0	0	0	0	0	**9**	47	2	0	**58**	0	0	0	**1**	**1**	179
08:00	2	**121**	**5**	0	**128**	**2**	0	1	0	**3**	6	43	**4**	0	53	0	0	0	0	0	**184**
08:15	**8**	97	3	0	108	1	0	**2**	0	3	2	**54**	1	0	57	0	0	0	1	1	169
08:30	7	109	4	0	120	1	0	0	0	1	2	45	3	0	50	0	0	0	0	0	171
Total Volume	20	443	13	0	476	4	0	3	0	7	19	189	10	0	218	0	0	0	2	2	703
% App. Total	4.2	93.1	2.7	0		57.1	0	42.9	0		8.7	86.7	4.6	0		0	0	0	100		
PHF	.625	.915	.650	.000	.930	.500	.000	.375	.000	.583	.528	.875	.625	.000	.940	.000	.000	.000	.500	.500	.955
Cars	19	438	3	0	460	3	0	3	0	6	1	180	10	0	191	0	0	0	2	2	659
% Cars	95.0	98.9	23.1	0	96.6	75.0	0	100	0	85.7	5.3	95.2	100	0	87.6	0	0	0	100	100	93.7
Trucks	1	5	10	0	16	1	0	0	0	1	18	9	0	0	27	0	0	0	0	0	44
% Trucks	5.0	1.1	76.9	0	3.4	25.0	0	0	0	14.3	94.7	4.8	0	0	12.4	0	0	0	0	0	6.3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

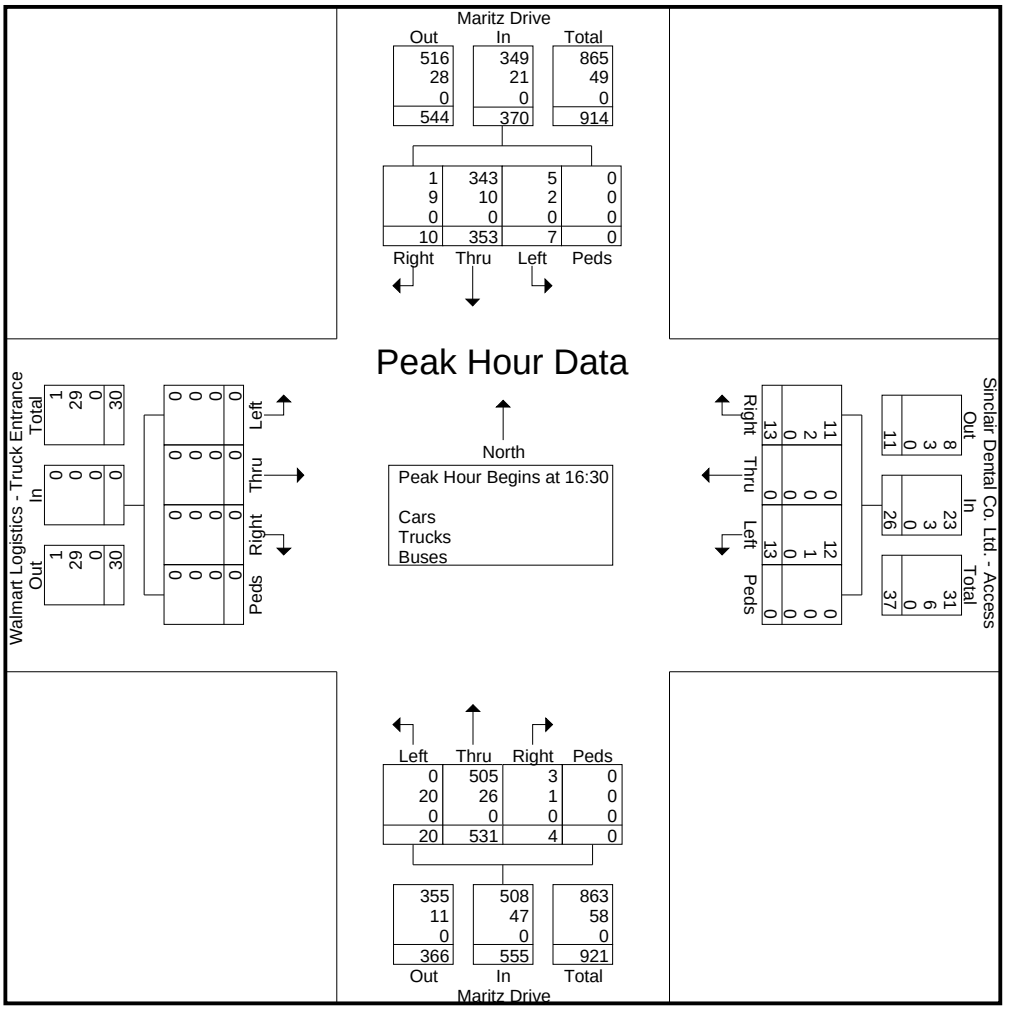


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Maritz&PlazaAccess-THU-PM
Site Code : 19310028
Start Date : 2019-03-07
Page No : 3

	Maritz Drive Southbound					Sinclair Dental Co. Ltd. - Access Westbound					Maritz Drive Northbound					Walmart Logistics - Truck Entrance Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	3	83	3	0	89	4	0	3	0	7	**8**	134	0	0	142	0	0	0	0	0	238
16:45	0	73	**4**	0	77	1	0	**4**	0	5	2	139	**3**	0	144	0	0	0	0	0	226
17:00	**4**	94	2	0	100	**8**	0	4	0	**12**	5	**157**	1	0	**163**	0	0	0	0	0	**275**
17:15	0	**103**	1	0	**104**	0	0	2	0	2	5	101	0	0	106	0	0	0	0	0	212
Total Volume	7	353	10	0	370	13	0	13	0	26	20	531	4	0	555	0	0	0	0	0	951
% App. Total	1.9	95.4	2.7	0		50	0	50	0		3.6	95.7	0.7	0		0	0	0	0		
PHF	.438	.857	.625	.000	.889	.406	.000	.813	.000	.542	.625	.846	.333	.000	.851	.000	.000	.000	.000	.000	.865
Cars	5	343	1	0	349	12	0	11	0	23	0	505	3	0	508	0	0	0	0	0	880
% Cars	71.4	97.2	10.0	0	94.3	92.3	0	84.6	0	88.5	0	95.1	75.0	0	91.5	0	0	0	0	0	92.5
Trucks	2	10	9	0	21	1	0	2	0	3	20	26	1	0	47	0	0	0	0	0	71
% Trucks	28.6	2.8	90.0	0	5.7	7.7	0	15.4	0	11.5	100	4.9	25.0	0	8.5	0	0	0	0	0	7.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

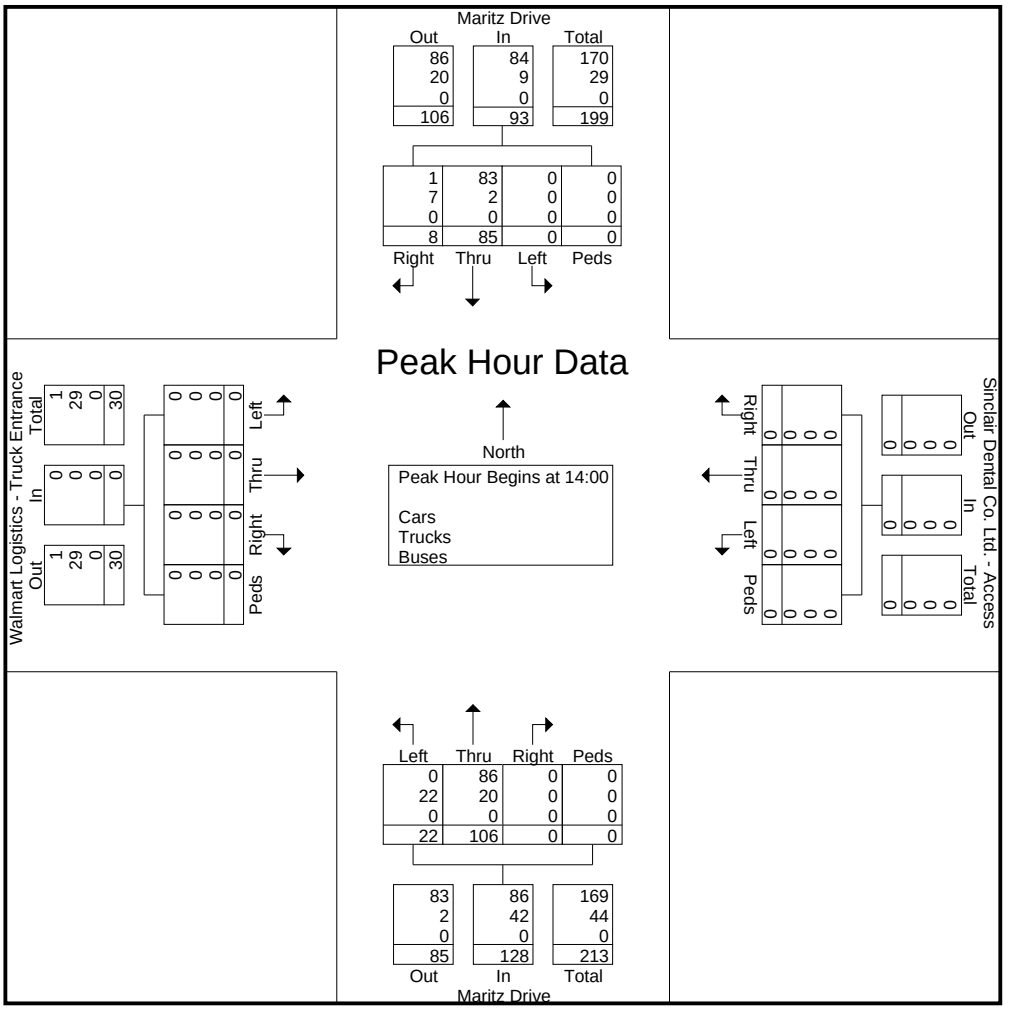


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Maritz&PlazaAccess-SAT
Site Code : 19310128
Start Date : 2019-03-09
Page No : 3

	Maritz Drive Southbound					Sinclair Dental Co. Ltd. - Access Westbound					Maritz Drive Northbound					Walmart Logistics - Truck Entrance Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 to 15:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 14:00																					
14:00	0	14	1	0	15	0	0	0	0	0	**12**	24	0	0	**36**	0	0	0	0	0	51
14:15	0	16	**4**	0	20	0	0	0	0	0	4	25	0	0	29	0	0	0	0	0	49
14:30	0	24	2	0	26	0	0	0	0	0	3	27	0	0	30	0	0	0	0	0	56
14:45	0	**31**	1	0	**32**	0	0	0	0	0	3	**30**	0	0	33	0	0	0	0	0	**65**
Total Volume	0	85	8	0	93	0	0	0	0	0	22	106	0	0	128	0	0	0	0	0	221
% App. Total	0	91.4	8.6	0		0	0	0	0		17.2	82.8	0	0		0	0	0	0		
PHF	.000	.685	.500	.000	.727	.000	.000	.000	.000	.000	.458	.883	.000	.000	.889	.000	.000	.000	.000	.000	.850
Cars	0	83	1	0	84	0	0	0	0	0	0	86	0	0	86	0	0	0	0	0	170
% Cars	0	97.6	12.5	0	90.3	0	0	0	0	0	0	81.1	0	0	67.2	0	0	0	0	0	76.9
Trucks	0	2	7	0	9	0	0	0	0	0	22	20	0	0	42	0	0	0	0	0	51
% Trucks	0	2.4	87.5	0	9.7	0	0	0	0	0	100	18.9	0	0	32.8	0	0	0	0	0	23.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

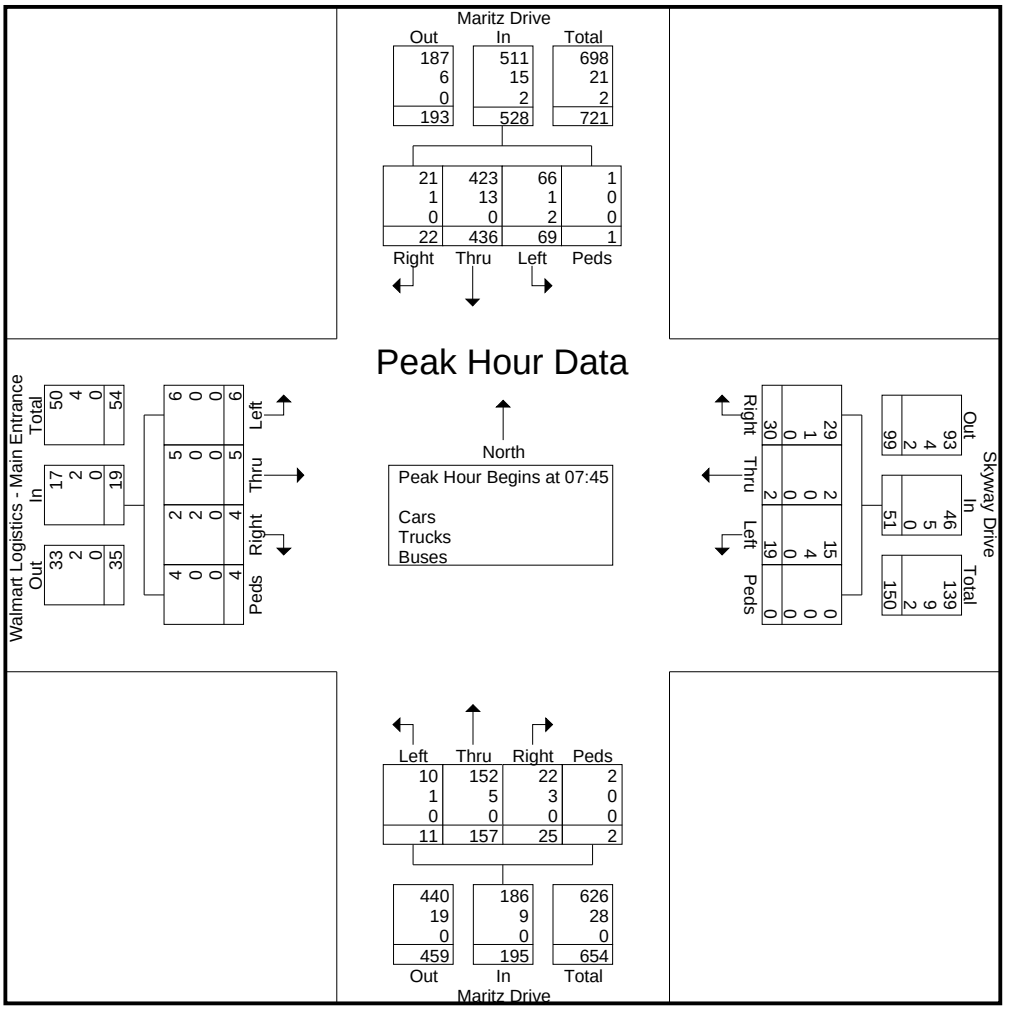


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Maritz&Skyway-THU-AM
Site Code : 19310026
Start Date : 2019-03-07
Page No : 3

	Maritz Drive Southbound					Skyway Drive Westbound					Maritz Drive Northbound					Walmart Logistics - Main Entrance Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 09:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	**21**	**116**	**8**	0	**145**	2	0	3	0	5	4	35	7	**1**	47	2	**2**	0	**2**	**6**	**203**
08:00	19	116	2	0	137	3	0	7	0	10	1	38	4	0	43	**3**	1	1	0	5	195
08:15	17	94	6	**1**	118	**8**	**1**	8	0	17	**5**	**43**	**8**	0	**56**	1	0	0	1	2	193
08:30	12	110	6	0	128	6	1	**12**	0	**19**	1	41	6	1	49	0	2	**3**	1	6	202
Total Volume	69	436	22	1	528	19	2	30	0	51	11	157	25	2	195	6	5	4	4	19	793
% App. Total	13.1	82.6	4.2	0.2		37.3	3.9	58.8	0		5.6	80.5	12.8	1		31.6	26.3	21.1	21.1		
PHF	.821	.940	.688	.250	.910	.594	.500	.625	.000	.671	.550	.913	.781	.500	.871	.500	.625	.333	.500	.792	.977
Cars	66	423	21	1	511	15	2	29	0	46	10	152	22	2	186	6	5	2	4	17	760
% Cars	95.7	97.0	95.5	100	96.8	78.9	100	96.7	0	90.2	90.9	96.8	88.0	100	95.4	100	100	50.0	100	89.5	95.8
Trucks	1	13	1	0	15	4	0	1	0	5	1	5	3	0	9	0	0	2	0	2	31
% Trucks	1.4	3.0	4.5	0	2.8	21.1	0	3.3	0	9.8	9.1	3.2	12.0	0	4.6	0	0	50.0	0	10.5	3.9
Buses	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	2.9	0	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3

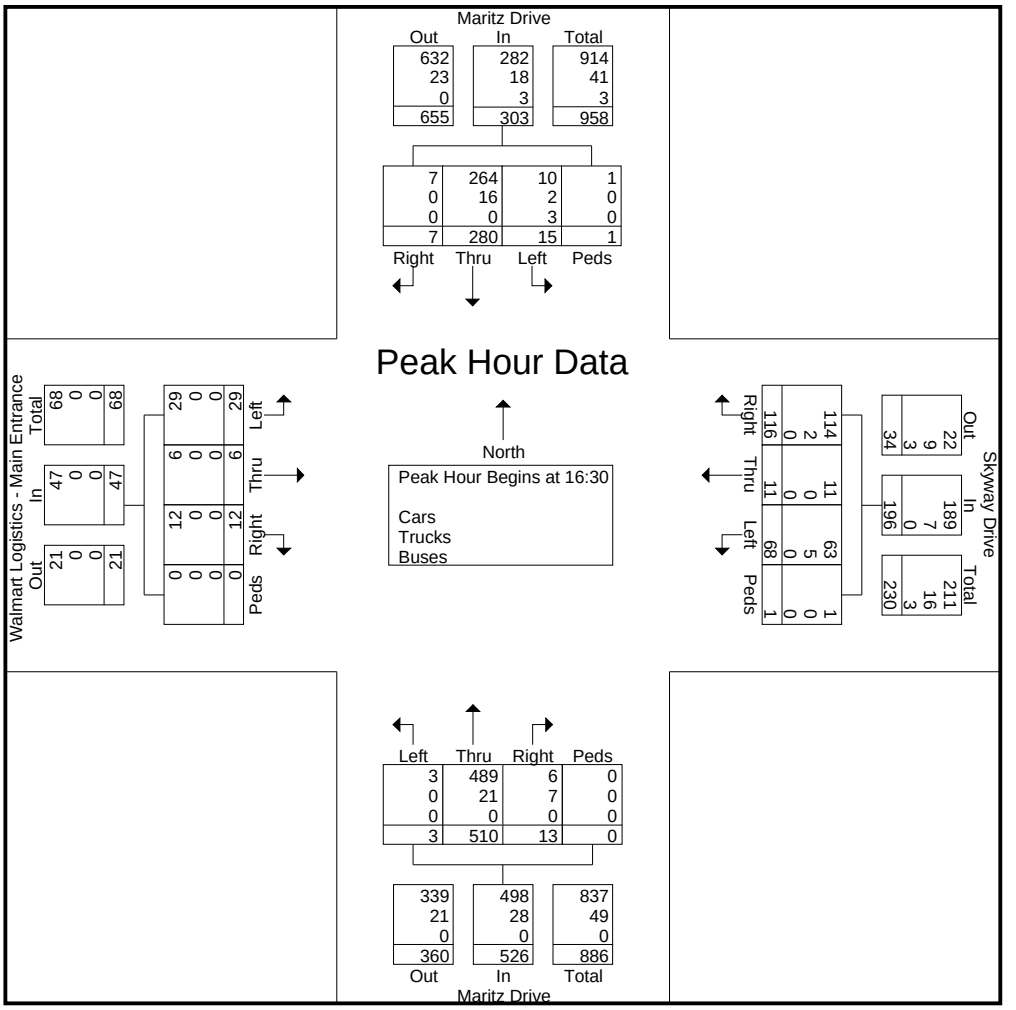


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Maritz&Skyway-THU-PM
Site Code : 19310026
Start Date : 2019-03-07
Page No : 3

	Maritz Drive Southbound					Skyway Drive Westbound					Maritz Drive Northbound					Walmart Logistics - Main Entrance Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	1	63	1	0	65	**24**	3	25	**1**	**53**	0	125	**4**	0	129	**9**	**2**	**5**	0	**16**	263
16:45	**6**	57	**2**	**1**	66	12	3	33	0	48	**2**	130	3	0	135	6	2	3	0	11	260
17:00	5	79	2	0	**86**	13	1	**34**	0	48	0	**153**	3	0	**156**	9	2	3	0	14	**304**
17:15	3	**81**	2	0	86	19	**4**	24	0	47	1	102	3	0	106	5	0	1	0	6	245
Total Volume	15	280	7	1	303	68	11	116	1	196	3	510	13	0	526	29	6	12	0	47	1072
% App. Total	5	92.4	2.3	0.3		34.7	5.6	59.2	0.5		0.6	97	2.5	0		61.7	12.8	25.5	0		
PHF	.625	.864	.875	.250	.881	.708	.688	.853	.250	.925	.375	.833	.813	.000	.843	.806	.750	.600	.000	.734	.882
Cars	10	264	7	1	282	63	11	114	1	189	3	489	6	0	498	29	6	12	0	47	1016
% Cars	66.7	94.3	100	100	93.1	92.6	100	98.3	100	96.4	100	95.9	46.2	0	94.7	100	100	100	0	100	94.8
Trucks	2	16	0	0	18	5	0	2	0	7	0	21	7	0	28	0	0	0	0	0	53
% Trucks	13.3	5.7	0	0	5.9	7.4	0	1.7	0	3.6	0	4.1	53.8	0	5.3	0	0	0	0	0	4.9
Buses	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
% Buses	20.0	0	0	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3

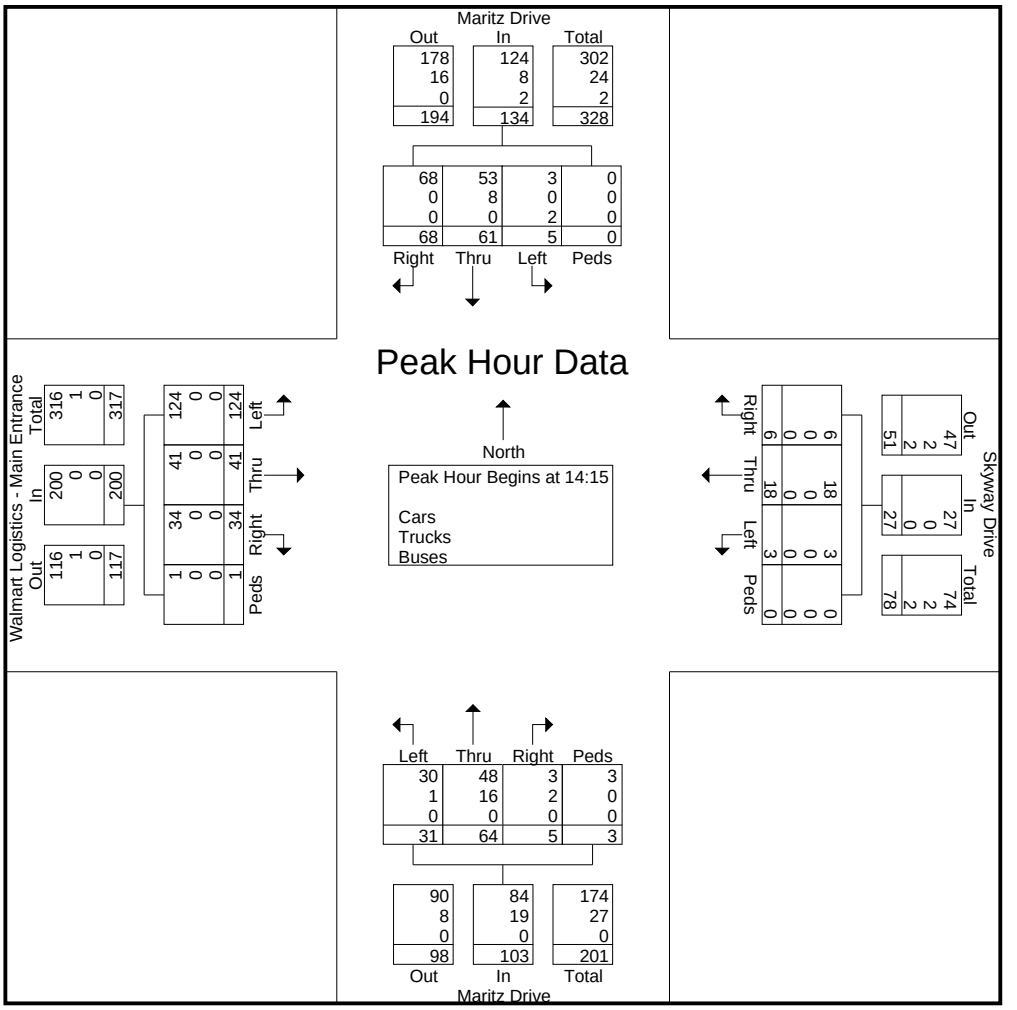


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Maritz&Skyway-SAT
Site Code : 19310126
Start Date : 2019-03-09
Page No : 3

	Maritz Drive Southbound					Skyway Drive Westbound					Maritz Drive Northbound					Walmart Logistics - Main Entrance Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 to 15:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 14:15																					
14:15	1	13	17	0	31	0	**6**	1	0	7	7	16	1	0	24	28	12	7	**1**	48	110
14:30	1	**20**	21	0	42	**2**	6	1	0	**9**	**13**	10	**3**	**2**	28	14	2	7	0	23	102
14:45	1	14	**28**	0	**43**	0	6	**2**	0	8	9	**20**	0	1	**30**	**74**	**22**	**16**	0	**112**	**193**
15:00	**2**	14	2	0	18	1	0	2	0	3	2	18	1	0	21	8	5	4	0	17	59
Total Volume	5	61	68	0	134	3	18	6	0	27	31	64	5	3	103	124	41	34	1	200	464
% App. Total	3.7	45.5	50.7	0		11.1	66.7	22.2	0		30.1	62.1	4.9	2.9		62	20.5	17	0.5		
PHF	.625	.763	.607	.000	.779	.375	.750	.750	.000	.750	.596	.800	.417	.375	.858	.419	.466	.531	.250	.446	.601
Cars	3	53	68	0	124	3	18	6	0	27	30	48	3	3	84	124	41	34	1	200	435
% Cars	60.0	86.9	100	0	92.5	100	100	100	0	100	96.8	75.0	60.0	100	81.6	100	100	100	100	100	93.8
Trucks	0	8	0	0	8	0	0	0	0	0	1	16	2	0	19	0	0	0	0	0	27
% Trucks	0	13.1	0	0	6.0	0	0	0	0	0	3.2	25.0	40.0	0	18.4	0	0	0	0	0	5.8
Buses	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	40.0	0	0	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4



LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&DerryRd-AM
Site Code: 19310
Start Date: 03/07/2019

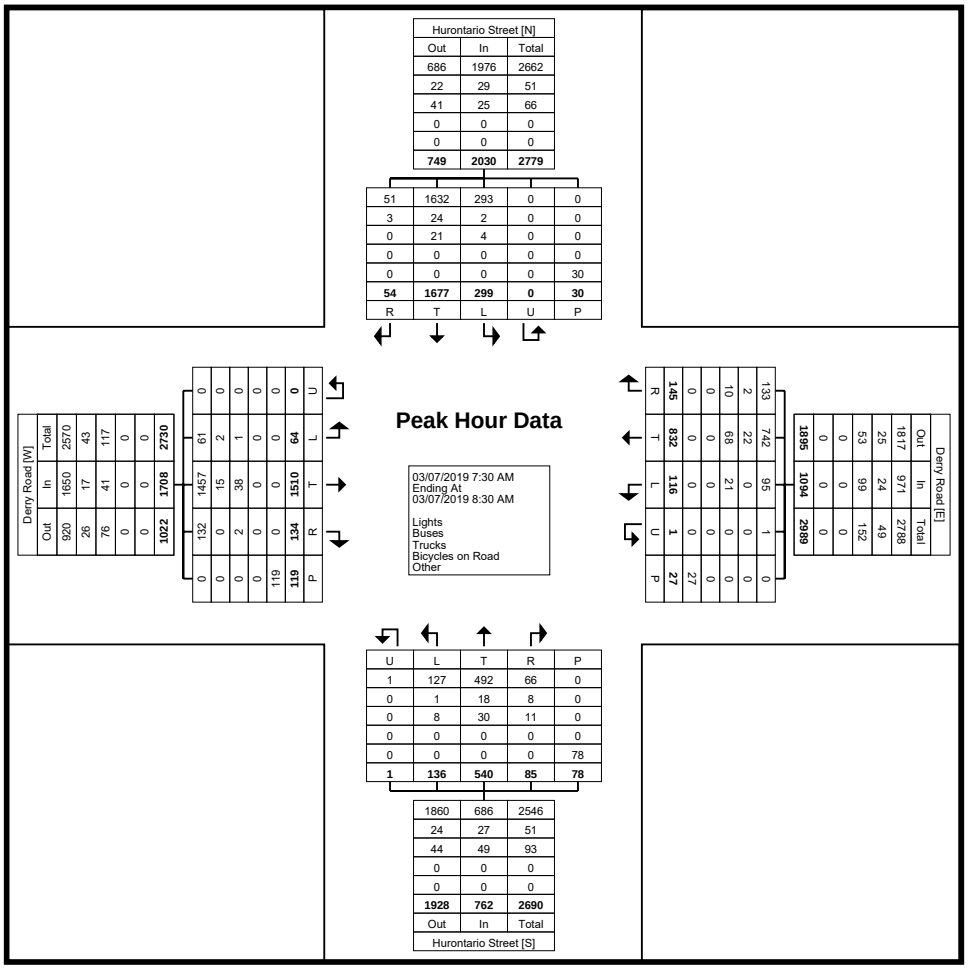
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Hurontario Street Southbound						Derry Road Westbound						Hurontario Street Northbound						Derry Road Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	14	429	91	0	15	534	32	183	21	0	10	236	20	96	27	0	25	143	29	423	15	0	37	467	1380
7:45 AM	10	442	60	0	7	512	41	226	31	0	10	298	22	139	32	0	24	193	30	415	13	0	24	458	1461
8:00 AM	10	453	71	0	7	534	28	184	32	1	5	245	22	139	39	1	18	201	34	329	17	0	33	380	1360
8:15 AM	20	353	77	0	1	450	44	239	32	0	2	315	21	166	38	0	11	225	41	343	19	0	25	403	1393
Total	54	1677	299	0	30	2030	145	832	116	1	27	1094	85	540	136	1	78	762	134	1510	64	0	119	1708	5594
Approach %	2.7	82.6	14.7	0.0	-	-	13.3	76.1	10.6	0.1	-	-	11.2	70.9	17.8	0.1	-	-	7.8	88.4	3.7	0.0	-	-	-
Total %	1.0	30.0	5.3	0.0	-	36.3	2.6	14.9	2.1	0.0	-	19.6	1.5	9.7	2.4	0.0	-	13.6	2.4	27.0	1.1	0.0	-	30.5	-
PHF	0.675	0.925	0.821	0.000	-	0.950	0.824	0.870	0.906	0.250	-	0.868	0.966	0.813	0.872	0.250	-	0.847	0.817	0.892	0.842	0.000	-	0.914	0.957
Lights	51	1632	293	0	-	1976	133	742	95	1	-	971	66	492	127	1	-	686	132	1457	61	0	-	1650	5283
% Lights	94.4	97.3	98.0	-	-	97.3	91.7	89.2	81.9	100.0	-	88.8	77.6	91.1	93.4	100.0	-	90.0	98.5	96.5	95.3	-	-	96.6	94.4
Buses	3	24	2	0	-	29	2	22	0	0	-	24	8	18	1	0	-	27	0	15	2	0	-	17	97
% Buses	5.6	1.4	0.7	-	-	1.4	1.4	2.6	0.0	0.0	-	2.2	9.4	3.3	0.7	0.0	-	3.5	0.0	1.0	3.1	-	-	1.0	1.7
Trucks	0	21	4	0	-	25	10	68	21	0	-	99	11	30	8	0	-	49	2	38	1	0	-	41	214
% Trucks	0.0	1.3	1.3	-	-	1.2	6.9	8.2	18.1	0.0	-	9.0	12.9	5.6	5.9	0.0	-	6.4	1.5	2.5	1.6	-	-	2.4	3.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	30	-	-	-	-	-	27	-	-	-	-	-	78	-	-	-	-	-	119	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&DerryRd-AM
Site Code: 19310
Start Date: 03/07/2019



Turning Movement Peak Hour Data Plot (7:30 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&DerryRd-PM
Site Code: 19310
Start Date: 03/07/2019

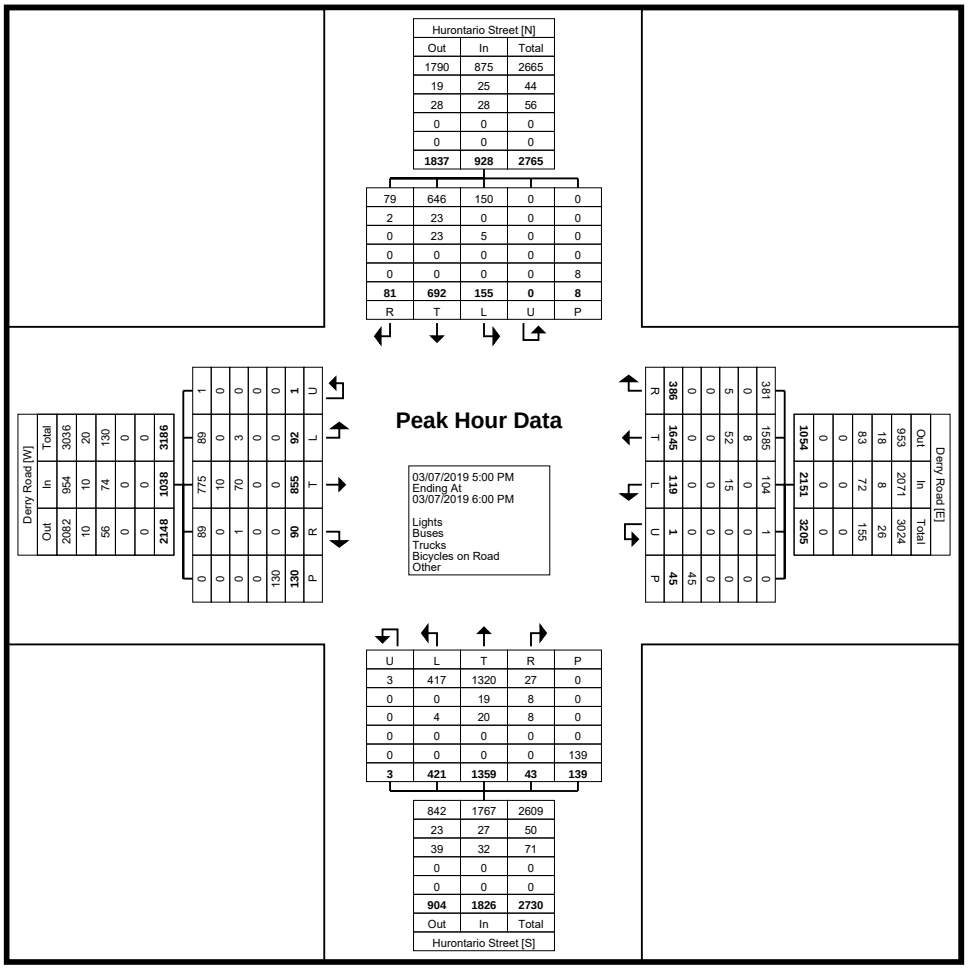
Turning Movement Peak Hour Data (5:00 PM)

Start Time	Hurontario Street Southbound						Derry Road Westbound						Hurontario Street Northbound						Derry Road Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
5:00 PM	22	166	43	0	3	231	103	418	32	0	6	553	10	329	93	1	39	433	17	198	29	0	35	244	1461
5:15 PM	21	209	40	0	2	270	97	348	23	0	6	468	12	366	106	0	24	484	20	192	21	0	23	233	1455
5:30 PM	27	155	37	0	1	219	87	451	31	1	1	570	8	353	107	1	43	469	21	237	26	0	34	284	1542
5:45 PM	11	162	35	0	2	208	99	428	33	0	32	560	13	311	115	1	33	440	32	228	16	1	38	277	1485
Total	81	692	155	0	8	928	386	1645	119	1	45	2151	43	1359	421	3	139	1826	90	855	92	1	130	1038	5943
Approach %	8.7	74.6	16.7	0.0	-	-	17.9	76.5	5.5	0.0	-	-	2.4	74.4	23.1	0.2	-	-	8.7	82.4	8.9	0.1	-	-	-
Total %	1.4	11.6	2.6	0.0	-	15.6	6.5	27.7	2.0	0.0	-	36.2	0.7	22.9	7.1	0.1	-	30.7	1.5	14.4	1.5	0.0	-	17.5	-
PHF	0.750	0.828	0.901	0.000	-	0.859	0.937	0.912	0.902	0.250	-	0.943	0.827	0.928	0.915	0.750	-	0.943	0.703	0.902	0.793	0.250	-	0.914	0.964
Lights	79	646	150	0	-	875	381	1585	104	1	-	2071	27	1320	417	3	-	1767	89	775	89	1	-	954	5667
% Lights	97.5	93.4	96.8	-	-	94.3	98.7	96.4	87.4	100.0	-	96.3	62.8	97.1	99.0	100.0	-	96.8	98.9	90.6	96.7	100.0	-	91.9	95.4
Buses	2	23	0	0	-	25	0	8	0	0	-	8	8	19	0	0	-	27	0	10	0	0	-	10	70
% Buses	2.5	3.3	0.0	-	-	2.7	0.0	0.5	0.0	0.0	-	0.4	18.6	1.4	0.0	0.0	-	1.5	0.0	1.2	0.0	0.0	-	1.0	1.2
Trucks	0	23	5	0	-	28	5	52	15	0	-	72	8	20	4	0	-	32	1	70	3	0	-	74	206
% Trucks	0.0	3.3	3.2	-	-	3.0	1.3	3.2	12.6	0.0	-	3.3	18.6	1.5	1.0	0.0	-	1.8	1.1	8.2	3.3	0.0	-	7.1	3.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	8	-	-	-	-	-	45	-	-	-	-	-	139	-	-	-	-	-	130	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&DerryRd-PM
Site Code: 19310
Start Date: 03/07/2019



Turning Movement Peak Hour Data Plot (5:00 PM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&DerryRd-SAT
Site Code: 19310
Start Date: 03/09/2019

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Hurontario Street Southbound						Derry Road Westbound						Hurontario Street Northbound						Derry Road Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
11:00 AM	20	101	48	0	4	169	31	128	19	0	1	178	27	85	32	0	1	144	28	200	16	0	16	244	735
11:15 AM	18	181	50	0	20	249	43	154	24	0	16	221	31	132	33	0	3	196	23	210	20	0	8	253	919
11:30 AM	15	176	57	1	10	249	36	135	17	0	3	188	23	121	40	0	1	184	32	188	23	0	6	243	864
11:45 AM	22	133	49	0	11	204	49	182	33	0	1	264	16	128	43	0	7	187	34	228	23	0	16	285	940
Total	75	591	204	1	45	871	159	599	93	0	21	851	97	466	148	0	12	711	117	826	82	0	46	1025	3458
Approach %	8.6	67.9	23.4	0.1	-	-	18.7	70.4	10.9	0.0	-	-	13.6	65.5	20.8	0.0	-	-	11.4	80.6	8.0	0.0	-	-	-
Total %	2.2	17.1	5.9	0.0	-	25.2	4.6	17.3	2.7	0.0	-	24.6	2.8	13.5	4.3	0.0	-	20.6	3.4	23.9	2.4	0.0	-	29.6	-
PHF	0.852	0.816	0.895	0.250	-	0.874	0.811	0.823	0.705	0.000	-	0.806	0.782	0.883	0.860	0.000	-	0.907	0.860	0.906	0.891	0.000	-	0.899	0.920
Lights	72	571	201	1	-	845	155	582	89	0	-	826	79	448	146	0	-	673	114	792	81	0	-	987	3331
% Lights	96.0	96.6	98.5	100.0	-	97.0	97.5	97.2	95.7	-	-	97.1	81.4	96.1	98.6	-	-	94.7	97.4	95.9	98.8	-	-	96.3	96.3
Buses	2	13	1	0	-	16	0	3	0	0	-	3	6	12	0	0	-	18	1	4	0	0	-	5	42
% Buses	2.7	2.2	0.5	0.0	-	1.8	0.0	0.5	0.0	-	-	0.4	6.2	2.6	0.0	-	-	2.5	0.9	0.5	0.0	-	-	0.5	1.2
Trucks	1	7	2	0	-	10	3	14	4	0	-	21	12	6	2	0	-	20	2	30	1	0	-	33	84
% Trucks	1.3	1.2	1.0	0.0	-	1.1	1.9	2.3	4.3	-	-	2.5	12.4	1.3	1.4	-	-	2.8	1.7	3.6	1.2	-	-	3.2	2.4
Bicycles on Road	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.6	0.0	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	45	-	-	-	-	-	21	-	-	-	-	-	12	-	-	-	-	-	46	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

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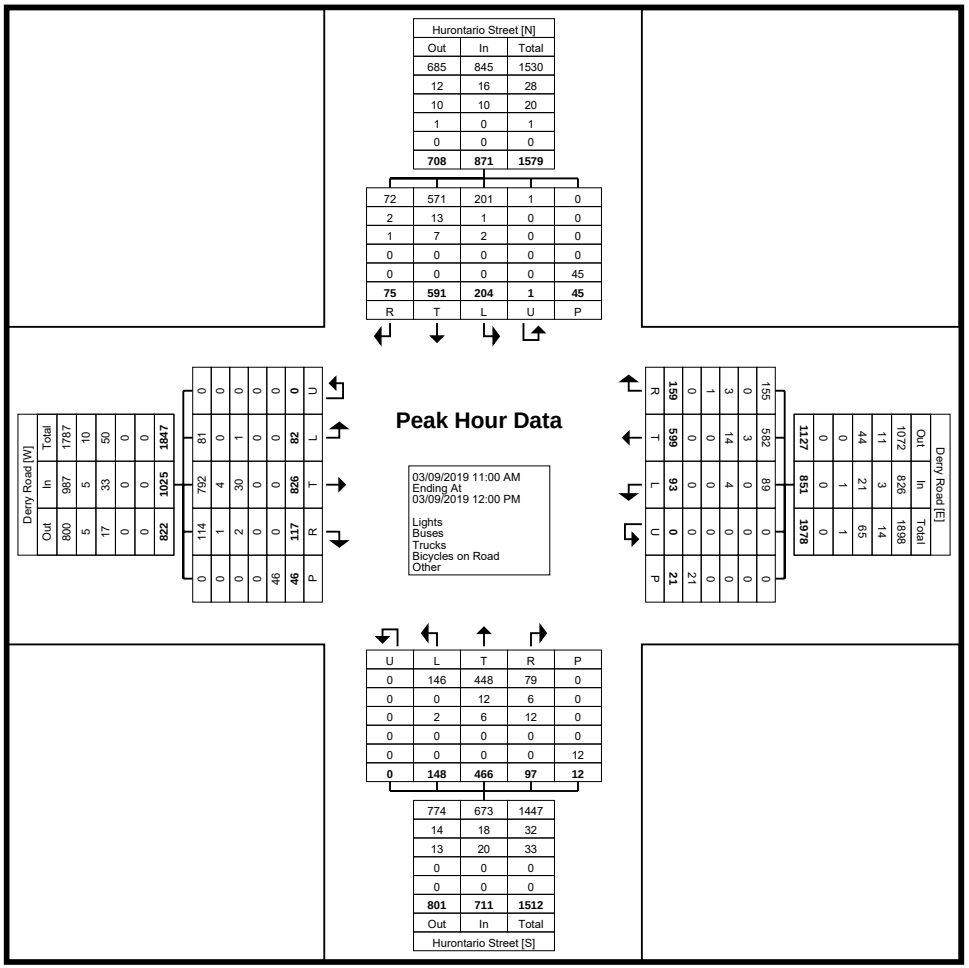
Count Name: 19310_HurontarioSt&DerryRd-SAT
Site Code: 19310
Start Date: 03/09/2019



Turning Movement Peak Hour Data Plot (11:00 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&SkywayDr-AM
Site Code: 19310
Start Date: 03/07/2019

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Hurontario Street Southbound						Superior Boulevard Westbound						Hurontario Street Northbound						Skyway Drive Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:45 AM	2	545	26	0	0	573	1	1	2	0	3	4	24	255	5	0	2	284	12	10	2	0	0	24	885
8:00 AM	1	522	16	0	0	539	2	2	6	0	1	10	11	244	9	0	1	264	14	15	1	0	0	30	843
8:15 AM	2	453	30	0	0	485	3	6	4	0	1	13	13	227	9	0	1	249	10	13	0	0	0	23	770
8:30 AM	2	496	29	0	1	527	3	3	5	0	1	11	22	226	13	0	1	261	10	7	1	0	1	18	817
Total	7	2016	101	0	1	2124	9	12	17	0	6	38	70	952	36	0	5	1058	46	45	4	0	1	95	3315
Approach %	0.3	94.9	4.8	0.0	-	-	23.7	31.6	44.7	0.0	-	-	6.6	90.0	3.4	0.0	-	-	48.4	47.4	4.2	0.0	-	-	-
Total %	0.2	60.8	3.0	0.0	-	64.1	0.3	0.4	0.5	0.0	-	1.1	2.1	28.7	1.1	0.0	-	31.9	1.4	1.4	0.1	0.0	-	2.9	-
PHF	0.875	0.925	0.842	0.000	-	0.927	0.750	0.500	0.708	0.000	-	0.731	0.729	0.933	0.692	0.000	-	0.931	0.821	0.750	0.500	0.000	-	0.792	0.936
Lights	6	1947	99	0	-	2052	8	11	13	0	-	32	70	879	33	0	-	982	43	42	4	0	-	89	3155
% Lights	85.7	96.6	98.0	-	-	96.6	88.9	91.7	76.5	-	-	84.2	100.0	92.3	91.7	-	-	92.8	93.5	93.3	100.0	-	-	93.7	95.2
Buses	0	21	0	0	-	21	0	0	0	0	-	0	0	25	0	0	-	25	0	3	0	0	-	3	49
% Buses	0.0	1.0	0.0	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.0	2.6	0.0	-	-	2.4	0.0	6.7	0.0	-	-	3.2	1.5
Trucks	1	48	2	0	-	51	1	1	4	0	-	6	0	48	3	0	-	51	3	0	0	0	-	3	111
% Trucks	14.3	2.4	2.0	-	-	2.4	11.1	8.3	23.5	-	-	15.8	0.0	5.0	8.3	-	-	4.8	6.5	0.0	0.0	-	-	3.2	3.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	6	-	-	-	-	-	5	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
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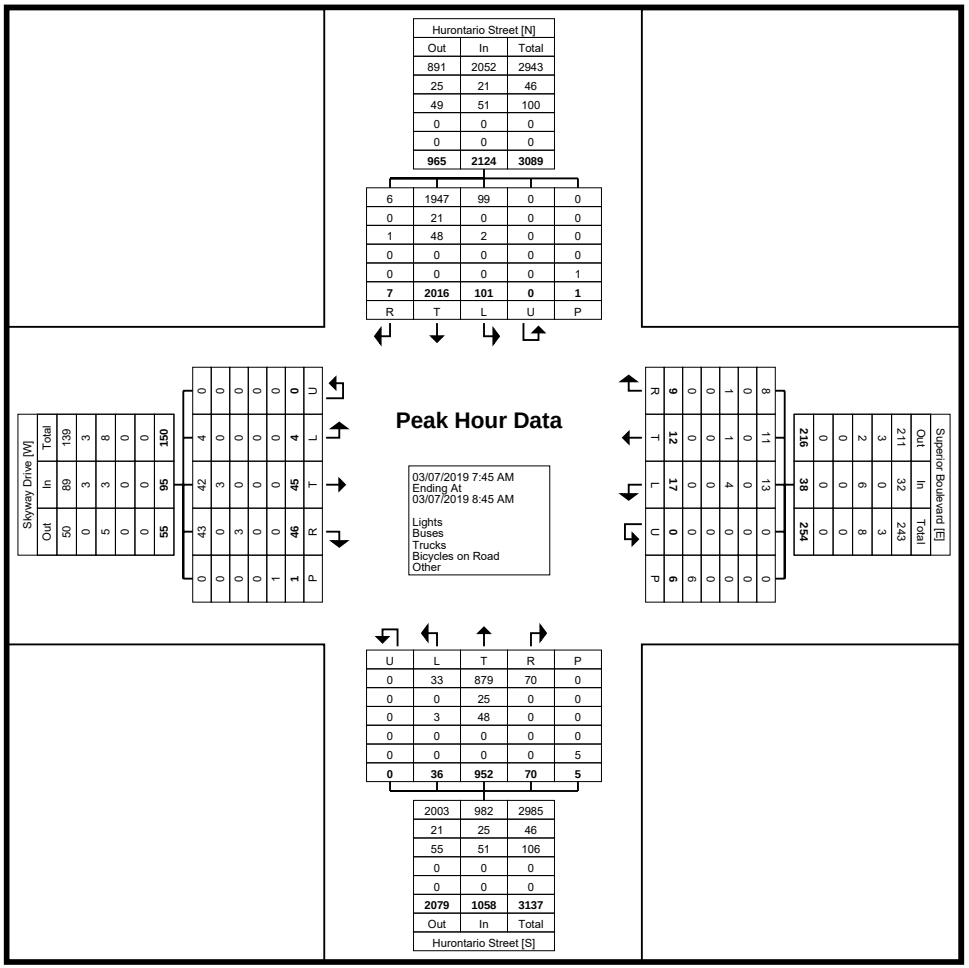

Turning Movement Peak Hour Data Plot (7:45 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&SkywayDr-PM
Site Code: 19310
Start Date: 03/07/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Hurontario Street Southbound						Superior Boulevard Westbound						Hurontario Street Northbound						Skyway Drive Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:30 PM	6	315	5	0	2	326	29	37	27	0	0	93	4	464	11	0	0	479	7	2	2	0	2	11	909
4:45 PM	1	284	4	0	0	289	18	20	18	0	0	56	4	391	28	0	0	423	6	2	4	0	0	12	780
5:00 PM	2	261	3	0	2	266	30	28	29	0	3	87	0	438	18	0	1	456	5	3	1	0	2	9	818
5:15 PM	3	289	2	0	0	294	22	26	27	0	0	75	2	401	18	0	0	421	5	3	2	0	0	10	800
Total	12	1149	14	0	4	1175	99	111	101	0	3	311	10	1694	75	0	1	1779	23	10	9	0	4	42	3307
Approach %	1.0	97.8	1.2	0.0	-	-	31.8	35.7	32.5	0.0	-	-	0.6	95.2	4.2	0.0	-	-	54.8	23.8	21.4	0.0	-	-	-
Total %	0.4	34.7	0.4	0.0	-	35.5	3.0	3.4	3.1	0.0	-	9.4	0.3	51.2	2.3	0.0	-	53.8	0.7	0.3	0.3	0.0	-	1.3	-
PHF	0.500	0.912	0.700	0.000	-	0.901	0.825	0.750	0.871	0.000	-	0.836	0.625	0.913	0.670	0.000	-	0.928	0.821	0.833	0.563	0.000	-	0.875	0.910
Lights	10	1099	11	0	-	1120	98	107	96	0	-	301	8	1637	75	0	-	1720	20	6	3	0	-	29	3170
% Lights	83.3	95.6	78.6	-	-	95.3	99.0	96.4	95.0	-	-	96.8	80.0	96.6	100.0	-	-	96.7	87.0	60.0	33.3	-	-	69.0	95.9
Buses	0	21	0	0	-	21	0	0	0	0	-	0	0	21	0	0	-	21	0	3	0	0	-	3	45
% Buses	0.0	1.8	0.0	-	-	1.8	0.0	0.0	0.0	-	-	0.0	0.0	1.2	0.0	-	-	1.2	0.0	30.0	0.0	-	-	7.1	1.4
Trucks	2	29	3	0	-	34	1	4	5	0	-	10	2	36	0	0	-	38	3	1	6	0	-	10	92
% Trucks	16.7	2.5	21.4	-	-	2.9	1.0	3.6	5.0	-	-	3.2	20.0	2.1	0.0	-	-	2.1	13.0	10.0	66.7	-	-	23.8	2.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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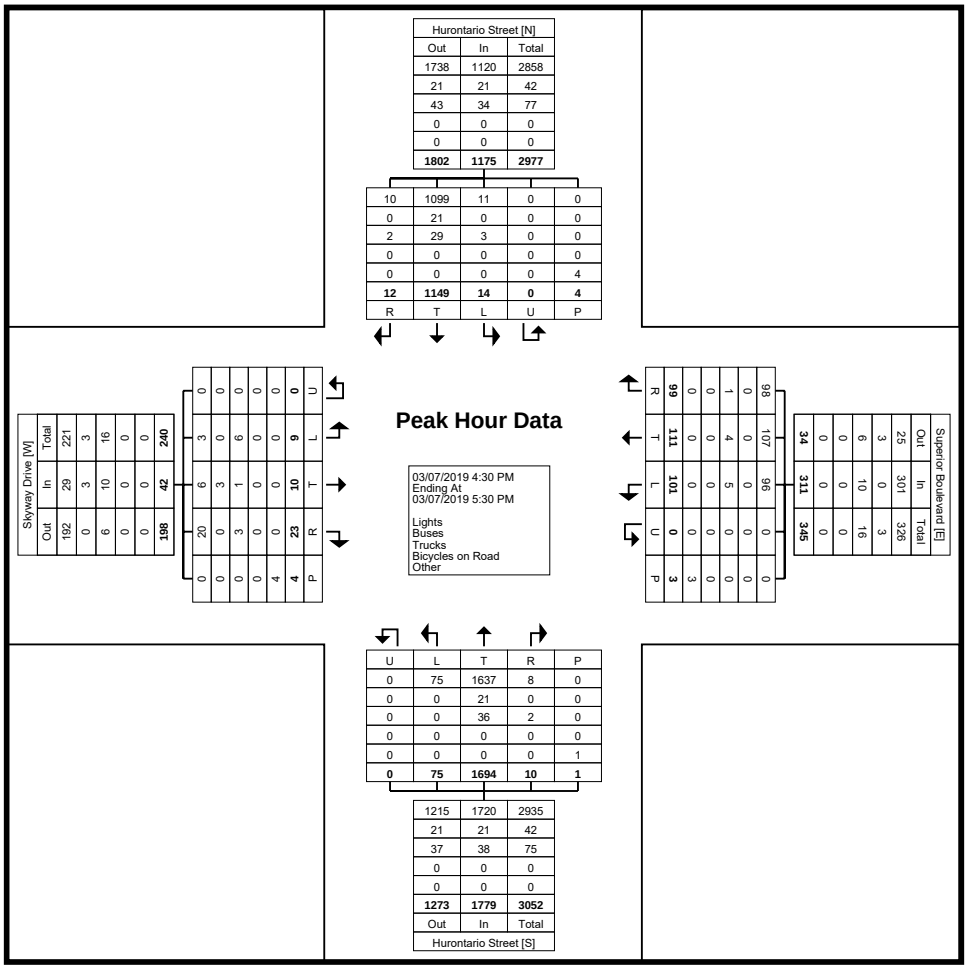


Turning Movement Peak Hour Data Plot (4:30 PM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&DerryRd-SAT
Site Code: 19310
Start Date: 03/09/2019

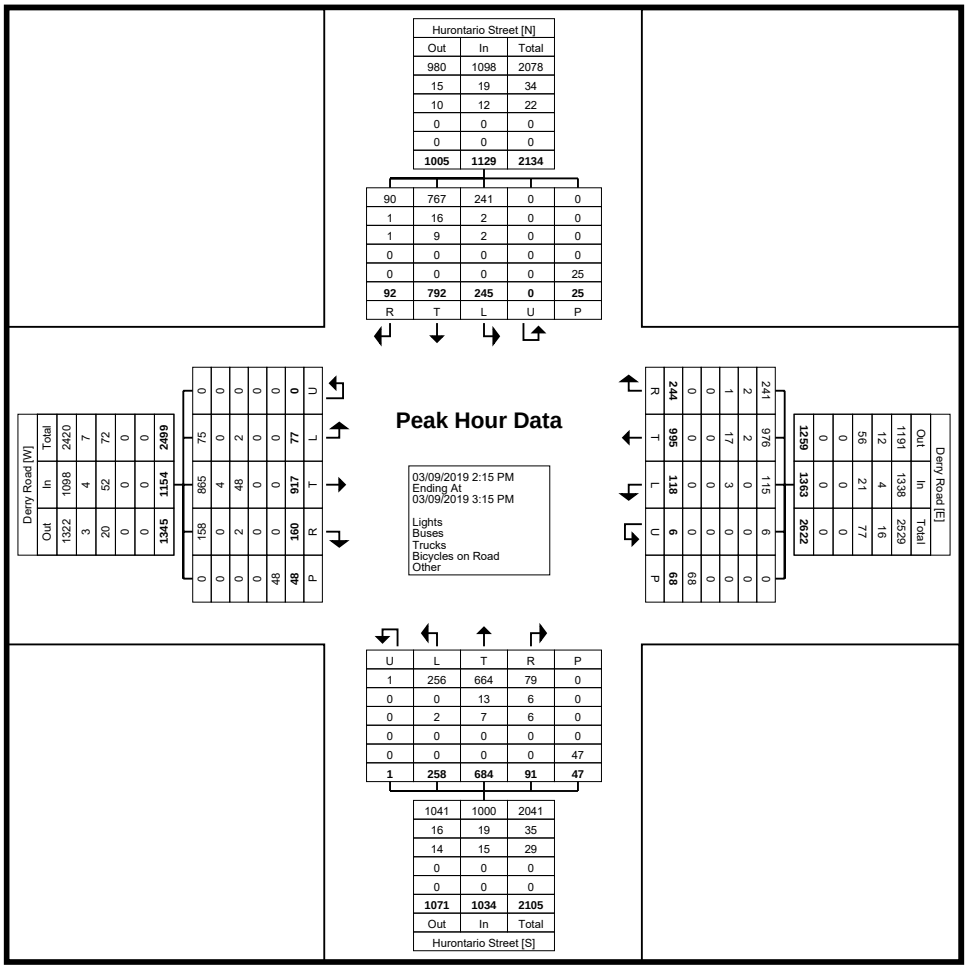
Turning Movement Peak Hour Data (2:15 PM)

Start Time	Hurontario Street Southbound						Derry Road Westbound						Hurontario Street Northbound						Derry Road Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
2:15 PM	28	178	62	0	1	268	48	233	28	1	0	310	26	170	67	0	9	263	47	247	16	0	7	310	1151
2:30 PM	20	179	57	0	20	256	67	292	31	1	60	391	21	165	71	1	24	258	29	245	21	0	19	295	1200
2:45 PM	24	242	61	0	0	327	61	213	28	1	3	303	27	205	68	0	7	300	41	210	23	0	13	274	1204
3:00 PM	20	193	65	0	4	278	68	257	31	3	5	359	17	144	52	0	7	213	43	215	17	0	9	275	1125
Total	92	792	245	0	25	1129	244	995	118	6	68	1363	91	684	258	1	47	1034	160	917	77	0	48	1154	4680
Approach %	8.1	70.2	21.7	0.0	-	-	17.9	73.0	8.7	0.4	-	-	8.8	66.2	25.0	0.1	-	-	13.9	79.5	6.7	0.0	-	-	-
Total %	2.0	16.9	5.2	0.0	-	24.1	5.2	21.3	2.5	0.1	-	29.1	1.9	14.6	5.5	0.0	-	22.1	3.4	19.6	1.6	0.0	-	24.7	-
PHF	0.821	0.818	0.942	0.000	-	0.863	0.897	0.852	0.952	0.500	-	0.871	0.843	0.834	0.908	0.250	-	0.862	0.851	0.928	0.837	0.000	-	0.931	0.972
Lights	90	767	241	0	-	1098	241	976	115	6	-	1338	79	664	256	1	-	1000	158	865	75	0	-	1098	4534
% Lights	97.8	96.8	98.4	-	-	97.3	98.8	98.1	97.5	100.0	-	98.2	86.8	97.1	99.2	100.0	-	96.7	98.8	94.3	97.4	-	-	95.1	96.9
Buses	1	16	2	0	-	19	2	2	0	0	-	4	6	13	0	0	-	19	0	4	0	0	-	4	46
% Buses	1.1	2.0	0.8	-	-	1.7	0.8	0.2	0.0	0.0	-	0.3	6.6	1.9	0.0	0.0	-	1.8	0.0	0.4	0.0	-	-	0.3	1.0
Trucks	1	9	2	0	-	12	1	17	3	0	-	21	6	7	2	0	-	15	2	48	2	0	-	52	100
% Trucks	1.1	1.1	0.8	-	-	1.1	0.4	1.7	2.5	0.0	-	1.5	6.6	1.0	0.8	0.0	-	1.5	1.3	5.2	2.6	-	-	4.5	2.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	25	-	-	-	-	-	68	-	-	-	-	-	47	-	-	-	-	-	48	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 19310_HurontarioSt&DerryRd-SAT
Site Code: 19310
Start Date: 03/09/2019



Turning Movement Peak Hour Data Plot (2:15 PM)

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**March 18, 2019**		**Prepared Date:**	**March 21, 2019**
Database Rev	**iNet**		**Completed By:**	**AP**
Timing Card / Field rev	**iNet**		**Checked By:**	**MY**

Location: **Derry Road @ Hurontario Street**

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	TIME PERIOD (sec.) (Green+Amber+All Red)			
			WALK	FDWALK			AM	OFF	PM	
1	Derry Rd. - W/B P.P. LT. Arrow	5.0			3.0		13.0	14.0	13.0	
2	Derry Rd. - E/B	12.0	17.0	36.0	4.3	2.6	62.0	69.0	60.0	
3	Hurontario St. - S/B P.P. LT. Arrow	5.0			3.0		27.0	13.0	18.0	
4	Hurontario St. - N/B	12.0	16.0	35.0	4.6	2.2	58.0	64.0	69.0	
5	Derry Rd. - E/B P.P. LT. Arrow	5.0			3.0		13.0		13.0	
6	Derry Rd. - W/B	12.0	17.0	36.0	4.3	2.6	62.0	83.0	60.0	
7	Hurontario St. - N/B P.P. LT. Arrow	5.0			3.0		13.0	13.0	29.0	
8	Hurontario St. - S/B	12.0	16.0	35.0	4.6	2.2	72.0	64.0	58.0	

System Control	Yes
Local Control	No
Semi-Actuated Mode	No

TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00 - 09:30	**AM**	**160**	**94**
09:30 - 15:00 19:30 - 03:00	**OFF**	**160**	**80**
15:00 - 19:30	**PM**	**160**	**106**

Signal Timing Report

Runtime: 2019-03-19 12:43:48

Device: 4316

Region: Mississauga **Signal ID:** 4316 **Location:** HURONTARIO STREET N at Superior Boulevard/Skyway Drive

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	10	0	15	0	10	0	15
Ped Clear	Sec	0	15	0	22	0	15	0	22
Min Green	Sec	5	8	0	8	5	8	0	8
Passage	Sec	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0
Maximum 1	Sec	20	35	0	20	20	35	0	20
Maximum 2	Sec	20	35	0	20	20	35	0	20
Yellow Change	Sec	3.0	5.0	3.0	4.0	3.0	5.0	3.0	4.0
Red Clearance	Sec	0.0	2.0	0.0	3.0	0.0	2.0	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	Sec	0	0	0	0	0	0	0	0
Cars Before	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	Enabled Non Lock Det	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In Walk	0	Enabled Non Lock Det Dual Entry	Enabled Non Lock Det	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In Walk	0	Enabled Non Lock Det Dual Entry
[P2] Ring	Ring	1	1	0	1	2	2	0	2
[P2] Concurrency	Phase (,)	(5,6)	(5,6)	()	(8)	(1,2)	(1,2)	()	(4)

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	160	160	160	0	0	0	0	0
Offset	Sec	70	45	78	0	0	0	0	0
Split	Split	1	2	3	4	5	6	7	8
Sequence	Sequence	1	1	1	1	1	1	1	1

Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	19	87	0	54	19	87	0	54
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	22	80	0	58	22	80	0	58
Split 2 - Coord	Enum	false	true	false	false	false	true	false	false
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	30	77	0	53	30	77	0	53
Split 3 - Coord	Enum	false	true	false	false	false	true	false	false

TB Schedule	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASON D	JFMAMJJASOND	J----------	-F---------	---A-------	----M------	-----J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	12345678901234 56789012345678 901	12345678901234 56789012345678 901	12345678901234 56789012345678 901	1---------- --------	----------8----- --------	----------9--- ---------	----------0--- --------	1---------- --------
Day Plan	Number	1	3	2	3	3	3	3	3

TB Schedule	Units	9	10	11	12	13	14	15	16
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	0	0
Day of Week	Bit	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	----5---------- --------	-2---------- --------	----------4-------- --------	---------- 5------	---------- -6-----	---------- -4-------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0

TB Dayplan	Units	1	2	3	4	5	6	7	8
Plan 1 Hour	Hour	0	6	9	15	19	3	0	0
Plan 1 Minute	Min	0	0	30	0	30	0	0	0
Plan 1 Action	Number	8	1	2	3	2	7	0	0
Plan 2 Hour	Hour	0	7	3	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	2	7	0	0	0	0	0
Plan 3 Hour	Hour	0	8	23	3	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	2	8	7	0	0	0	0

TB Action	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	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

APPENDIX B

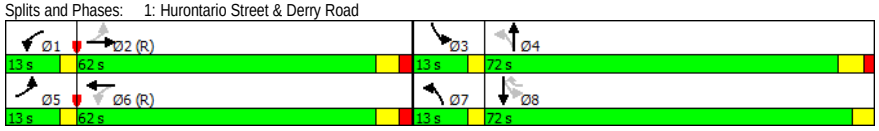
Intersection Capacity Analysis – Existing Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	64	1510	116	832	145	136	540	299	1677
Future Volume (vph)	64	1510	116	832	145	136	540	299	1677
Lane Group Flow (vph)	64	1644	116	832	145	136	625	299	1731
Turn Type	pm+pt	NA	pm+pt	NA	custom	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		8	4		8	
Detector Phase	5	2	1	6	8	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.9	8.0	59.9	57.9	8.0	57.9	8.0	57.9
Total Split (s)	13.0	62.0	13.0	62.0	72.0	13.0	72.0	13.0	72.0
Total Split (%)	8.1%	38.8%	8.1%	38.8%	45.0%	8.1%	45.0%	8.1%	45.0%
Yellow Time (s)	3.0	4.3	3.0	4.3	4.3	3.0	4.7	3.0	4.3
All-Red Time (s)	0.0	2.6	0.0	2.6	0.0	0.0	2.2	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
Total Lost Time (s)	3.0	6.9	3.0	6.9	4.3	3.0	6.9	3.0	4.3
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None
v/c Ratio	0.23	0.91	0.80	0.45	0.22	0.90	0.35	0.81	0.86
Control Delay	26.3	57.1	70.9	38.4	4.8	81.6	30.5	47.7	48.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	57.1	70.9	38.4	4.8	81.6	30.5	47.7	48.9
Queue Length 50th (m)	11.7	196.9	24.0	77.9	0.0	29.2	52.3	60.0	190.6
Queue Length 95th (m)	22.1	#230.2	#65.8	95.8	14.1	#69.2	61.7	#83.5	204.5
Internal Link Dist (m)		266.8		336.5			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	294	1802	145	1845	686	151	1879	368	2141
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.91	0.80	0.45	0.21	0.90	0.33	0.81	0.81

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 94 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	1510	134	116	832	145	136	540	85	299	1677	54
Future Volume (vph)	64	1510	134	116	832	145	136	540	85	299	1677	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.9		3.0	6.9	4.3	3.0	6.9		3.0	4.3	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1697	4945		1513	4725	1424	1668	4585		1734	5057	
Flt Permitted	0.27	1.00		0.07	1.00	1.00	0.07	1.00		0.36	1.00	
Satd. Flow (perm)	490	4945		104	4725	1424	115	4585		650	5057	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	1510	134	116	832	145	136	540	85	299	1677	54
RTOR Reduction (vph)	0	6	0	0	0	87	0	14	0	0	2	0
Lane Group Flow (vph)	64	1638	0	116	832	58	136	611	0	299	1729	0
Confl. Peds. (#/hr)	27		119	119		27	30		78	78		30
Heavy Vehicles (%)	5%	4%	1%	18%	11%	8%	7%	9%	22%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	custom	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		8	4			8		
Actuated Green, G (s)	65.4	58.1		72.2	61.9	63.6	71.0	61.0		73.6	63.6	
Effective Green, g (s)	65.4	58.1		72.2	61.9	63.6	71.0	61.0		73.6	63.6	
Actuated g/C Ratio	0.41	0.36		0.45	0.39	0.40	0.44	0.38		0.46	0.40	
Clearance Time (s)	3.0	6.9		3.0	6.9	4.3	3.0	6.9		3.0	4.3	
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)	255	1795		144	1827	566	148	1748		366	2010	
v/s Ratio Prot	0.01	c0.33		c0.06	0.18		c0.06	0.13		0.05	0.34	
v/s Ratio Perm	0.09			0.31		0.04	c0.35			0.32		
v/c Ratio	0.25	0.91		0.81	0.46	0.10	0.92	0.35		0.82	0.86	
Uniform Delay, d1	29.4	48.5		39.1	36.5	30.3	42.2	35.3		33.7	44.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.88	0.89		1.00	1.00	
Incremental Delay, d2	0.5	8.6		26.9	0.8	0.1	49.3	0.1		13.2	3.9	
Delay (s)	29.9	57.1		66.0	37.3	30.3	86.4	31.5		46.9	48.1	
Level of Service	C	E		E	D	C	F	C		D	D	
Approach Delay (s)		56.1			39.4			41.3			47.9	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.8
Intersection Capacity Utilization	125.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	4	45	46	17	12	33	879	101	2016	7
Future Volume (vph)	4	45	46	17	12	33	879	101	2016	7
Lane Group Flow (vph)	4	45	46	17	21	33	949	101	2016	7
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		8			4	1	6	5	2	
Permitted Phases	8		8	4		6		2		2
Detector Phase	8	8	8	4	4	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	8.0	5.0	8.0	8.0
Minimum Split (s)	44.0	44.0	44.0	44.0	44.0	8.0	32.0	8.0	32.0	32.0
Total Split (s)	54.0	54.0	54.0	54.0	54.0	19.0	87.0	19.0	87.0	87.0
Total Split (%)	33.8%	33.8%	33.8%	33.8%	33.8%	11.9%	54.4%	11.9%	54.4%	54.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
v/c Ratio	0.05	0.40	0.36	0.28	0.12	0.18	0.24	0.20	0.47	0.01
Control Delay	71.0	82.5	24.3	82.7	48.8	3.5	4.1	3.3	8.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.0	82.5	24.3	82.7	48.8	3.5	4.1	3.3	8.9	0.0
Queue Length 50th (m)	1.3	14.8	0.0	5.6	2.0	1.0	25.2	6.0	86.3	0.0
Queue Length 95th (m)	5.8	28.6	13.3	14.4	7.0	2.6	34.2	m11.5	116.3	m0.0
Internal Link Dist (m)		302.0			307.7		268.5		747.4	
Turn Bay Length (m)	26.0		30.0	27.0		60.0		31.0		50.0
Base Capacity (vph)	406	591	466	323	916	279	3914	592	4250	1150
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.08	0.10	0.05	0.02	0.12	0.24	0.17	0.47	0.01

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	45	46	17	12	9	33	879	70	101	2016	7
Future Volume (vph)	4	45	46	17	12	9	33	879	70	101	2016	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	4.8	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		3.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1771	2012	1473	1438	3099		1638	4816		1748	5092	1369
Flt Permitted	0.74	1.00	1.00	0.73	1.00		0.08	1.00		0.28	1.00	1.00
Satd. Flow (perm)	1385	2012	1473	1101	3099		145	4816		524	5092	1369
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	45	46	17	12	9	33	879	70	101	2016	7
RTOR Reduction (vph)	0	0	44	0	9	0	0	2	0	0	0	1
Lane Group Flow (vph)	4	45	2	17	12	0	33	947	0	101	2016	6
Confl. Peds. (#/hr)	6		1	1		6	1		5	5		1
Heavy Vehicles (%)	0%	7%	7%	24%	8%	11%	9%	8%	0%	2%	3%	14%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Actuated Green, G (s)	7.8	7.8	7.8	7.8	7.8		133.6	128.6		136.8	130.2	130.2
Effective Green, g (s)	7.8	7.8	7.8	7.8	7.8		133.6	128.6		136.8	130.2	130.2
Actuated g/C Ratio	0.05	0.05	0.05	0.05	0.05		0.83	0.80		0.86	0.81	0.81
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		3.0	7.0		3.0	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)	67	98	71	53	151		167	3870		498	4143	1114
v/s Ratio Prot		c0.02			0.00		0.01	0.20		c0.01	c0.40	
v/s Ratio Perm	0.00		0.00	0.02			0.16			0.16		0.00
v/c Ratio	0.06	0.46	0.03	0.32	0.08		0.20	0.24		0.20	0.49	0.01
Uniform Delay, d1	72.6	74.0	72.5	73.5	72.7		2.8	3.8		1.8	4.6	2.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		2.10	1.77	1.00
Incremental Delay, d2	0.4	3.4	0.2	3.5	0.2		0.6	0.2		0.1	0.3	0.0
Delay (s)	73.0	77.4	72.7	77.0	72.9		3.4	4.0		3.9	8.4	2.8
Level of Service	E	E	E	E	E		A	A		A	A	A
Approach Delay (s)		74.9			74.8			4.0			8.2	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	4	19	2	30	11	157	25	69	436	22
Future Volume (Veh/h)	6	5	4	19	2	30	11	157	25	69	436	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	6	5	4	19	2	30	11	157	25	69	436	22
Pedestrians		1			2			4				
Lane Width (m)		3.6			4.8			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	718	792	234	560	790	93	459			184		
vC1, stage 1 conf vol	586	586		194	194							
vC2, stage 2 conf vol	132	206		366	597							
vCu, unblocked vol	718	792	234	560	790	93	459			184		
tC, single (s)	7.5	6.5	7.9	7.9	6.5	7.0	4.3			4.2		
tC, 2 stage (s)	6.5	5.5		6.9	5.5							
tF (s)	3.5	4.0	3.8	3.7	4.0	3.3	2.3			2.2		
p0 queue free %	99	99	99	96	100	97	99			95		
cM capacity (veh/h)	423	441	637	490	434	940	1049			1371		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	15	51	11	105	77	69	291	167
Volume Left	6	19	11	0	0	69	0	0
Volume Right	4	30	0	0	25	0	0	22
cSH	472	678	1049	1700	1700	1371	1700	1700
Volume to Capacity	0.03	0.08	0.01	0.06	0.05	0.05	0.17	0.10
Queue Length 95th (m)	0.8	1.9	0.3	0.0	0.0	1.3	0.0	0.0
Control Delay (s)	12.9	10.7	8.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	B	A			A		
Approach Delay (s)	12.9	10.7	0.5			1.0		
Approach LOS	B	B						

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	30.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	3	19	189	10	20	443	13
Future Volume (Veh/h)	0	0	0	4	0	3	19	189	10	20	443	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	4	0	3	19	189	10	20	443	13
Pedestrians								2				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	625	726	230	496	728	100	456			199		
vC1, stage 1 conf vol	490	490		232	232							
vC2, stage 2 conf vol	136	237		264	496							
vCu, unblocked vol	625	726	230	496	728	100	456			199		
tC, single (s)	7.5	6.5	6.9	8.0	6.5	6.9	6.0			4.2		
tC, 2 stage (s)	6.5	5.5		7.0	5.5							
tF (s)	3.5	4.0	3.3	3.8	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	99	100	100	97			99		
cM capacity (veh/h)	499	493	777	549	482	943	648			1349		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	7	19	126	73	20	295	161
Volume Left	4	19	0	0	20	0	0
Volume Right	3	0	0	10	0	0	13
cSH	669	648	1700	1700	1349	1700	1700
Volume to Capacity	0.01	0.03	0.07	0.04	0.01	0.17	0.09
Queue Length 95th (m)	0.3	0.7	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	10.4	10.7	0.0	0.0	7.7	0.0	0.0
Lane LOS	B	B			A		
Approach Delay (s)	10.4	0.9			0.3		
Approach LOS	B						

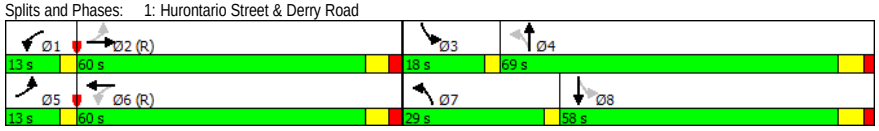
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	27.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	92	855	119	1645	386	421	1359	155	692
Future Volume (vph)	92	855	119	1645	386	421	1359	155	692
Lane Group Flow (vph)	92	945	119	1645	386	421	1402	155	773
Turn Type	pm+pt	NA	pm+pt	NA	Free	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		Free	4		8	
Detector Phase	5	2	1	6		7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0		5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.9	8.0	59.9		8.0	57.9	8.0	57.9
Total Split (s)	13.0	60.0	13.0	60.0		29.0	69.0	18.0	58.0
Total Split (%)	8.1%	37.5%	8.1%	37.5%		18.1%	43.1%	11.3%	36.3%
Yellow Time (s)	3.0	4.3	3.0	4.3		3.0	4.7	3.0	4.7
All-Red Time (s)	0.0	2.6	0.0	2.6		0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		-2.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.9	3.0	6.9		1.0	6.9	3.0	6.9
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None
v/c Ratio	0.61	0.51	0.47	0.82	0.25	0.98	0.84	0.78	0.62
Control Delay	45.1	39.4	29.7	48.2	0.4	81.0	47.9	62.6	53.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	39.4	29.7	48.2	0.4	81.0	47.9	62.6	53.4
Queue Length 50th (m)	16.2	89.0	21.4	182.6	0.0	71.9	160.6	32.7	82.3
Queue Length 95th (m)	35.9	111.9	38.2	#235.7	0.0	#160.3	106.1	#59.9	91.5
Internal Link Dist (m)		255.4		315.9			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	162	1839	256	2002	1541	430	1940	211	1553
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.51	0.46	0.82	0.25	0.98	0.72	0.73	0.50

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 106 (66%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	855	90	119	1645	386	421	1359	43	155	692	81
Future Volume (vph)	92	855	90	119	1645	386	421	1359	43	155	692	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.9		3.0	6.9	4.0	1.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1733	4718		1573	5043	1541	1767	4996		1732	4838	
Flt Permitted	0.06	1.00		0.21	1.00	1.00	0.22	1.00		0.10	1.00	
Satd. Flow (perm)	117	4718		346	5043	1541	406	4996		178	4838	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	92	855	90	119	1645	386	421	1359	43	155	692	81
RTOR Reduction (vph)	0	7	0	0	0	0	0	2	0	0	10	0
Lane Group Flow (vph)	92	938	0	119	1645	386	421	1400	0	155	763	0
Confl. Peds. (#/hr)	45		130	130		45	8		139	139		8
Heavy Vehicles (%)	3%	9%	1%	13%	4%	1%	1%	3%	37%	3%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		Free	4			8		
Actuated Green, G (s)	71.8	62.1		74.6	63.5	160.0	70.0	53.2		54.8	41.0	
Effective Green, g (s)	71.8	62.1		74.6	63.5	160.0	72.0	53.2		54.8	41.0	
Actuated g/C Ratio	0.45	0.39		0.47	0.40	1.00	0.45	0.33		0.34	0.26	
Clearance Time (s)	3.0	6.9		3.0	6.9		3.0	6.9		3.0	6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	150	1831		246	2001	1541	420	1661		194	1239	
v/s Ratio Prot	c0.04	0.20		c0.03	c0.33		c0.18	c0.28		0.07	0.16	
v/s Ratio Perm	0.24			0.19		0.25	0.28			0.20		
v/c Ratio	0.61	0.51		0.48	0.82	0.25	1.00	0.84		0.80	0.62	
Uniform Delay, d1	32.7	37.4		26.0	43.2	0.0	35.2	49.5		40.7	52.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.42	0.87		1.00	1.00	
Incremental Delay, d2	7.2	1.0		1.5	4.0	0.4	42.9	3.8		20.1	0.9	
Delay (s)	39.9	38.4		27.5	47.2	0.4	92.8	47.0		60.8	53.5	
Level of Service	D	D		C	D	A	F	D		E	D	
Approach Delay (s)		38.5			37.7			57.6			54.7	
Approach LOS		D			D			E			D	

Intersection Summary

HCM 2000 Control Delay	46.6	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.87				
Actuated Cycle Length (s)	160.0	Sum of lost time (s)		19.8	
Intersection Capacity Utilization	119.9%	ICU Level of Service		H	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	10	23	101	111	75	1694	14	1149	12
Future Volume (vph)	9	10	23	101	111	75	1694	14	1149	12
Lane Group Flow (vph)	9	10	23	101	210	75	1704	14	1149	12
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		8			4	1	6	5	2	
Permitted Phases	8		8	4		6		2		2
Detector Phase	8	8	8	4	4	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	46.0	46.0	46.0	46.0	46.0	8.0	67.0	8.0	67.0	67.0
Total Split (s)	53.0	53.0	53.0	53.0	53.0	30.0	77.0	30.0	77.0	77.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	33.1%	18.8%	48.1%	18.8%	48.1%	48.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
v/c Ratio	0.14	0.07	0.12	0.69	0.47	0.19	0.43	0.07	0.31	0.01
Control Delay	65.9	61.4	3.1	91.1	37.3	4.1	7.0	3.1	5.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.9	61.4	3.1	91.1	37.3	4.1	7.0	3.1	5.1	0.0
Queue Length 50th (m)	2.8	3.1	0.0	33.1	18.3	3.8	53.1	0.5	29.4	0.0
Queue Length 95th (m)	8.7	9.4	1.7	52.5	31.0	8.9	97.6	m1.4	38.9	m0.0
Internal Link Dist (m)		302.0			307.7		271.3		747.4	
Turn Bay Length (m)	26.0		30.0	27.0		60.0		31.0		50.0
Base Capacity (vph)	173	394	433	384	1013	570	3964	372	3741	999
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	0.05	0.03	0.05	0.26	0.21	0.13	0.43	0.04	0.31	0.01

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

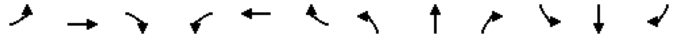
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	10	23	101	111	99	75	1694	10	14	1149	12
Future Volume (vph)	9	10	23	101	111	99	75	1694	10	14	1149	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		3.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1066	1372	1390	1692	3282		1785	5082		1475	5043	1331
Flt Permitted	0.54	1.00	1.00	0.75	1.00		0.22	1.00		0.12	1.00	1.00
Satd. Flow (perm)	604	1372	1390	1337	3282		410	5082		189	5043	1331
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	9	10	23	101	111	99	75	1694	10	14	1149	12
RTOR Reduction (vph)	0	0	20	0	88	0	0	0	0	0	0	3
Lane Group Flow (vph)	9	10	3	101	122	0	75	1704	0	14	1149	9
Confl. Peds. (#/hr)	3		4	4		3	4		1	1		4
Heavy Vehicles (%)	67%	40%	13%	5%	4%	1%	0%	3%	20%	21%	4%	17%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Actuated Green, G (s)	17.5	17.5	17.5	17.5	17.5		128.5	123.1		121.1	118.7	118.7
Effective Green, g (s)	17.5	17.5	17.5	17.5	17.5		128.5	123.1		121.1	118.7	118.7
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.80	0.77		0.76	0.74	0.74
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		3.0	7.0		3.0	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)	66	150	152	146	358		387	3909		162	3741	987
v/s Ratio Prot		0.01			0.04		c0.01	c0.34		0.00	0.23	
v/s Ratio Perm	0.01		0.00	c0.08			0.15			0.06		0.01
v/c Ratio	0.14	0.07	0.02	0.69	0.34		0.19	0.44		0.09	0.31	0.01
Uniform Delay, d1	64.4	63.9	63.6	68.7	65.9		3.5	6.4		5.0	6.9	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.75	0.66	1.00
Incremental Delay, d2	0.9	0.2	0.0	13.2	0.6		0.2	0.4		0.2	0.2	0.0
Delay (s)	65.4	64.1	63.6	81.9	66.5		3.8	6.8		4.0	4.8	5.4
Level of Service	E	E	E	F	E		A	A		A	A	A
Approach Delay (s)		64.1			71.5			6.6			4.8	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.46				
Actuated Cycle Length (s)	160.0	Sum of lost time (s)		17.0	
Intersection Capacity Utilization	83.4%	ICU Level of Service		E	
Analysis Period (min)	15				

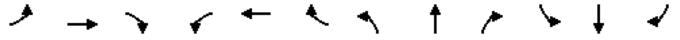
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	6	12	68	11	116	3	510	13	15	280	7
Future Volume (Veh/h)	29	6	12	68	11	116	3	510	13	15	280	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	29	6	12	68	11	116	3	510	13	15	280	7
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	698	844	144	708	840	262	288			523		
vC1, stage 1 conf vol	314	314		522	522							
vC2, stage 2 conf vol	384	529		185	318							
vCu, unblocked vol	698	844	144	708	840	262	288			523		
tC, single (s)	7.5	6.5	6.9	7.6	6.5	6.9	4.1			4.8		
tC, 2 stage (s)	6.5	5.5		6.6	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.5		
p0 queue free %	93	99	99	85	98	84	100			98		
cM capacity (veh/h)	443	461	882	459	470	735	1284			852		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	195	3	340	183	15	187	100
Volume Left	29	68	3	0	0	15	0	0
Volume Right	12	116	0	0	13	0	0	7
cSH	511	592	1284	1700	1700	852	1700	1700
Volume to Capacity	0.09	0.33	0.00	0.20	0.11	0.02	0.11	0.06
Queue Length 95th (m)	2.4	11.5	0.1	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	12.8	14.0	7.8	0.0	0.0	9.3	0.0	0.0
Lane LOS	B	B	A			A		
Approach Delay (s)	12.8	14.0	0.0			0.5		
Approach LOS	B	B						

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	33.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	13	0	13	20	531	4	7	353	10
Future Volume (Veh/h)	0	0	0	13	0	13	20	531	4	7	353	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	13	0	13	20	531	4	7	353	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	690	947	182	764	950	268	363			535		
vC1, stage 1 conf vol	372	372		573	573							
vC2, stage 2 conf vol	318	575		190	377							
vCu, unblocked vol	690	947	182	764	950	268	363			535		
tC, single (s)	7.5	6.5	6.9	7.7	6.5	7.2	6.1			4.7		
tC, 2 stage (s)	6.5	5.5		6.7	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	3.2			2.5		
p0 queue free %	100	100	100	97	100	98	97			99		
cM capacity (veh/h)	513	429	836	419	428	693	712			863		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	26	20	354	181	7	235	128
Volume Left	13	20	0	0	7	0	0
Volume Right	13	0	0	4	0	0	10
cSH	523	712	1700	1700	863	1700	1700
Volume to Capacity	0.05	0.03	0.21	0.11	0.01	0.14	0.08
Queue Length 95th (m)	1.3	0.7	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	12.2	10.2	0.0	0.0	9.2	0.0	0.0
Lane LOS	B	B			A		
Approach Delay (s)	12.2	0.4			0.2		
Approach LOS	B						

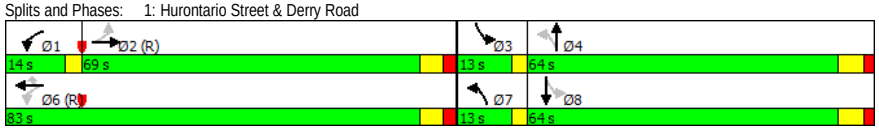
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	26.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	77	917	118	995	244	258	684	245	792
Future Volume (vph)	77	917	118	995	244	258	684	245	792
Lane Group Flow (vph)	77	1077	118	995	244	258	775	245	884
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		2	1	6		7	4	3	8
Permitted Phases	2		6		6	4		8	
Detector Phase	2	2	1	6	6	7	4	3	8
Switch Phase									
Minimum Initial (s)	12.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	59.9	59.9	8.0	59.9	59.9	8.0	57.9	8.0	57.9
Total Split (s)	69.0	69.0	14.0	83.0	83.0	13.0	64.0	13.0	64.0
Total Split (%)	43.1%	43.1%	8.8%	51.9%	51.9%	8.1%	40.0%	8.1%	40.0%
Yellow Time (s)	4.3	4.3	3.0	4.3	4.3	3.0	4.7	3.0	4.7
All-Red Time (s)	2.6	2.6	0.0	2.6	2.6	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	3.0	6.9	6.9	3.0	6.9	3.0	6.9
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None
v/c Ratio	0.41	0.56	0.50	0.41	0.30	0.96	0.44	0.82	0.49
Control Delay	43.4	38.4	28.9	27.9	5.4	78.3	37.9	54.2	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	38.4	28.9	27.9	5.4	78.3	37.9	54.2	40.6
Queue Length 50th (m)	18.7	101.1	20.9	78.2	5.5	51.5	58.0	50.7	83.2
Queue Length 95th (m)	36.7	116.7	33.7	90.5	22.3	#95.3	67.1	#85.7	97.6
Internal Link Dist (m)		266.2		323.6			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	190	1916	246	2445	809	270	1763	297	1792
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.56	0.48	0.41	0.30	0.96	0.44	0.82	0.49

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 80 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	917	160	118	995	244	258	684	91	245	792	92
Future Volume (vph)	77	917	160	118	995	244	258	684	91	245	792	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.9	6.9		3.0	6.9	6.9	3.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.93	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.98	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1706	4832		1731	5142	1467	1783	4914		1745	4999	
Flt Permitted	0.27	1.00		0.16	1.00	1.00	0.22	1.00		0.27	1.00	
Satd. Flow (perm)	486	4832		298	5142	1467	421	4914		498	4999	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	77	917	160	118	995	244	258	684	91	245	792	92
RTOR Reduction (vph)	0	15	0	0	0	112	0	10	0	0	9	0
Lane Group Flow (vph)	77	1062	0	118	995	132	258	765	0	245	875	0
Confl. Peds. (#/hr)	68		48	48		68	25		47	47		25
Heavy Vehicles (%)	3%	6%	1%	3%	2%	1%	0%	3%	13%	2%	3%	2%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	62.9	62.9		76.1	76.1	76.1	67.1	57.1		67.1	57.1	
Effective Green, g (s)	62.9	62.9		76.1	76.1	76.1	67.1	57.1		67.1	57.1	
Actuated g/C Ratio	0.39	0.39		0.48	0.48	0.48	0.42	0.36		0.42	0.36	
Clearance Time (s)	6.9	6.9		3.0	6.9	6.9	3.0	6.9		3.0	6.9	
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)	191	1899		233	2445	697	261	1753		286	1784	
v/s Ratio Prot		c0.22		c0.03	0.19		c0.06	0.16		0.05	0.18	
v/s Ratio Perm	0.16			0.21		0.09	c0.35			0.30		
v/c Ratio	0.40	0.56		0.51	0.41	0.19	0.99	0.44		0.86	0.49	
Uniform Delay, d1	35.0	37.8		25.9	27.3	24.2	41.1	39.2		37.6	40.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.03	0.96		1.00	1.00	
Incremental Delay, d2	6.2	1.2		1.7	0.5	0.6	51.6	0.8		21.5	0.2	
Delay (s)	41.2	39.0		27.6	27.8	24.8	93.8	38.6		59.0	40.3	
Level of Service	D	D		C	C	C	F	D		E	D	
Approach Delay (s)		39.1			27.2			52.4			44.4	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.8
Intersection Capacity Utilization	130.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	4	21	8	3	12	1091	8	1046	10
Future Volume (vph)	11	4	21	8	3	12	1091	8	1046	10
Lane Group Flow (vph)	11	4	21	8	18	12	1097	8	1046	10
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		8			4	1	6	5	2	
Permitted Phases	8		8	4		6		2		2
Detector Phase	8	8	8	4	4	1	6	5	2	2
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	44.0	44.0	44.0	44.0	44.0	8.0	32.0	8.0	32.0	32.0
Total Split (s)	58.0	58.0	58.0	58.0	58.0	22.0	80.0	22.0	80.0	80.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	36.3%	13.8%	50.0%	13.8%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	C-Max	C-Max
v/c Ratio	0.19	0.07	0.18	0.12	0.05	0.02	0.24	0.02	0.23	0.01
Control Delay	80.4	74.5	4.0	76.0	0.2	1.2	1.9	0.9	1.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.4	74.5	4.0	76.0	0.2	1.2	1.9	0.9	1.5	0.0
Queue Length 50th (m)	3.6	1.3	0.0	2.6	0.0	0.3	16.9	0.2	12.0	0.0
Queue Length 95th (m)	10.9	5.9	1.0	8.8	0.0	1.1	34.2	m0.3	20.4	m0.0
Internal Link Dist (m)		302.0			307.7		266.9		747.4	
Turn Bay Length (m)	26.0		30.0	27.0		60.0		31.0		50.0
Base Capacity (vph)	412	408	535	488	1124	603	4653	586	4602	1401
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	0.03	0.01	0.04	0.02	0.02	0.02	0.24	0.01	0.23	0.01

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

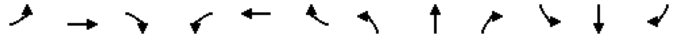
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	4	21	8	3	15	12	1091	6	8	1046	10
Future Volume (vph)	11	4	21	8	3	15	12	1091	6	8	1046	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		3.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.88		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1505	1281	1576	1783	2975		1785	5137		1784	5142	1560
Flt Permitted	0.82	1.00	1.00	0.82	1.00		0.26	1.00		0.25	1.00	1.00
Satd. Flow (perm)	1293	1281	1576	1532	2975		487	5137		466	5142	1560
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	4	21	8	3	15	12	1091	6	8	1046	10
RTOR Reduction (vph)	0	0	20	0	17	0	0	0	0	0	0	2
Lane Group Flow (vph)	11	4	1	8	1	0	12	1097	0	8	1046	8
Confl. Peds. (#/hr)	4		1	1		4	1		4	4		1
Heavy Vehicles (%)	18%	50%	0%	0%	0%	7%	0%	2%	0%	0%	2%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		2
Actuated Green, G (s)	4.9	4.9	4.9	4.9	4.9		139.3	137.0		136.9	135.8	135.8
Effective Green, g (s)	4.9	4.9	4.9	4.9	4.9		139.3	137.0		136.9	135.8	135.8
Actuated g/C Ratio	0.03	0.03	0.03	0.03	0.03		0.87	0.86		0.86	0.85	0.85
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		3.0	7.0		3.0	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)	39	39	48	46	91		442	4398		407	4364	1324
v/s Ratio Prot		0.00			0.00		c0.00	c0.21		0.00	0.20	
v/s Ratio Perm	c0.01		0.00	0.01			0.02			0.02		0.01
v/c Ratio	0.28	0.10	0.01	0.17	0.01		0.03	0.25		0.02	0.24	0.01
Uniform Delay, d1	75.8	75.4	75.2	75.6	75.2		1.4	2.1		1.7	2.3	1.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.71	0.65	1.00
Incremental Delay, d2	3.9	1.2	0.1	1.8	0.0		0.0	0.1		0.0	0.1	0.0
Delay (s)	79.8	76.6	75.3	77.4	75.2		1.4	2.2		1.2	1.6	1.8
Level of Service	E	E	E	E	E		A	A		A	A	A
Approach Delay (s)		76.8			75.9			2.2			1.6	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	4.0	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.25				
Actuated Cycle Length (s)	160.0	Sum of lost time (s)		17.0	
Intersection Capacity Utilization	47.5%	ICU Level of Service		A	
Analysis Period (min)	15				

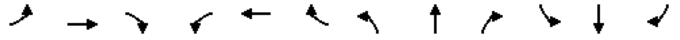
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	41	34	3	18	6	31	64	5	5	61	68
Future Volume (Veh/h)	124	41	34	3	18	6	31	64	5	5	61	68
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	124	41	34	3	18	6	31	64	5	5	61	68
Pedestrians					3			1				
Lane Width (m)					4.8			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	214	239	66	228	270	38	129			72		
vC1, stage 1 conf vol	105	105		132	132							
vC2, stage 2 conf vol	109	134		96	139							
vCu, unblocked vol	214	239	66	228	270	38	129			72		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.9		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	84	94	97	100	97	99	98			100		
cM capacity (veh/h)	787	720	991	739	697	1029	1447			1284		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	199	27	31	43	26	5	41	88
Volume Left	124	3	31	0	0	5	0	0
Volume Right	34	6	0	0	5	0	0	68
cSH	800	756	1447	1700	1700	1284	1700	1700
Volume to Capacity	0.25	0.04	0.02	0.03	0.02	0.00	0.02	0.05
Queue Length 95th (m)	7.8	0.9	0.5	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	11.0	9.9	7.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	A	A			A		
Approach Delay (s)	11.0	9.9	2.3			0.3		
Approach LOS	B	A						

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	35.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	22	106	0	0	85	8
Future Volume (Veh/h)	0	0	0	0	0	0	22	106	0	0	85	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	0	0	0	22	106	0	0	85	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	186	239	46	192	243	53	93			106		
vC1, stage 1 conf vol	89	89		150	150							
vC2, stage 2 conf vol	97	150		42	93							
vCu, unblocked vol	186	239	46	192	243	53	93			106		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	6.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	100	100	100	98			100		
cM capacity (veh/h)	828	721	1019	797	716	1010	1001			1498		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	22	71	35	0	57	36
Volume Left	0	22	0	0	0	0	0
Volume Right	0	0	0	0	0	0	8
cSH	1700	1001	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.02	0.04	0.02	0.00	0.03	0.02
Queue Length 95th (m)	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	0.0	1.5			0.0		
Approach LOS	A						

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	11.2%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX C

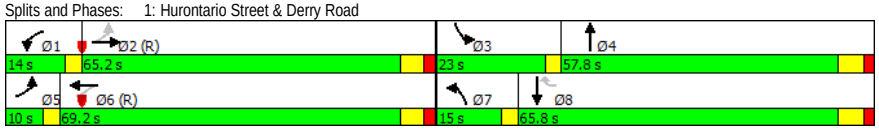
Intersection Capacity Analysis – Future Background (2024) Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	71	1680	129	925	161	110	445	197	1142
Future Volume (vph)	71	1680	129	925	161	110	445	197	1142
Lane Group Flow (vph)	71	1829	129	925	161	110	514	197	1178
Turn Type	pm+pt	NA	pm+pt	NA	custom	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		8				
Detector Phase	5	2	1	6	8	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.7	8.0	59.7	57.9	8.0	57.6	8.0	57.9
Total Split (s)	10.0	65.2	14.0	69.2	65.8	15.0	57.8	23.0	65.8
Total Split (%)	6.3%	40.8%	8.8%	43.3%	41.1%	9.4%	36.1%	14.4%	41.1%
Yellow Time (s)	3.0	4.3	3.0	4.3	4.7	3.0	4.7	3.0	4.7
All-Red Time (s)	0.0	2.4	0.0	2.4	2.2	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.7	3.0	6.7	6.9	0.0	6.9	3.0	6.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None
v/c Ratio	0.28	0.88	0.85	0.48	0.27	0.72	0.53	0.92	0.91
Control Delay	25.4	52.3	77.5	36.3	5.6	101.7	42.4	112.2	60.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	52.3	77.5	36.3	5.6	101.7	42.4	112.2	60.2
Queue Length 50th (m)	12.7	193.8	29.0	85.7	0.0	39.1	52.0	66.1	184.1
Queue Length 95th (m)	22.9	213.4	#72.3	100.0	16.3	#67.3	62.5	#115.6	211.6
Internal Link Dist (m)		263.7		443.5			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	254	2076	152	1934	625	156	1023	218	1364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.88	0.85	0.48	0.26	0.71	0.50	0.90	0.86

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 94 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1680	149	129	925	161	110	445	69	197	1142	36
Future Volume (vph)	71	1680	149	129	925	161	110	445	69	197	1142	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.7		3.0	6.7	6.9	0.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	*1.00		1.00	0.91	1.00	1.00	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1698	5434		1513	4725	1424	1668	3193		1750	3705	
Flt Permitted	0.25	1.00		0.06	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	438	5434		100	4725	1424	1668	3193		1750	3705	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	1680	149	129	925	161	110	445	69	197	1142	36
RTOR Reduction (vph)	0	7	0	0	0	105	0	8	0	0	1	0
Lane Group Flow (vph)	71	1822	0	129	925	56	110	506	0	197	1177	0
Confl. Peds. (#/hr)	27		119	119		27	30		78	78		30
Heavy Vehicles (%)	5%	4%	1%	18%	11%	8%	7%	9%	22%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	custom	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		8						
Actuated Green, G (s)	68.2	61.0		75.8	65.6	56.0	11.6	48.0		19.6	56.0	
Effective Green, g (s)	68.2	61.0		75.8	65.6	56.0	14.6	48.0		19.6	56.0	
Actuated g/C Ratio	0.43	0.38		0.47	0.41	0.35	0.09	0.30		0.12	0.35	
Clearance Time (s)	3.0	6.7		3.0	6.7	6.9	3.0	6.9		3.0	6.9	
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)	243	2071		151	1937	498	152	957		214	1296	
v/s Ratio Prot	0.01	0.34		c0.06	0.20		0.07	0.16		c0.11	c0.32	
v/s Ratio Perm	0.11			c0.34		0.04						
v/c Ratio	0.29	0.88		0.85	0.48	0.11	0.72	0.53		0.92	0.91	
Uniform Delay, d1	27.9	46.1		42.9	34.6	35.2	70.7	46.6		69.4	49.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.09	0.89		1.00	1.00	
Incremental Delay, d2	0.7	5.8		34.7	0.8	0.1	15.2	0.5		40.1	9.4	
Delay (s)	28.6	51.8		77.6	35.5	35.3	92.3	42.0		109.5	58.9	
Level of Service	C	D		E	D	D	F	D		F	E	
Approach Delay (s)		51.0			39.9			50.9			66.2	
Approach LOS		D			D			D			E	

Intersection Summary

HCM 2000 Control Delay	52.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	45	17	12	121	712	101	1331
Future Volume (vph)	4	45	17	12	121	712	101	1331
Lane Group Flow (vph)	4	116	17	21	121	782	101	1341
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	47.0	47.0	47.0	47.0	8.0	65.0	8.0	65.0
Total Split (s)	54.0	54.0	54.0	54.0	19.0	87.0	19.0	87.0
Total Split (%)	33.8%	33.8%	33.8%	33.8%	11.9%	54.4%	11.9%	54.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.06	0.46	0.33	0.12	0.68	0.32	0.65	0.53
Control Delay	71.8	36.3	88.7	49.1	86.6	7.5	82.8	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.8	36.3	88.7	49.1	86.6	7.5	82.8	3.1
Queue Length 50th (m)	1.3	7.7	5.6	2.0	39.5	40.2	35.1	25.0
Queue Length 95th (m)	5.8	18.6	14.5	7.0	60.9	62.4	m40.5	33.4
Internal Link Dist (m)		302.0		307.7		268.5		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	384	1061	284	907	187	2482	180	2546
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	0.01	0.11	0.06	0.02	0.65	0.32	0.56	0.53

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

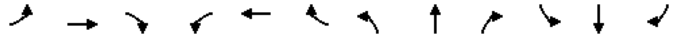
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	45	71	17	12	9	121	712	70	101	1331	10
Future Volume (vph)	4	45	71	17	12	9	121	712	70	101	1331	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.8	3.6	3.0	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.2
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.94		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1673	3445		1357	3066		1582	3315		1691	3498	
Flt Permitted	0.74	1.00		0.68	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1308	3445		969	3066		1582	3315		1691	3498	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	45	71	17	12	9	121	712	70	101	1331	10
RTOR Reduction (vph)	0	67	0	0	9	0	0	2	0	0	0	0
Lane Group Flow (vph)	4	49	0	17	12	0	121	780	0	101	1341	0
Confl. Peds. (#/hr)	6		1	1		6	1		5	5		1
Heavy Vehicles (%)	0%	7%	7%	24%	8%	11%	9%	8%	0%	2%	3%	14%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	8.5	8.5		8.5	8.5		18.0	119.7		14.8	116.5	
Effective Green, g (s)	8.5	8.5		8.5	8.5		18.0	119.7		14.8	116.5	
Actuated g/C Ratio	0.05	0.05		0.05	0.05		0.11	0.75		0.09	0.73	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	69	183		51	162		177	2480		156	2546	
v/s Ratio Prot		0.01			0.00		c0.08	0.24		0.06	c0.38	
v/s Ratio Perm	0.00			c0.02								
v/c Ratio	0.06	0.27		0.33	0.08		0.68	0.31		0.65	0.53	
Uniform Delay, d1	71.9	72.8		73.0	72.0		68.3	6.6		70.1	9.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.05	0.25	
Incremental Delay, d2	0.4	0.8		3.8	0.2		10.4	0.3		4.6	0.4	
Delay (s)	72.3	73.5		76.9	72.2		78.7	7.0		78.2	2.8	
Level of Service	E	E		E	E		E	A		E	A	
Approach Delay (s)		73.5			74.3			16.6			8.1	
Approach LOS		E			E			B			A	

Intersection Summary

HCM 2000 Control Delay	15.3	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)	17.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

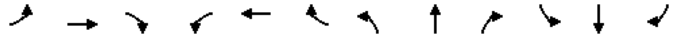
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	4	19	2	30	11	161	25	69	439	22
Future Volume (Veh/h)	6	5	4	19	2	30	11	161	25	69	439	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	6	5	4	19	2	30	11	161	25	69	439	22
Pedestrians		1			2			4				
Lane Width (m)		3.6			4.2			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	722	799	236	566	798	95	462			188		
vC1, stage 1 conf vol	589	589		198	198							
vC2, stage 2 conf vol	134	210		368	600							
vCu, unblocked vol	722	799	236	566	798	95	462			188		
tC, single (s)	7.5	6.5	7.9	7.9	6.5	7.0	4.3			4.2		
tC, 2 stage (s)	6.5	5.5		6.9	5.5							
tF (s)	3.5	4.0	3.8	3.7	4.0	3.3	2.3			2.2		
p0 queue free %	99	99	99	96	100	97	99			95		
cM capacity (veh/h)	421	439	636	488	433	938	1047			1366		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	15	19	32	11	107	79	69	293	168
Volume Left	6	19	0	11	0	0	69	0	0
Volume Right	4	0	30	0	0	25	0	0	22
cSH	470	488	874	1047	1700	1700	1366	1700	1700
Volume to Capacity	0.03	0.04	0.04	0.01	0.06	0.05	0.05	0.17	0.10
Queue Length 95th (m)	0.8	1.0	0.9	0.3	0.0	0.0	1.3	0.0	0.0
Control Delay (s)	12.9	12.7	9.3	8.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	B	A	A			A		
Approach Delay (s)	12.9	10.5		0.5			1.0		
Approach LOS	B	B							

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	33.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	3	19	193	10	20	446	13
Future Volume (Veh/h)	0	0	0	4	0	3	19	193	10	20	446	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	4	0	3	19	193	10	20	446	13
Pedestrians								2				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	630	734	232	501	735	102	459			203		
vC1, stage 1 conf vol	492	492		236	236							
vC2, stage 2 conf vol	138	241		265	499							
vCu, unblocked vol	630	734	232	501	735	102	459			203		
tC, single (s)	7.5	6.5	6.9	8.0	6.5	6.9	6.0			4.2		
tC, 2 stage (s)	6.5	5.5		7.0	5.5							
tF (s)	3.5	4.0	3.3	3.8	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	99	100	100	97			99		
cM capacity (veh/h)	497	491	776	546	480	940	646			1344		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	7	19	129	74	20	297	162
Volume Left	4	19	0	0	20	0	0
Volume Right	3	0	0	10	0	0	13
cSH	666	646	1700	1700	1344	1700	1700
Volume to Capacity	0.01	0.03	0.08	0.04	0.01	0.17	0.10
Queue Length 95th (m)	0.3	0.7	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	10.5	10.7	0.0	0.0	7.7	0.0	0.0
Lane LOS	B	B			A		
Approach Delay (s)	10.5	0.9			0.3		
Approach LOS	B						

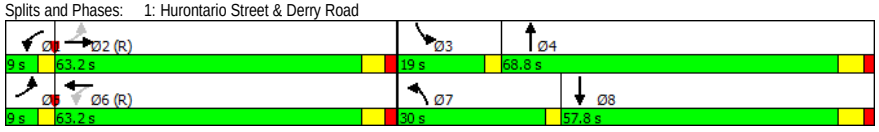
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	27.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	102	952	132	1829	429	278	937	99	450
Future Volume (vph)	102	952	132	1829	429	278	937	99	450
Lane Group Flow (vph)	102	1052	132	1829	429	278	965	99	502
Turn Type	pm+pt	NA	pm+pt	NA	Free	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		Free				
Detector Phase	5	2	1	6		7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0		5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.7	8.0	59.7		8.0	57.9	8.0	56.0
Total Split (s)	9.0	63.2	9.0	63.2		30.0	68.8	19.0	57.8
Total Split (%)	5.6%	39.5%	5.6%	39.5%		18.8%	43.0%	11.9%	36.1%
Yellow Time (s)	3.0	4.3	3.0	4.3		3.0	4.7	3.0	4.7
All-Red Time (s)	0.0	2.4	0.0	2.4		0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		-3.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.7	3.0	6.7		0.0	6.9	3.0	6.9
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	Max	None	Max
v/c Ratio	0.90	0.63	0.84	0.93	0.28	0.87	0.65	0.68	0.46
Control Delay	93.5	44.5	73.8	59.8	0.4	82.9	53.5	93.4	44.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.5	44.5	73.8	59.8	0.4	82.9	53.5	93.4	44.1
Queue Length 50th (m)	20.4	106.1	27.1	197.2	0.0	91.2	142.3	32.6	70.0
Queue Length 95th (m)	#56.9	122.7	#59.2	216.8	0.0	#140.7	190.8	53.7	88.4
Internal Link Dist (m)		270.0		315.9			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	113	1674	157	1957	1541	331	1476	173	1095
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.63	0.84	0.93	0.28	0.84	0.65	0.57	0.46

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	952	100	132	1829	429	278	937	28	99	450	52
Future Volume (vph)	102	952	100	132	1829	429	278	937	28	99	450	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.7		3.0	6.7	4.0	0.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	0.91		1.00	*1.00	1.00	1.00	*1.00		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1733	4718		1576	5542	1541	1767	3664		1733	3368	
Flt Permitted	0.07	1.00		0.16	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	129	4718		267	5542	1541	1767	3664		1733	3368	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	102	952	100	132	1829	429	278	937	28	99	450	52
RTOR Reduction (vph)	0	8	0	0	0	0	0	1	0	0	5	0
Lane Group Flow (vph)	102	1044	0	132	1829	429	278	964	0	99	497	0
Confl. Peds. (#/hr)	45		130	130		45	8		139	139		8
Heavy Vehicles (%)	3%	9%	1%	13%	4%	1%	1%	3%	37%	3%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Free	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		Free						
Actuated Green, G (s)	62.5	56.5		62.5	56.5	160.0	26.1	64.4		13.5	51.8	
Effective Green, g (s)	62.5	56.5		62.5	56.5	160.0	29.1	64.4		13.5	51.8	
Actuated g/C Ratio	0.39	0.35		0.39	0.35	1.00	0.18	0.40		0.08	0.32	
Clearance Time (s)	3.0	6.7		3.0	6.7		3.0	6.9		3.0	6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	1666		153	1957	1541	321	1474		146	1090	
v/s Ratio Prot	c0.03	0.22		0.03	c0.33		c0.16	c0.26		0.06	0.15	
v/s Ratio Perm	0.33			0.30		0.28						
v/c Ratio	0.93	0.63		0.86	0.93	0.28	0.87	0.65		0.68	0.46	
Uniform Delay, d1	39.9	43.0		41.8	50.0	0.0	63.6	38.8		71.1	42.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.92	1.30		1.00	1.00	
Incremental Delay, d2	62.5	1.8		36.2	9.8	0.5	19.8	2.1		11.8	1.4	
Delay (s)	102.4	44.8		78.0	59.8	0.5	78.5	52.7		83.0	44.3	
Level of Service	F	D		E	E	A	E	D		F	D	
Approach Delay (s)		49.9			50.2			58.5			50.7	
Approach LOS		D			D			E			D	

Intersection Summary

HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	125.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	10	101	111	95	1118	14	735
Future Volume (vph)	9	10	101	111	95	1118	14	735
Lane Group Flow (vph)	9	127	101	210	95	1128	14	748
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	46.0	46.0	46.0	46.0	8.0	67.0	8.0	67.0
Total Split (s)	53.0	53.0	53.0	53.0	30.0	77.0	30.0	77.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	18.8%	48.1%	18.8%	48.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.12	0.30	0.72	0.44	0.62	0.42	0.22	0.31
Control Delay	63.3	13.5	93.4	35.9	86.9	8.3	107.4	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	13.5	93.4	35.9	86.9	8.3	107.4	4.6
Queue Length 50th (m)	2.7	1.5	33.1	18.1	31.3	52.1	4.7	10.8
Queue Length 95th (m)	8.6	11.7	52.4	30.4	50.5	107.8	m9.9	77.2
Internal Link Dist (m)		302.0		307.7		271.3		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	176	857	343	1013	301	2704	248	2405
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	0.05	0.15	0.29	0.21	0.32	0.42	0.06	0.31

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

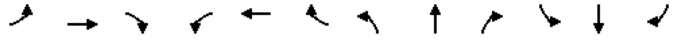
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	10	117	101	111	99	95	1118	10	14	735	13
Future Volume (vph)	9	10	117	101	111	99	95	1118	10	14	735	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.93		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1066	2690		1693	3282		1785	3534		1475	3492	
Flt Permitted	0.55	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	614	2690		1197	3282		1785	3534		1475	3492	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	9	10	117	101	111	99	95	1118	10	14	735	13
RTOR Reduction (vph)	0	103	0	0	87	0	0	0	0	0	0	0
Lane Group Flow (vph)	9	24	0	101	123	0	95	1128	0	14	748	0
Confl. Peds. (#/hr)	3		4	4		3	4		1	1		4
Heavy Vehicles (%)	67%	40%	13%	5%	4%	1%	0%	3%	20%	21%	4%	17%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	18.9	18.9		18.9	18.9		13.8	120.6		3.5	110.3	
Effective Green, g (s)	18.9	18.9		18.9	18.9		13.8	120.6		3.5	110.3	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.09	0.75		0.02	0.69	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	72	317		141	387		153	2663		32	2407	
v/s Ratio Prot		0.01			0.04		c0.05	c0.32		0.01	0.21	
v/s Ratio Perm	0.01			c0.08								
v/c Ratio	0.12	0.08		0.72	0.32		0.62	0.42		0.44	0.31	
Uniform Delay, d1	63.1	62.8		68.0	64.6		70.6	7.1		77.3	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.38	0.40	
Incremental Delay, d2	0.8	0.1		15.9	0.5		7.6	0.5		8.2	0.3	
Delay (s)	63.9	62.9		83.8	65.1		78.2	7.6		114.6	4.2	
Level of Service	E	E		F	E		E	A		F	A	
Approach Delay (s)		62.9			71.2			13.1			6.2	
Approach LOS		E			E			B			A	

Intersection Summary

HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0	
Intersection Capacity Utilization	89.7%	ICU Level of Service	E	
Analysis Period (min)	15			

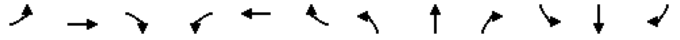
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	6	12	68	11	116	3	511	13	15	285	7
Future Volume (Veh/h)	29	6	12	68	11	116	3	511	13	15	285	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	29	6	12	68	11	116	3	511	13	15	285	7
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	704	850	147	711	846	263	293			524		
vC1, stage 1 conf vol	320	320		524	524							
vC2, stage 2 conf vol	384	530		188	323							
vCu, unblocked vol	704	850	147	711	846	263	293			524		
tC, single (s)	7.5	6.5	6.9	7.6	6.5	6.9	4.1			4.8		
tC, 2 stage (s)	6.5	5.5		6.6	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.5		
p0 queue free %	93	99	99	85	98	84	100			98		
cM capacity (veh/h)	442	460	879	458	469	735	1279			851		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	68	127	3	341	183	15	190	102
Volume Left	29	68	0	3	0	0	15	0	0
Volume Right	12	0	116	0	0	13	0	0	7
cSH	509	458	700	1279	1700	1700	851	1700	1700
Volume to Capacity	0.09	0.15	0.18	0.00	0.20	0.11	0.02	0.11	0.06
Queue Length 95th (m)	2.4	4.1	5.3	0.1	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	12.8	14.2	11.3	7.8	0.0	0.0	9.3	0.0	0.0
Lane LOS	B	B	B	A			A		
Approach Delay (s)	12.8	12.3		0.0			0.5		
Approach LOS	B	B							

Intersection Summary					
Average Delay	2.9				
Intersection Capacity Utilization	35.9%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	13	0	13	20	532	4	7	358	10
Future Volume (Veh/h)	0	0	0	13	0	13	20	532	4	7	358	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	13	0	13	20	532	4	7	358	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	696	953	184	767	956	268	368			536		
vC1, stage 1 conf vol	377	377		574	574							
vC2, stage 2 conf vol	319	576		193	382							
vCu, unblocked vol	696	953	184	767	956	268	368			536		
tC, single (s)	7.5	6.5	6.9	7.7	6.5	7.2	6.1			4.7		
tC, 2 stage (s)	6.5	5.5		6.7	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	3.2			2.5		
p0 queue free %	100	100	100	97	100	98	97			99		
cM capacity (veh/h)	510	427	833	419	427	692	707			862		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	26	20	355	181	7	239	129
Volume Left	13	20	0	0	7	0	0
Volume Right	13	0	0	4	0	0	10
cSH	522	707	1700	1700	862	1700	1700
Volume to Capacity	0.05	0.03	0.21	0.11	0.01	0.14	0.08
Queue Length 95th (m)	1.3	0.7	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	12.3	10.2	0.0	0.0	9.2	0.0	0.0
Lane LOS	B	B			A		
Approach Delay (s)	12.3	0.4			0.2		
Approach LOS	B						

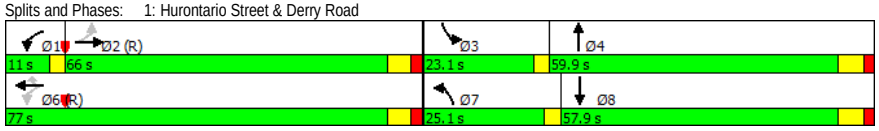
Intersection Summary					
Average Delay	0.6				
Intersection Capacity Utilization	26.6%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	86	1020	131	1106	271	190	503	159	515
Future Volume (vph)	86	1020	131	1106	271	190	503	159	515
Lane Group Flow (vph)	86	1198	131	1106	271	190	570	159	575
Turn Type	Perm	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2	1	6		7	4	3	8
Permitted Phases	2		6		6				
Detector Phase	2	2	1	6	6	7	4	3	8
Switch Phase									
Minimum Initial (s)	12.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	59.7	59.7	8.0	59.7	59.7	8.0	57.9	8.0	57.9
Total Split (s)	66.0	66.0	11.0	77.0	77.0	25.1	59.9	23.1	57.9
Total Split (%)	41.3%	41.3%	6.9%	48.1%	48.1%	15.7%	37.4%	14.4%	36.2%
Yellow Time (s)	4.3	4.3	3.0	4.3	4.3	3.0	4.7	3.0	4.7
All-Red Time (s)	2.4	2.4	0.0	2.4	2.4	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	3.0	6.7	6.7	2.0	6.9	3.0	6.9
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None
v/c Ratio	0.61	0.66	0.74	0.49	0.34	0.81	0.34	0.80	0.35
Control Delay	62.5	43.3	51.9	33.0	4.0	89.0	37.1	96.8	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.5	43.3	51.9	33.0	4.0	89.0	37.1	96.8	40.6
Queue Length 50th (m)	23.4	120.1	25.2	96.0	0.0	61.7	51.7	52.0	53.1
Queue Length 95th (m)	#48.4	137.4	#47.8	110.0	17.4	#97.5	63.6	#84.0	65.3
Internal Link Dist (m)		266.2		323.6			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	140	1806	176	2259	796	257	1696	219	1660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.66	0.74	0.49	0.34	0.74	0.34	0.73	0.35

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 80 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1020	178	131	1106	271	190	503	67	159	515	60
Future Volume (vph)	86	1020	178	131	1106	271	190	503	67	159	515	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.7	6.7		3.0	6.7	6.7	2.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.93	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1712	4832		1732	5142	1467	1785	4913		1750	4999	
Flt Permitted	0.21	1.00		0.12	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	380	4832		219	5142	1467	1785	4913		1750	4999	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	1020	178	131	1106	271	190	503	67	159	515	60
RTOR Reduction (vph)	0	15	0	0	0	152	0	11	0	0	9	0
Lane Group Flow (vph)	86	1183	0	131	1106	119	190	559	0	159	566	0
Confl. Peds. (#/hr)	68		48	48		68	25		47	47		25
Heavy Vehicles (%)	3%	6%	1%	3%	2%	1%	0%	3%	13%	2%	3%	2%
Turn Type	Perm	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6						
Actuated Green, G (s)	59.3	59.3		70.3	70.3	70.3	20.2	54.9		18.2	52.9	
Effective Green, g (s)	59.3	59.3		70.3	70.3	70.3	21.2	54.9		18.2	52.9	
Actuated g/C Ratio	0.37	0.37		0.44	0.44	0.44	0.13	0.34		0.11	0.33	
Clearance Time (s)	6.7	6.7		3.0	6.7	6.7	3.0	6.9		3.0	6.9	
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)	140	1790		171	2259	644	236	1685		199	1652	
v/s Ratio Prot		0.24		c0.04	0.22		c0.11	c0.11		0.09	0.11	
v/s Ratio Perm	0.23			c0.30		0.08						
v/c Ratio	0.61	0.66		0.77	0.49	0.18	0.81	0.33		0.80	0.34	
Uniform Delay, d1	41.0	42.0		31.0	32.0	27.4	67.4	39.0		69.1	40.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.97	0.96		1.00	1.00	
Incremental Delay, d2	18.5	1.9		18.3	0.8	0.6	17.5	0.5		19.7	0.1	
Delay (s)	59.5	43.9		49.3	32.8	28.0	82.6	37.7		88.8	40.6	
Level of Service	E	D		D	C	C	F	D		F	D	
Approach Delay (s)		44.9			33.4			49.0			51.0	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	125.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	11	4	8	3	12	802	8	680
Future Volume (vph)	11	4	8	3	12	802	8	680
Lane Group Flow (vph)	11	25	8	18	12	808	8	690
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	46.0	46.0	46.0	46.0	8.0	67.0	8.0	67.0
Total Split (s)	58.0	58.0	58.0	58.0	22.0	80.0	22.0	80.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	13.8%	50.0%	13.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	C-Max
v/c Ratio	0.19	0.05	0.12	0.04	0.16	0.25	0.11	0.22
Control Delay	80.4	0.2	76.0	0.2	78.2	2.2	77.1	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.4	0.2	76.0	0.2	78.2	2.2	77.1	1.7
Queue Length 50th (m)	3.6	0.0	2.6	0.0	4.0	18.1	2.7	8.6
Queue Length 95th (m)	10.9	0.0	8.8	0.0	11.6	41.3	m6.6	18.1
Internal Link Dist (m)		302.0		307.7		266.9		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	412	1166	488	1158	211	3230	211	3178
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	0.03	0.02	0.02	0.02	0.06	0.25	0.04	0.22

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

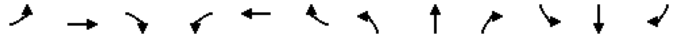
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	4	21	8	3	15	12	802	6	8	680	10
Future Volume (vph)	11	4	21	8	3	15	12	802	6	8	680	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.88		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	2921		1783	2975		1785	3575		1785	3571	
Flt Permitted	0.82	1.00		0.82	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1294	2921		1532	2975		1785	3575		1785	3571	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	4	21	8	3	15	12	802	6	8	680	10
RTOR Reduction (vph)	0	24	0	0	17	0	0	0	0	0	0	0
Lane Group Flow (vph)	11	1	0	8	1	0	12	808	0	8	690	0
Confl. Peds. (#/hr)	4		1	1		4	1		4	4		1
Heavy Vehicles (%)	18%	50%	0%	0%	0%	7%	0%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	4.9	4.9		4.9	4.9		3.1	136.6		1.5	135.0	
Effective Green, g (s)	4.9	4.9		4.9	4.9		3.1	136.6		1.5	135.0	
Actuated g/C Ratio	0.03	0.03		0.03	0.03		0.02	0.85		0.01	0.84	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	39	89		46	91		34	3052		16	3013	
v/s Ratio Prot		0.00			0.00		0.01	c0.23		c0.00	0.19	
v/s Ratio Perm	c0.01			0.01								
v/c Ratio	0.28	0.01		0.17	0.01		0.35	0.26		0.50	0.23	
Uniform Delay, d1	75.8	75.2		75.6	75.2		77.5	2.2		78.9	2.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.01	0.62	
Incremental Delay, d2	3.9	0.0		1.8	0.0		6.2	0.2		20.3	0.2	
Delay (s)	79.8	75.2		77.4	75.2		83.7	2.4		99.6	1.7	
Level of Service	E	E		E	E		F	A		F	A	
Approach Delay (s)		76.6			75.9			3.6			2.8	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

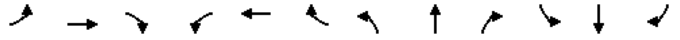
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	41	34	3	18	6	31	64	5	5	61	68
Future Volume (Veh/h)	124	41	34	3	18	6	31	64	5	5	61	68
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	124	41	34	3	18	6	31	64	5	5	61	68
Pedestrians					3			1				
Lane Width (m)					4.2			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	214	239	66	228	270	38	129			72		
vC1, stage 1 conf vol	105	105		132	132							
vC2, stage 2 conf vol	109	134		96	139							
vCu, unblocked vol	214	239	66	228	270	38	129			72		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.9		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	84	94	97	100	97	99	98			100		
cM capacity (veh/h)	787	720	991	740	697	1030	1447			1285		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	199	3	24	31	43	26	5	41	88
Volume Left	124	3	0	31	0	0	5	0	0
Volume Right	34	0	6	0	0	5	0	0	68
cSH	800	740	759	1447	1700	1700	1285	1700	1700
Volume to Capacity	0.25	0.00	0.03	0.02	0.03	0.02	0.00	0.02	0.05
Queue Length 95th (m)	7.8	0.1	0.8	0.5	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	11.0	9.9	9.9	7.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	A	A	A			A		
Approach Delay (s)	11.0	9.9		2.3			0.3		
Approach LOS	B	A							

Intersection Summary					
Average Delay	5.9				
Intersection Capacity Utilization	35.4%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	22	106	0	0	85	8
Future Volume (Veh/h)	0	0	0	0	0	0	22	106	0	0	85	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	0	0	0	22	106	0	0	85	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	186	239	46	192	243	53	93			106		
vC1, stage 1 conf vol	89	89		150	150							
vC2, stage 2 conf vol	97	150		42	93							
vCu, unblocked vol	186	239	46	192	243	53	93			106		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	6.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	100	100	100	98			100		
cM capacity (veh/h)	828	721	1019	797	716	1010	1001			1498		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	22	71	35	0	57	36
Volume Left	0	22	0	0	0	0	0
Volume Right	0	0	0	0	0	0	8
cSH	1700	1001	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.02	0.04	0.02	0.00	0.03	0.02
Queue Length 95th (m)	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	0.0	1.5			0.0		
Approach LOS	A						

Intersection Summary					
Average Delay	0.9				
Intersection Capacity Utilization	11.2%	ICU Level of Service		A	
Analysis Period (min)	15				

APPENDIX D

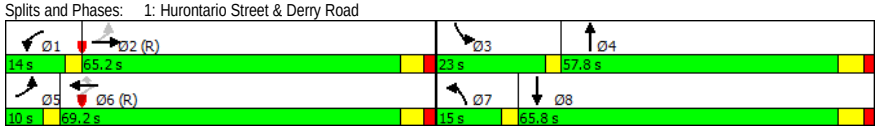
Intersection Capacity Analysis – Future Background (2031) Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	74	1736	133	956	167	110	445	197	1142
Future Volume (vph)	74	1736	133	956	167	110	445	197	1142
Lane Group Flow (vph)	74	1890	133	956	167	110	514	197	1178
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		6				
Detector Phase	5	2	1	6	6	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.7	8.0	59.7	59.7	8.0	57.8	8.0	57.8
Total Split (s)	10.0	65.2	14.0	69.2	69.2	15.0	57.8	23.0	65.8
Total Split (%)	6.3%	40.8%	8.8%	43.3%	43.3%	9.4%	36.1%	14.4%	41.1%
Yellow Time (s)	3.0	4.3	3.0	4.3	4.3	3.0	4.6	3.0	4.6
All-Red Time (s)	0.0	2.4	0.0	2.4	2.4	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.7	3.0	6.7	6.7	0.0	6.8	3.0	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	Max	None	Max
v/c Ratio	0.34	0.96	0.94	0.52	0.25	0.74	0.51	0.96	0.87
Control Delay	27.8	61.7	99.6	38.6	5.1	104.3	40.3	120.3	54.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	61.7	99.6	38.6	5.1	104.3	40.3	120.3	54.7
Queue Length 50th (m)	13.4	205.0	30.6	89.5	0.0	39.1	51.3	66.6	182.9
Queue Length 95th (m)	23.9	#235.0	#76.5	104.2	15.9	#69.1	62.5	#119.8	212.6
Internal Link Dist (m)		260.0		326.1			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	217	1972	141	1827	666	151	1014	206	1358
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.96	0.94	0.52	0.25	0.73	0.51	0.96	0.87

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 94 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1736	154	133	956	167	110	445	69	197	1142	36
Future Volume (vph)	74	1736	154	133	956	167	110	445	69	197	1142	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.6	3.0	3.6	3.6
Total Lost time (s)	3.0	6.7		3.0	6.7	6.7	0.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	*1.00		1.00	0.91	1.00	1.00	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1603	5375		1462	4673	1442	1612	3158		1652	3665	
Flt Permitted	0.22	1.00		0.07	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	379	5375		100	4673	1442	1612	3158		1652	3665	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	1736	154	133	956	167	110	445	69	197	1142	36
RTOR Reduction (vph)	0	7	0	0	0	102	0	7	0	0	1	0
Lane Group Flow (vph)	74	1883	0	133	956	65	110	507	0	197	1177	0
Confl. Peds. (#/hr)	27		119	119		27	30		78	78		30
Heavy Vehicles (%)	5%	4%	1%	18%	11%	8%	7%	9%	22%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6						
Actuated Green, G (s)	65.4	58.5		72.5	62.6	62.6	11.7	51.0		20.0	59.3	
Effective Green, g (s)	65.4	58.5		72.5	62.6	62.6	14.7	51.0		20.0	59.3	
Actuated g/C Ratio	0.41	0.37		0.45	0.39	0.39	0.09	0.32		0.12	0.37	
Clearance Time (s)	3.0	6.7		3.0	6.7	6.7	3.0	6.8		3.0	6.8	
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)	207	1965		138	1828	564	148	1006		206	1358	
v/s Ratio Prot	0.02	0.35		c0.07	0.20		0.07	0.16		c0.12	c0.32	
v/s Ratio Perm	0.13			c0.37		0.05						
v/c Ratio	0.36	0.96		0.96	0.52	0.12	0.74	0.50		0.96	0.87	
Uniform Delay, d1	29.9	49.6		45.9	37.3	31.1	70.8	44.2		69.6	46.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.09	0.89		1.00	1.00	
Incremental Delay, d2	1.1	12.6		65.1	1.1	0.4	17.6	1.7		49.8	7.6	
Delay (s)	31.0	62.2		110.9	38.3	31.5	94.8	40.9		119.4	54.3	
Level of Service	C	E		F	D	C	F	D		F	D	
Approach Delay (s)		61.0			45.1			50.4			63.6	
Approach LOS		E			D			D			E	

Intersection Summary

HCM 2000 Control Delay	56.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	122.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	45	17	12	121	712	101	1331
Future Volume (vph)	4	45	17	12	121	712	101	1331
Lane Group Flow (vph)	4	116	17	21	121	782	101	1341
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	47.0	47.0	47.0	47.0	8.0	65.0	8.0	65.0
Total Split (s)	54.0	54.0	54.0	54.0	19.0	87.0	19.0	87.0
Total Split (%)	33.8%	33.8%	33.8%	33.8%	11.9%	54.4%	11.9%	54.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.06	0.46	0.33	0.12	0.68	0.32	0.65	0.53
Control Delay	71.8	36.3	88.7	49.1	86.6	7.5	82.0	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.8	36.3	88.7	49.1	86.6	7.5	82.0	2.9
Queue Length 50th (m)	1.3	7.7	5.6	2.0	39.5	40.2	35.0	24.3
Queue Length 95th (m)	5.8	18.6	14.5	7.0	60.9	62.4	m39.1	m33.7
Internal Link Dist (m)		302.0		307.7		268.5		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	384	1061	284	907	187	2482	180	2546
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	0.01	0.11	0.06	0.02	0.65	0.32	0.56	0.53

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

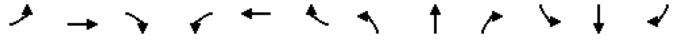
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	45	71	17	12	9	121	712	70	101	1331	10
Future Volume (vph)	4	45	71	17	12	9	121	712	70	101	1331	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.8	3.6	3.0	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.2
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.94		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1673	3445		1357	3066		1582	3315		1691	3498	
Flt Permitted	0.74	1.00		0.68	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1308	3445		969	3066		1582	3315		1691	3498	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	45	71	17	12	9	121	712	70	101	1331	10
RTOR Reduction (vph)	0	67	0	0	9	0	0	2	0	0	0	0
Lane Group Flow (vph)	4	49	0	17	12	0	121	780	0	101	1341	0
Confl. Peds. (#/hr)	6		1	1		6	1		5	5		1
Heavy Vehicles (%)	0%	7%	7%	24%	8%	11%	9%	8%	0%	2%	3%	14%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	8.5	8.5		8.5	8.5		18.0	119.7		14.8	116.5	
Effective Green, g (s)	8.5	8.5		8.5	8.5		18.0	119.7		14.8	116.5	
Actuated g/C Ratio	0.05	0.05		0.05	0.05		0.11	0.75		0.09	0.73	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	69	183		51	162		177	2480		156	2546	
v/s Ratio Prot		0.01			0.00		c0.08	0.24		0.06	c0.38	
v/s Ratio Perm	0.00			c0.02								
v/c Ratio	0.06	0.27		0.33	0.08		0.68	0.31		0.65	0.53	
Uniform Delay, d1	71.9	72.8		73.0	72.0		68.3	6.6		70.1	9.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.05	0.25	
Incremental Delay, d2	0.4	0.8		3.8	0.2		10.4	0.3		4.2	0.4	
Delay (s)	72.3	73.5		76.9	72.2		78.7	7.0		77.9	2.7	
Level of Service	E	E		E	E		E	A		E	A	
Approach Delay (s)		73.5			74.3			16.6			8.0	
Approach LOS		E			E			B			A	

Intersection Summary

HCM 2000 Control Delay	15.2	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)	17.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

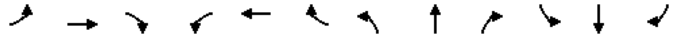
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	4	19	2	30	11	161	25	69	439	22
Future Volume (Veh/h)	6	5	4	19	2	30	11	161	25	69	439	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	6	5	4	19	2	30	11	161	25	69	439	22
Pedestrians		1			2			4				
Lane Width (m)		3.6			4.2			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	722	799	236	566	798	95	462			188		
vC1, stage 1 conf vol	589	589		198	198							
vC2, stage 2 conf vol	134	210		368	600							
vCu, unblocked vol	722	799	236	566	798	95	462			188		
tC, single (s)	7.5	6.5	7.9	7.9	6.5	7.0	4.3			4.2		
tC, 2 stage (s)	6.5	5.5		6.9	5.5							
tF (s)	3.5	4.0	3.8	3.7	4.0	3.3	2.3			2.2		
p0 queue free %	99	99	99	96	100	97	99			95		
cM capacity (veh/h)	421	439	636	488	433	938	1047			1366		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	15	19	32	11	107	79	69	293	168
Volume Left	6	19	0	11	0	0	69	0	0
Volume Right	4	0	30	0	0	25	0	0	22
cSH	470	488	874	1047	1700	1700	1366	1700	1700
Volume to Capacity	0.03	0.04	0.04	0.01	0.06	0.05	0.05	0.17	0.10
Queue Length 95th (m)	0.8	1.0	0.9	0.3	0.0	0.0	1.3	0.0	0.0
Control Delay (s)	12.9	12.7	9.3	8.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	B	A	A			A		
Approach Delay (s)	12.9	10.5		0.5			1.0		
Approach LOS	B	B							

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	33.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	3	19	193	10	20	446	13
Future Volume (Veh/h)	0	0	0	4	0	3	19	193	10	20	446	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	4	0	3	19	193	10	20	446	13
Pedestrians								2				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	630	734	232	501	735	102	459			203		
vC1, stage 1 conf vol	492	492		236	236							
vC2, stage 2 conf vol	138	241		265	499							
vCu, unblocked vol	630	734	232	501	735	102	459			203		
tC, single (s)	7.5	6.5	6.9	8.0	6.5	6.9	6.0			4.2		
tC, 2 stage (s)	6.5	5.5		7.0	5.5							
tF (s)	3.5	4.0	3.3	3.8	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	99	100	100	97			99		
cM capacity (veh/h)	497	491	776	546	480	940	646			1344		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	7	19	129	74	20	297	162
Volume Left	4	19	0	0	20	0	0
Volume Right	3	0	0	10	0	0	13
cSH	666	646	1700	1700	1344	1700	1700
Volume to Capacity	0.01	0.03	0.08	0.04	0.01	0.17	0.10
Queue Length 95th (m)	0.3	0.7	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	10.5	10.7	0.0	0.0	7.7	0.0	0.0
Lane LOS	B	B			A		
Approach Delay (s)	10.5	0.9			0.3		
Approach LOS	B						

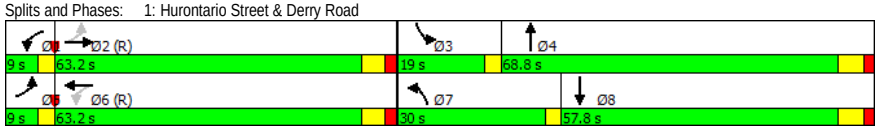
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	27.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	106	983	137	1890	443	278	937	99	450
Future Volume (vph)	106	983	137	1890	443	278	937	99	450
Lane Group Flow (vph)	106	1086	137	1890	443	278	965	99	502
Turn Type	pm+pt	NA	pm+pt	NA	Free	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		Free				
Detector Phase	5	2	1	6		7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0		5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.7	8.0	59.7		8.0	57.9	8.0	56.0
Total Split (s)	9.0	63.2	9.0	63.2		30.0	68.8	19.0	57.8
Total Split (%)	5.6%	39.5%	5.6%	39.5%		18.8%	43.0%	11.9%	36.1%
Yellow Time (s)	3.0	4.3	3.0	4.3		3.0	4.7	3.0	4.7
All-Red Time (s)	0.0	2.4	0.0	2.4		0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		-3.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.7	3.0	6.7		0.0	6.9	3.0	6.9
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None
v/c Ratio	0.62	0.52	0.55	0.85	0.29	0.87	0.86	0.68	0.61
Control Delay	45.5	38.1	33.4	48.9	0.5	82.9	73.8	93.4	55.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	38.1	33.4	48.9	0.5	82.9	73.8	93.4	55.5
Queue Length 50th (m)	18.2	93.8	24.2	196.3	0.0	91.2	178.9	32.6	78.2
Queue Length 95th (m)	#55.1	112.4	43.2	#237.5	0.0	#140.7	201.3	53.7	90.3
Internal Link Dist (m)		264.1		315.9			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	170	2088	250	2221	1541	331	1348	173	1076
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.52	0.55	0.85	0.29	0.84	0.72	0.57	0.47

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	983	103	137	1890	443	278	937	28	99	450	52
Future Volume (vph)	106	983	103	137	1890	443	278	937	28	99	450	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.7		3.0	6.7	4.0	0.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	*1.00		1.00	*1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1733	5185		1574	5542	1541	1767	3481		1733	3368	
Flt Permitted	0.06	1.00		0.20	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	114	5185		335	5542	1541	1767	3481		1733	3368	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	983	103	137	1890	443	278	937	28	99	450	52
RTOR Reduction (vph)	0	8	0	0	0	0	0	1	0	0	6	0
Lane Group Flow (vph)	106	1078	0	137	1890	443	278	964	0	99	496	0
Confl. Peds. (#/hr)	45		130	130		45	8		139	139		8
Heavy Vehicles (%)	3%	9%	1%	13%	4%	1%	1%	3%	37%	3%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Free	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		Free						
Actuated Green, G (s)	75.4	64.1		75.4	64.1	160.0	26.1	51.5		13.5	38.9	
Effective Green, g (s)	75.4	64.1		75.4	64.1	160.0	29.1	51.5		13.5	38.9	
Actuated g/C Ratio	0.47	0.40		0.47	0.40	1.00	0.18	0.32		0.08	0.24	
Clearance Time (s)	3.0	6.7		3.0	6.7		3.0	6.9		3.0	6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	168	2077		245	2220	1541	321	1120		146	818	
v/s Ratio Prot	c0.04	0.21		0.04	c0.34		c0.16	c0.28		0.06	0.15	
v/s Ratio Perm	0.25			0.22		0.29						
v/c Ratio	0.63	0.52		0.56	0.85	0.29	0.87	0.86		0.68	0.61	
Uniform Delay, d1	32.6	36.3		25.9	43.6	0.0	63.6	50.9		71.1	53.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.92	1.30		1.00	1.00	
Incremental Delay, d2	7.5	0.9		2.8	4.4	0.5	19.8	6.5		11.8	1.3	
Delay (s)	40.1	37.2		28.6	48.0	0.5	78.5	72.7		83.0	55.0	
Level of Service	D	D		C	D	A	E	E		F	E	
Approach Delay (s)		37.5			38.4			74.0			59.6	
Approach LOS		D			D			E			E	

Intersection Summary

HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	117.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	10	101	111	95	1118	14	735
Future Volume (vph)	9	10	101	111	95	1118	14	735
Lane Group Flow (vph)	9	127	101	210	95	1128	14	748
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	46.0	46.0	46.0	46.0	8.0	67.0	8.0	67.0
Total Split (s)	53.0	53.0	53.0	53.0	30.0	77.0	30.0	77.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	18.8%	48.1%	18.8%	48.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.12	0.30	0.72	0.44	0.62	0.42	0.22	0.31
Control Delay	63.3	13.5	93.4	35.9	86.9	8.3	110.8	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	13.5	93.4	35.9	86.9	8.3	110.8	4.3
Queue Length 50th (m)	2.7	1.5	33.1	18.1	31.3	52.1	4.9	10.6
Queue Length 95th (m)	8.6	11.7	52.4	30.4	50.5	107.8	m10.9	70.0
Internal Link Dist (m)		302.0		307.7		271.3		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	176	857	343	1013	301	2704	248	2405
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	0.05	0.15	0.29	0.21	0.32	0.42	0.06	0.31

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	10	117	101	111	99	95	1118	10	14	735	13
Future Volume (vph)	9	10	117	101	111	99	95	1118	10	14	735	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.93		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1066	2690		1693	3282		1785	3534		1475	3492	
Flt Permitted	0.55	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	614	2690		1197	3282		1785	3534		1475	3492	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	9	10	117	101	111	99	95	1118	10	14	735	13
RTOR Reduction (vph)	0	103	0	0	87	0	0	0	0	0	0	0
Lane Group Flow (vph)	9	24	0	101	123	0	95	1128	0	14	748	0
Confl. Peds. (#/hr)	3		4	4		3	4		1	1		4
Heavy Vehicles (%)	67%	40%	13%	5%	4%	1%	0%	3%	20%	21%	4%	17%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	18.9	18.9		18.9	18.9		13.8	120.6		3.5	110.3	
Effective Green, g (s)	18.9	18.9		18.9	18.9		13.8	120.6		3.5	110.3	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.09	0.75		0.02	0.69	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	72	317		141	387		153	2663		32	2407	
v/s Ratio Prot		0.01			0.04		c0.05	c0.32		0.01	0.21	
v/s Ratio Perm	0.01			c0.08								
v/c Ratio	0.12	0.08		0.72	0.32		0.62	0.42		0.44	0.31	
Uniform Delay, d1	63.1	62.8		68.0	64.6		70.6	7.1		77.3	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.42	0.36	
Incremental Delay, d2	0.8	0.1		15.9	0.5		7.6	0.5		8.5	0.3	
Delay (s)	63.9	62.9		83.8	65.1		78.2	7.6		118.3	3.9	
Level of Service	E	E		F	E		E	A		F	A	
Approach Delay (s)		62.9			71.2			13.1			6.0	
Approach LOS		E			E			B			A	

Intersection Summary

HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	6	12	68	11	116	3	511	13	15	285	7
Future Volume (Veh/h)	29	6	12	68	11	116	3	511	13	15	285	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	29	6	12	68	11	116	3	511	13	15	285	7
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	704	850	147	711	846	263	293			524		
vC1, stage 1 conf vol	320	320		524	524							
vC2, stage 2 conf vol	384	530		188	323							
vCu, unblocked vol	704	850	147	711	846	263	293			524		
tC, single (s)	7.5	6.5	6.9	7.6	6.5	6.9	4.1			4.8		
tC, 2 stage (s)	6.5	5.5		6.6	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.5		
p0 queue free %	93	99	99	85	98	84	100			98		
cM capacity (veh/h)	442	460	879	458	469	735	1279			851		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	68	127	3	341	183	15	190	102
Volume Left	29	68	0	3	0	0	15	0	0
Volume Right	12	0	116	0	0	13	0	0	7
cSH	509	458	700	1279	1700	1700	851	1700	1700
Volume to Capacity	0.09	0.15	0.18	0.00	0.20	0.11	0.02	0.11	0.06
Queue Length 95th (m)	2.4	4.1	5.3	0.1	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	12.8	14.2	11.3	7.8	0.0	0.0	9.3	0.0	0.0
Lane LOS	B	B	B	A			A		
Approach Delay (s)	12.8	12.3		0.0			0.5		
Approach LOS	B	B							

Intersection Summary					
Average Delay	2.9				
Intersection Capacity Utilization	35.9%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	13	0	13	20	532	4	7	358	10
Future Volume (Veh/h)	0	0	0	13	0	13	20	532	4	7	358	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	13	0	13	20	532	4	7	358	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	696	953	184	767	956	268	368			536		
vC1, stage 1 conf vol	377	377		574	574							
vC2, stage 2 conf vol	319	576		193	382							
vCu, unblocked vol	696	953	184	767	956	268	368			536		
tC, single (s)	7.5	6.5	6.9	7.7	6.5	7.2	6.1			4.7		
tC, 2 stage (s)	6.5	5.5		6.7	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	3.2			2.5		
p0 queue free %	100	100	100	97	100	98	97			99		
cM capacity (veh/h)	510	427	833	419	427	692	707			862		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	26	20	355	181	7	239	129
Volume Left	13	20	0	0	7	0	0
Volume Right	13	0	0	4	0	0	10
cSH	522	707	1700	1700	862	1700	1700
Volume to Capacity	0.05	0.03	0.21	0.11	0.01	0.14	0.08
Queue Length 95th (m)	1.3	0.7	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	12.3	10.2	0.0	0.0	9.2	0.0	0.0
Lane LOS	B	B			A		
Approach Delay (s)	12.3	0.4			0.2		
Approach LOS	B						

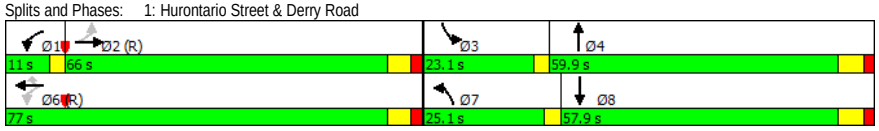
Intersection Summary					
Average Delay	0.6				
Intersection Capacity Utilization	26.6%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	88	1053	136	1143	280	190	503	159	515
Future Volume (vph)	88	1053	136	1143	280	190	503	159	515
Lane Group Flow (vph)	88	1237	136	1143	280	190	570	159	575
Turn Type	Perm	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2	1	6		7	4	3	8
Permitted Phases	2		6		6				
Detector Phase	2	2	1	6	6	7	4	3	8
Switch Phase									
Minimum Initial (s)	12.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	59.7	59.7	8.0	59.7	59.7	8.0	57.9	8.0	57.9
Total Split (s)	66.0	66.0	11.0	77.0	77.0	25.1	59.9	23.1	57.9
Total Split (%)	41.3%	41.3%	6.9%	48.1%	48.1%	15.7%	37.4%	14.4%	36.2%
Yellow Time (s)	4.3	4.3	3.0	4.3	4.3	3.0	4.7	3.0	4.7
All-Red Time (s)	2.4	2.4	0.0	2.4	2.4	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	3.0	6.7	6.7	2.0	6.9	3.0	6.9
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None
v/c Ratio	0.67	0.68	0.80	0.51	0.35	0.81	0.34	0.80	0.35
Control Delay	68.6	43.9	60.2	33.3	4.0	89.0	37.1	96.8	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	43.9	60.2	33.3	4.0	89.0	37.1	96.8	40.6
Queue Length 50th (m)	24.6	125.5	26.3	100.1	0.0	61.7	51.7	52.0	53.1
Queue Length 95th (m)	#54.7	143.2	#54.2	114.4	17.8	#97.5	63.6	#84.0	65.3
Internal Link Dist (m)		266.2		323.6			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	132	1806	169	2259	801	257	1696	219	1660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.68	0.80	0.51	0.35	0.74	0.34	0.73	0.35

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 80 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	1053	184	136	1143	280	190	503	67	159	515	60
Future Volume (vph)	88	1053	184	136	1143	280	190	503	67	159	515	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.7	6.7		3.0	6.7	6.7	2.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.93	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1713	4832		1732	5142	1467	1785	4913		1750	4999	
Flt Permitted	0.20	1.00		0.11	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	358	4832		201	5142	1467	1785	4913		1750	4999	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	88	1053	184	136	1143	280	190	503	67	159	515	60
RTOR Reduction (vph)	0	15	0	0	0	157	0	11	0	0	9	0
Lane Group Flow (vph)	88	1222	0	136	1143	123	190	559	0	159	566	0
Confl. Peds. (#/hr)	68		48	48		68	25		47	47		25
Heavy Vehicles (%)	3%	6%	1%	3%	2%	1%	0%	3%	13%	2%	3%	2%
Turn Type	Perm	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6						
Actuated Green, G (s)	59.3	59.3		70.3	70.3	70.3	20.2	54.9		18.2	52.9	
Effective Green, g (s)	59.3	59.3		70.3	70.3	70.3	21.2	54.9		18.2	52.9	
Actuated g/C Ratio	0.37	0.37		0.44	0.44	0.44	0.13	0.34		0.11	0.33	
Clearance Time (s)	6.7	6.7		3.0	6.7	6.7	3.0	6.9		3.0	6.9	
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)	132	1790		164	2259	644	236	1685		199	1652	
v/s Ratio Prot		0.25		c0.04	0.22		c0.11	c0.11		0.09	0.11	
v/s Ratio Perm	0.25			c0.32		0.08						
v/c Ratio	0.67	0.68		0.83	0.51	0.19	0.81	0.33		0.80	0.34	
Uniform Delay, d1	42.1	42.4		31.7	32.3	27.4	67.4	39.0		69.1	40.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.97	0.96		1.00	1.00	
Incremental Delay, d2	23.6	2.1		27.9	0.8	0.7	17.5	0.5		19.7	0.1	
Delay (s)	65.7	44.6		59.5	33.1	28.1	82.6	37.7		88.8	40.6	
Level of Service	E	D		E	C	C	F	D		F	D	
Approach Delay (s)		46.0			34.5			49.0			51.0	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	125.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	11	4	8	3	12	802	8	680
Future Volume (vph)	11	4	8	3	12	802	8	680
Lane Group Flow (vph)	11	25	8	18	12	808	8	690
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	46.0	46.0	46.0	46.0	8.0	67.0	8.0	67.0
Total Split (s)	58.0	58.0	58.0	58.0	22.0	80.0	22.0	80.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	13.8%	50.0%	13.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	C-Max
v/c Ratio	0.19	0.05	0.12	0.04	0.16	0.25	0.11	0.22
Control Delay	80.4	0.2	76.0	0.2	78.2	2.2	76.1	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.4	0.2	76.0	0.2	78.2	2.2	76.1	1.6
Queue Length 50th (m)	3.6	0.0	2.6	0.0	4.0	18.1	2.7	8.5
Queue Length 95th (m)	10.9	0.0	8.8	0.0	11.6	41.3	m6.6	18.4
Internal Link Dist (m)		302.0		307.7		266.9		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	412	1166	488	1158	211	3230	211	3178
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	0.03	0.02	0.02	0.02	0.06	0.25	0.04	0.22

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

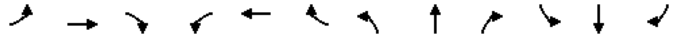
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	4	21	8	3	15	12	802	6	8	680	10
Future Volume (vph)	11	4	21	8	3	15	12	802	6	8	680	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.88		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	2921		1783	2975		1785	3575		1785	3571	
Flt Permitted	0.82	1.00		0.82	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1294	2921		1532	2975		1785	3575		1785	3571	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	4	21	8	3	15	12	802	6	8	680	10
RTOR Reduction (vph)	0	24	0	0	17	0	0	0	0	0	0	0
Lane Group Flow (vph)	11	1	0	8	1	0	12	808	0	8	690	0
Confl. Peds. (#/hr)	4		1	1		4	1		4	4		1
Heavy Vehicles (%)	18%	50%	0%	0%	0%	7%	0%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	4.9	4.9		4.9	4.9		3.1	136.6		1.5	135.0	
Effective Green, g (s)	4.9	4.9		4.9	4.9		3.1	136.6		1.5	135.0	
Actuated g/C Ratio	0.03	0.03		0.03	0.03		0.02	0.85		0.01	0.84	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	39	89		46	91		34	3052		16	3013	
v/s Ratio Prot		0.00			0.00		0.01	c0.23		c0.00	0.19	
v/s Ratio Perm	c0.01			0.01								
v/c Ratio	0.28	0.01		0.17	0.01		0.35	0.26		0.50	0.23	
Uniform Delay, d1	75.8	75.2		75.6	75.2		77.5	2.2		78.9	2.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.99	0.60	
Incremental Delay, d2	3.9	0.0		1.8	0.0		6.2	0.2		20.0	0.2	
Delay (s)	79.8	75.2		77.4	75.2		83.7	2.4		98.3	1.6	
Level of Service	E	E		E	E		F	A		F	A	
Approach Delay (s)		76.6			75.9			3.6			2.7	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

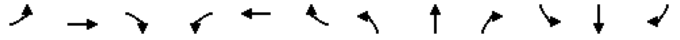
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	41	34	3	18	6	31	64	5	5	61	68
Future Volume (Veh/h)	124	41	34	3	18	6	31	64	5	5	61	68
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	124	41	34	3	18	6	31	64	5	5	61	68
Pedestrians					3			1				
Lane Width (m)					4.2			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	214	239	66	228	270	38	129			72		
vC1, stage 1 conf vol	105	105		132	132							
vC2, stage 2 conf vol	109	134		96	139							
vCu, unblocked vol	214	239	66	228	270	38	129			72		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.9		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	84	94	97	100	97	99	98			100		
cM capacity (veh/h)	787	720	991	740	697	1030	1447			1285		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	199	3	24	31	43	26	5	41	88
Volume Left	124	3	0	31	0	0	5	0	0
Volume Right	34	0	6	0	0	5	0	0	68
cSH	800	740	759	1447	1700	1700	1285	1700	1700
Volume to Capacity	0.25	0.00	0.03	0.02	0.03	0.02	0.00	0.02	0.05
Queue Length 95th (m)	7.8	0.1	0.8	0.5	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	11.0	9.9	9.9	7.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	A	A	A			A		
Approach Delay (s)	11.0	9.9		2.3			0.3		
Approach LOS	B	A							

Intersection Summary					
Average Delay	5.9				
Intersection Capacity Utilization	35.4%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	22	106	0	0	85	8
Future Volume (Veh/h)	0	0	0	0	0	0	22	106	0	0	85	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	0	0	0	22	106	0	0	85	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	186	239	46	192	243	53	93			106		
vC1, stage 1 conf vol	89	89		150	150							
vC2, stage 2 conf vol	97	150		42	93							
vCu, unblocked vol	186	239	46	192	243	53	93			106		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	6.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	100	100	100	98			100		
cM capacity (veh/h)	828	721	1019	797	716	1010	1001			1498		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	22	71	35	0	57	36
Volume Left	0	22	0	0	0	0	0
Volume Right	0	0	0	0	0	0	8
cSH	1700	1001	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.02	0.04	0.02	0.00	0.03	0.02
Queue Length 95th (m)	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	0.0	1.5			0.0		
Approach LOS	A						

Intersection Summary					
Average Delay	0.9				
Intersection Capacity Utilization	11.2%	ICU Level of Service		A	
Analysis Period (min)	15				

APPENDIX E

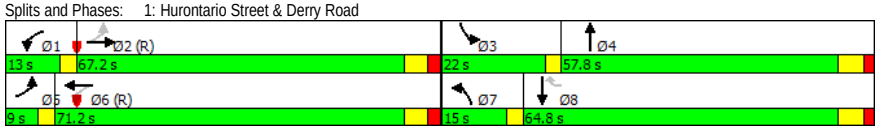
Intersection Capacity Analysis – Future Total (2024) Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	71	1680	131	925	161	117	464	197	1164
Future Volume (vph)	71	1680	131	925	161	117	464	197	1164
Lane Group Flow (vph)	71	1831	131	925	161	117	537	197	1200
Turn Type	pm+pt	NA	pm+pt	NA	custom	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		8				
Detector Phase	5	2	1	6	8	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.9	8.0	59.9	57.8	8.0	57.8	8.0	57.8
Total Split (s)	9.0	67.2	13.0	71.2	64.8	15.0	57.8	22.0	64.8
Total Split (%)	5.6%	42.0%	8.1%	44.5%	40.5%	9.4%	36.1%	13.8%	40.5%
Yellow Time (s)	3.0	4.3	3.0	4.3	4.6	3.0	4.6	3.0	4.6
All-Red Time (s)	0.0	2.6	0.0	2.6	2.2	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.9	3.0	6.9	6.8	0.0	6.8	3.0	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None
v/c Ratio	0.30	0.98	0.91	0.48	0.26	0.76	0.53	0.95	0.95
Control Delay	25.9	64.2	90.5	36.1	5.7	103.2	40.5	119.6	66.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	64.2	90.5	36.1	5.7	103.2	40.5	119.6	66.3
Queue Length 50th (m)	12.7	220.4	29.5	83.9	0.0	39.4	55.3	66.6	204.0
Queue Length 95th (m)	22.6	#257.0	#75.6	98.1	16.4	#71.4	66.7	#119.4	#249.8
Internal Link Dist (m)		263.7		443.5			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	240	1876	144	1926	618	156	1025	207	1276
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.98	0.91	0.48	0.26	0.75	0.52	0.95	0.94

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 94 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1680	151	131	925	161	117	464	73	197	1164	36
Future Volume (vph)	71	1680	151	131	925	161	117	464	73	197	1164	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.9		3.0	6.9	6.8	0.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1698	4944		1513	4725	1424	1668	3191		1750	3521	
Flt Permitted	0.25	1.00		0.06	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	439	4944		100	4725	1424	1668	3191		1750	3521	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	1680	151	131	925	161	117	464	73	197	1164	36
RTOR Reduction (vph)	0	6	0	0	0	103	0	8	0	0	1	0
Lane Group Flow (vph)	71	1825	0	131	925	58	117	529	0	197	1199	0
Confl. Peds. (#/hr)	27		119	119		27	30		78	78		30
Heavy Vehicles (%)	5%	4%	1%	18%	11%	8%	7%	9%	22%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	custom	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		8						
Actuated Green, G (s)	66.6	60.5		74.3	65.2	57.2	11.8	50.0		19.0	57.2	
Effective Green, g (s)	66.6	60.5		74.3	65.2	57.2	14.8	50.0		19.0	57.2	
Actuated g/C Ratio	0.42	0.38		0.46	0.41	0.36	0.09	0.31		0.12	0.36	
Clearance Time (s)	3.0	6.9		3.0	6.9	6.8	3.0	6.8		3.0	6.8	
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)	230	1869		141	1925	509	154	997		207	1258	
v/s Ratio Prot	0.01	c0.37		c0.06	0.20		0.07	0.17		c0.11	c0.34	
v/s Ratio Perm	0.12			0.37		0.04						
v/c Ratio	0.31	0.98		0.93	0.48	0.11	0.76	0.53		0.95	0.95	
Uniform Delay, d1	28.8	49.0		45.3	34.9	34.4	70.9	45.3		70.0	50.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.06	0.87		1.00	1.00	
Incremental Delay, d2	0.8	15.9		54.1	0.9	0.1	18.6	0.5		48.7	15.4	
Delay (s)	29.6	65.0		99.4	35.8	34.5	93.7	39.8		118.7	65.5	
Level of Service	C	E		F	D	C	F	D		F	E	
Approach Delay (s)		63.6			42.5			49.4			73.0	
Approach LOS		E			D			D			E	

Intersection Summary

HCM 2000 Control Delay	59.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	120.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	45	17	12	130	712	101	1357
Future Volume (vph)	35	45	17	12	130	712	101	1357
Lane Group Flow (vph)	35	118	17	21	130	782	101	1367
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	47.0	47.0	47.0	47.0	8.0	65.0	8.0	65.0
Total Split (s)	54.0	54.0	54.0	54.0	19.0	87.0	19.0	87.0
Total Split (%)	33.8%	33.8%	33.8%	33.8%	11.9%	54.4%	11.9%	54.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.44	0.42	0.29	0.11	0.68	0.32	0.65	0.55
Control Delay	88.3	33.9	82.8	47.7	84.6	8.0	79.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.3	33.9	82.8	47.7	84.6	8.0	79.6	3.2
Queue Length 50th (m)	11.5	7.6	5.6	2.0	42.3	41.9	35.1	25.4
Queue Length 95th (m)	24.0	18.5	14.3	6.9	64.6	65.1	m37.1	m34.5
Internal Link Dist (m)		151.1		307.7		119.1		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	384	1062	284	907	197	2456	180	2490
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	0.09	0.11	0.06	0.02	0.66	0.32	0.56	0.55

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

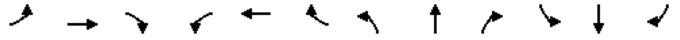
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	45	73	17	12	9	130	712	70	101	1357	10
Future Volume (vph)	35	45	73	17	12	9	130	712	70	101	1357	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.8	3.6	3.0	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.2
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.94		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1673	3441		1357	3066		1582	3313		1691	3498	
Flt Permitted	0.74	1.00		0.68	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1308	3441		968	3066		1582	3313		1691	3498	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	45	73	17	12	9	130	712	70	101	1357	10
RTOR Reduction (vph)	0	69	0	0	8	0	0	2	0	0	0	0
Lane Group Flow (vph)	35	49	0	17	13	0	130	780	0	101	1367	0
Confl. Peds. (#/hr)	6		1	1		6	1		5	5		1
Heavy Vehicles (%)	0%	7%	7%	24%	8%	11%	9%	8%	0%	2%	3%	14%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	9.7	9.7		9.7	9.7		19.3	118.5		14.8	114.0	
Effective Green, g (s)	9.7	9.7		9.7	9.7		19.3	118.5		14.8	114.0	
Actuated g/C Ratio	0.06	0.06		0.06	0.06		0.12	0.74		0.09	0.71	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	79	208		58	185		190	2453		156	2492	
v/s Ratio Prot		0.01			0.00		c0.08	0.24		0.06	c0.39	
v/s Ratio Perm	c0.03			0.02								
v/c Ratio	0.44	0.24		0.29	0.07		0.68	0.32		0.65	0.55	
Uniform Delay, d1	72.5	71.6		71.9	70.9		67.4	7.0		70.1	10.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.04	0.24	
Incremental Delay, d2	3.9	0.6		2.8	0.2		9.8	0.3		3.4	0.3	
Delay (s)	76.5	72.2		74.7	71.0		77.2	7.4		76.3	2.9	
Level of Service	E	E		E	E		E	A		E	A	
Approach Delay (s)		73.2			72.7			17.3			8.0	
Approach LOS		E			E			B			A	

Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

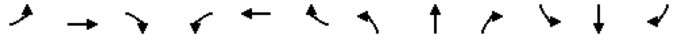
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	4	20	2	41	11	161	34	78	439	22
Future Volume (Veh/h)	6	5	4	20	2	41	11	161	34	78	439	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	6	5	4	20	2	41	11	161	34	78	439	22
Pedestrians		1			2			4				
Lane Width (m)		3.6			4.2			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	752	826	236	588	820	100	462			197		
vC1, stage 1 conf vol	607	607		202	202							
vC2, stage 2 conf vol	144	219		386	618							
vCu, unblocked vol	752	826	236	588	820	100	462			197		
tC, single (s)	7.5	6.5	7.9	7.9	6.5	7.0	4.3			4.2		
tC, 2 stage (s)	6.5	5.5		6.9	5.5							
tF (s)	3.5	4.0	3.8	3.7	4.0	3.3	2.3			2.2		
p0 queue free %	99	99	99	96	100	96	99			94		
cM capacity (veh/h)	406	426	636	473	421	932	1047			1356		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	15	20	43	11	107	88	78	293	168
Volume Left	6	20	0	11	0	0	78	0	0
Volume Right	4	0	41	0	0	34	0	0	22
cSH	457	473	882	1047	1700	1700	1356	1700	1700
Volume to Capacity	0.03	0.04	0.05	0.01	0.06	0.05	0.06	0.17	0.10
Queue Length 95th (m)	0.8	1.1	1.2	0.3	0.0	0.0	1.5	0.0	0.0
Control Delay (s)	13.1	13.0	9.3	8.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	B	A	A			A		
Approach Delay (s)	13.1	10.5		0.5			1.1		
Approach LOS	B	B							

Intersection Summary					
Average Delay	1.9				
Intersection Capacity Utilization	33.3%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	3	19	202	10	20	447	13
Future Volume (Veh/h)	0	0	0	4	0	3	19	202	10	20	447	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	4	0	3	19	202	10	20	447	13
Pedestrians								2				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	636	744	232	510	745	106	460			212		
vC1, stage 1 conf vol	494	494		245	245							
vC2, stage 2 conf vol	142	250		266	500							
vCu, unblocked vol	636	744	232	510	745	106	460			212		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	6.0			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	99	100	100	97			99		
cM capacity (veh/h)	495	484	775	595	474	928	645			1356		

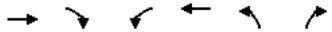
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	7	19	135	77	244	236
Volume Left	4	19	0	0	20	0
Volume Right	3	0	0	10	0	13
cSH	703	645	1700	1700	1356	1700
Volume to Capacity	0.01	0.03	0.08	0.05	0.01	0.14
Queue Length 95th (m)	0.2	0.7	0.0	0.0	0.4	0.0
Control Delay (s)	10.2	10.8	0.0	0.0	0.8	0.0
Lane LOS	B	B			A	
Approach Delay (s)	10.2	0.9			0.4	
Approach LOS	B					

Intersection Summary					
Average Delay	0.6				
Intersection Capacity Utilization	33.2%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	912	1421	35
Future Volume (Veh/h)	0	0	0	912	1421	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	912	1421	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)					143	
pX, platoon unblocked	0.81	0.81	0.81			
vC, conflicting volume	1877	710	1456			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1616	177	1097			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	77	677	513			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	456	456	710	710	35
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	35
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.27	0.27	0.42	0.42	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

Intersection Summary				
Average Delay			0.0	
Intersection Capacity Utilization		42.6%	ICU Level of Service	A
Analysis Period (min)			15	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	99	18	9	51	12	33
Future Volume (Veh/h)	99	18	9	51	12	33
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	99	18	9	51	12	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				175		
pX, platoon unblocked						
vC, conflicting volume			117		152	58
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			117		152	58
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	97
cM capacity (veh/h)			1469		820	995

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	66	51	26	34	45
Volume Left	0	0	9	0	12
Volume Right	0	18	0	0	33
cSH	1700	1700	1469	1700	941
Volume to Capacity	0.04	0.03	0.01	0.02	0.05
Queue Length 95th (m)	0.0	0.0	0.1	0.0	1.2
Control Delay (s)	0.0	0.0	2.6	0.0	9.0
Lane LOS			A		A
Approach Delay (s)	0.0		1.1		9.0
Approach LOS					A

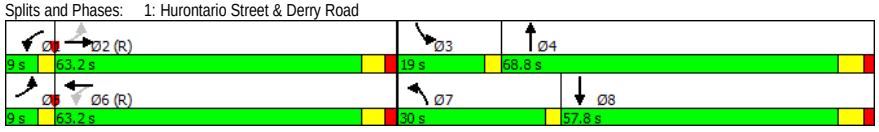
Intersection Summary				
Average Delay			2.1	
Intersection Capacity Utilization		17.2%	ICU Level of Service	A
Analysis Period (min)			15	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	102	952	135	1829	429	289	963	99	465
Future Volume (vph)	102	952	135	1829	429	289	963	99	465
Lane Group Flow (vph)	102	1054	135	1829	429	289	992	99	517
Turn Type	pm+pt	NA	pm+pt	NA	Free	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		Free				
Detector Phase	5	2	1	6		7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0		5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.7	8.0	59.7		8.0	57.9	8.0	56.0
Total Split (s)	9.0	63.2	9.0	63.2		30.0	68.8	19.0	57.8
Total Split (%)	5.6%	39.5%	5.6%	39.5%		18.8%	43.0%	11.9%	36.1%
Yellow Time (s)	3.0	4.3	3.0	4.3		3.0	4.7	3.0	4.7
All-Red Time (s)	0.0	2.4	0.0	2.4		0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		-3.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.7	3.0	6.7		0.0	6.9	3.0	6.9
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	Max	None	Max
v/c Ratio	0.90	0.63	0.86	0.93	0.28	0.89	0.67	0.68	0.47
Control Delay	93.5	44.6	77.2	59.8	0.4	88.3	51.8	93.4	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.5	44.6	77.2	59.8	0.4	88.3	51.8	93.4	44.6
Queue Length 50th (m)	20.4	106.4	27.8	197.2	0.0	96.1	140.9	32.6	72.4
Queue Length 95th (m)	#56.9	123.0	#61.4	216.8	0.0	#149.6	192.5	53.7	91.3
Internal Link Dist (m)		270.0		315.9			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	113	1672	157	1957	1541	331	1476	173	1090
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.63	0.86	0.93	0.28	0.87	0.67	0.57	0.47

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	952	102	135	1829	429	289	963	29	99	465	52
Future Volume (vph)	102	952	102	135	1829	429	289	963	29	99	465	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.7		3.0	6.7	4.0	0.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	0.91		1.00	*1.00	1.00	1.00	*1.00		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1733	4717		1576	5542	1541	1767	3663		1733	3369	
Flt Permitted	0.07	1.00		0.16	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	129	4717		266	5542	1541	1767	3663		1733	3369	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	102	952	102	135	1829	429	289	963	29	99	465	52
RTOR Reduction (vph)	0	8	0	0	0	0	0	1	0	0	5	0
Lane Group Flow (vph)	102	1046	0	135	1829	429	289	991	0	99	512	0
Confl. Peds. (#/hr)	45		130	130		45	8		139	139		8
Heavy Vehicles (%)	3%	9%	1%	13%	4%	1%	1%	3%	37%	3%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Free	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		Free						
Actuated Green, G (s)	62.5	56.5		62.5	56.5	160.0	26.4	64.4		13.5	51.5	
Effective Green, g (s)	62.5	56.5		62.5	56.5	160.0	29.4	64.4		13.5	51.5	
Actuated g/C Ratio	0.39	0.35		0.39	0.35	1.00	0.18	0.40		0.08	0.32	
Clearance Time (s)	3.0	6.7		3.0	6.7		3.0	6.9		3.0	6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	1665		153	1957	1541	324	1474		146	1084	
v/s Ratio Prot	c0.03	0.22		0.03	c0.33		c0.16	c0.27		0.06	0.15	
v/s Ratio Perm	0.33			0.31		0.28						
v/c Ratio	0.93	0.63		0.88	0.93	0.28	0.89	0.67		0.68	0.47	
Uniform Delay, d1	39.9	43.0		42.5	50.0	0.0	63.7	39.2		71.1	43.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.96	1.24		1.00	1.00	
Incremental Delay, d2	62.5	1.8		40.4	9.8	0.5	23.8	2.3		11.8	1.5	
Delay (s)	102.4	44.8		82.9	59.8	0.5	84.9	51.0		83.0	44.9	
Level of Service	F	D		F	E	A	F	D		F	D	
Approach Delay (s)		49.9			50.5			58.6			51.0	
Approach LOS		D			D			E			D	

Intersection Summary

HCM 2000 Control Delay	52.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	126.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	47	10	101	111	117	1118	14	755
Future Volume (vph)	47	10	101	111	117	1118	14	755
Lane Group Flow (vph)	47	128	101	210	117	1128	14	768
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	46.0	46.0	46.0	46.0	8.0	67.0	8.0	67.0
Total Split (s)	53.0	53.0	53.0	53.0	30.0	77.0	30.0	77.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	18.8%	48.1%	18.8%	48.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.65	0.30	0.72	0.44	0.66	0.42	0.22	0.33
Control Delay	103.7	13.4	93.4	35.9	86.9	8.3	107.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.7	13.4	93.4	35.9	86.9	8.3	107.4	5.4
Queue Length 50th (m)	15.3	1.5	33.1	18.1	38.5	52.1	4.7	11.2
Queue Length 95th (m)	29.7	11.6	52.4	30.4	59.3	107.8	m9.9	103.8
Internal Link Dist (m)		152.1		307.7		116.0		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	176	857	343	1013	301	2704	248	2362
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.15	0.29	0.21	0.39	0.42	0.06	0.33

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

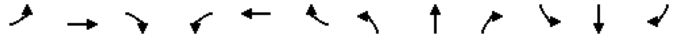
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	10	118	101	111	99	117	1118	10	14	755	13
Future Volume (vph)	47	10	118	101	111	99	117	1118	10	14	755	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.93		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1066	2690		1693	3282		1785	3534		1475	3493	
Flt Permitted	0.55	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	614	2690		1195	3282		1785	3534		1475	3493	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	47	10	118	101	111	99	117	1118	10	14	755	13
RTOR Reduction (vph)	0	104	0	0	87	0	0	0	0	0	0	0
Lane Group Flow (vph)	47	24	0	101	123	0	117	1128	0	14	768	0
Confl. Peds. (#/hr)	3		4	4		3	4		1	1		4
Heavy Vehicles (%)	67%	40%	13%	5%	4%	1%	0%	3%	20%	21%	4%	17%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	18.9	18.9		18.9	18.9		15.8	120.6		3.5	108.3	
Effective Green, g (s)	18.9	18.9		18.9	18.9		15.8	120.6		3.5	108.3	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.10	0.75		0.02	0.68	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	72	317		141	387		176	2663		32	2364	
v/s Ratio Prot		0.01			0.04		c0.07	c0.32		0.01	0.22	
v/s Ratio Perm	0.08			c0.08								
v/c Ratio	0.65	0.08		0.72	0.32		0.66	0.42		0.44	0.32	
Uniform Delay, d1	67.4	62.8		68.0	64.6		69.5	7.1		77.3	10.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.38	0.42	
Incremental Delay, d2	19.2	0.1		15.9	0.5		9.1	0.5		8.1	0.3	
Delay (s)	86.7	62.9		83.8	65.1		78.6	7.6		114.6	4.8	
Level of Service	F	E		F	E		E	A		F	A	
Approach Delay (s)		69.3			71.2			14.3			6.8	
Approach LOS		E			E			B			A	

Intersection Summary

HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0	
Intersection Capacity Utilization	90.9%	ICU Level of Service	E	
Analysis Period (min)	15			

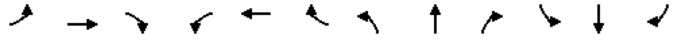
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	6	12	70	11	130	3	511	28	18	285	7
Future Volume (Veh/h)	29	6	12	70	11	130	3	511	28	18	285	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	29	6	12	70	11	130	3	511	28	18	285	7
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	724	870	147	724	860	270	293			539		
vC1, stage 1 conf vol	326	326		531	531							
vC2, stage 2 conf vol	398	545		194	329							
vCu, unblocked vol	724	870	147	724	860	270	293			539		
tC, single (s)	7.5	6.5	6.9	7.6	6.5	6.9	4.1			4.8		
tC, 2 stage (s)	6.5	5.5		6.6	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.5		
p0 queue free %	93	99	99	85	98	82	100			98		
cM capacity (veh/h)	422	450	879	452	464	727	1279			838		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	70	141	3	341	198	18	190	102
Volume Left	29	70	0	3	0	0	18	0	0
Volume Right	12	0	130	0	0	28	0	0	7
cSH	491	452	696	1279	1700	1700	838	1700	1700
Volume to Capacity	0.10	0.15	0.20	0.00	0.20	0.12	0.02	0.11	0.06
Queue Length 95th (m)	2.5	4.3	6.0	0.1	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	13.1	14.4	11.5	7.8	0.0	0.0	9.4	0.0	0.0
Lane LOS	B	B	B	A			A		
Approach Delay (s)	13.1	12.5		0.0			0.5		
Approach LOS	B	B							

Intersection Summary					
Average Delay	3.1				
Intersection Capacity Utilization	37.2%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	13	0	13	20	547	4	7	360	10
Future Volume (Veh/h)	0	0	0	13	0	13	20	547	4	7	360	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	13	0	13	20	547	4	7	360	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	706	970	185	783	973	276	370			551		
vC1, stage 1 conf vol	379	379		589	589							
vC2, stage 2 conf vol	326	591		194	384							
vCu, unblocked vol	706	970	185	783	973	276	370			551		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	6.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	97	100	98	97			99		
cM capacity (veh/h)	506	417	832	424	417	722	705			1015		

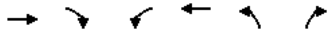
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	26	20	365	186	187	190
Volume Left	13	20	0	0	7	0
Volume Right	13	0	0	4	0	10
cSH	534	705	1700	1700	1015	1700
Volume to Capacity	0.05	0.03	0.21	0.11	0.01	0.11
Queue Length 95th (m)	1.2	0.7	0.0	0.0	0.2	0.0
Control Delay (s)	12.1	10.3	0.0	0.0	0.4	0.0
Lane LOS	B	B			A	
Approach Delay (s)	12.1	0.4			0.2	
Approach LOS	B					

Intersection Summary					
Average Delay	0.6				
Intersection Capacity Utilization	26.6%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1245	954	42
Future Volume (Veh/h)	0	0	0	1245	954	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	1245	954	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					140	
pX, platoon unblocked	0.91	0.91	0.91			
vC, conflicting volume	1576	477	996			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1442	239	807			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	113	697	744			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	622	622	477	477	42
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	42
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.37	0.37	0.28	0.28	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization	37.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	34	19	22	195	16	39
Future Volume (Veh/h)	34	19	22	195	16	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	34	19	22	195	16	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				176		
pX, platoon unblocked						
vC, conflicting volume			53		185	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			53		185	26
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	96
cM capacity (veh/h)			1551		776	1043

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	23	30	87	130	55
Volume Left	0	0	22	0	16
Volume Right	0	19	0	0	39
cSH	1700	1700	1551	1700	948
Volume to Capacity	0.01	0.02	0.01	0.08	0.06
Queue Length 95th (m)	0.0	0.0	0.3	0.0	1.5
Control Delay (s)	0.0	0.0	1.9	0.0	9.0
Lane LOS			A		A
Approach Delay (s)	0.0		0.8		9.0
Approach LOS					A

Intersection Summary				
Average Delay		2.0		
Intersection Capacity Utilization	19.3%	ICU Level of Service		A
Analysis Period (min)	15			

Queues

FT (2024) Sat

1: Hurontario Street & Derry Road

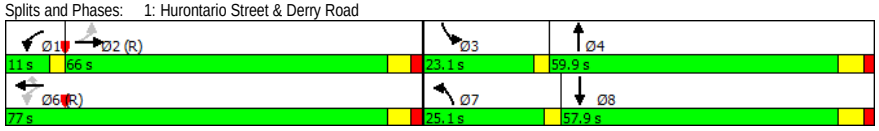
19310 | 6710 Hurontario St

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	86	1020	135	1106	271	198	525	159	541
Future Volume (vph)	86	1020	135	1106	271	198	525	159	541
Lane Group Flow (vph)	86	1203	135	1106	271	198	597	159	601
Turn Type	Perm	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2	1	6		7	4	3	8
Permitted Phases	2		6		6				
Detector Phase	2	2	1	6	6	7	4	3	8
Switch Phase									
Minimum Initial (s)	12.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	59.7	59.7	8.0	59.7	59.7	8.0	57.9	8.0	57.9
Total Split (s)	66.0	66.0	11.0	77.0	77.0	25.1	59.9	23.1	57.9
Total Split (%)	41.3%	41.3%	6.9%	48.1%	48.1%	15.7%	37.4%	14.4%	36.2%
Yellow Time (s)	4.3	4.3	3.0	4.3	4.3	3.0	4.7	3.0	4.7
All-Red Time (s)	2.4	2.4	0.0	2.4	2.4	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	3.0	6.7	6.7	2.0	6.9	3.0	6.9
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None
v/c Ratio	0.61	0.67	0.77	0.49	0.34	0.83	0.35	0.80	0.36
Control Delay	62.5	43.3	55.1	33.0	4.0	88.6	37.0	96.8	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.5	43.3	55.1	33.0	4.0	88.6	37.0	96.8	41.2
Queue Length 50th (m)	23.4	120.8	26.0	96.0	0.0	65.0	55.7	52.0	56.0
Queue Length 95th (m)	#48.4	138.3	#51.1	110.0	17.4	#103.1	68.0	#84.0	68.4
Internal Link Dist (m)		266.2		323.6			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	140	1805	175	2259	796	257	1695	219	1651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.67	0.77	0.49	0.34	0.77	0.35	0.73	0.36

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 80 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



HCM Signalized Intersection Capacity Analysis

FT (2024) Sat

1: Hurontario Street & Derry Road

19310 | 6710 Hurontario St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1020	183	135	1106	271	198	525	72	159	541	60
Future Volume (vph)	86	1020	183	135	1106	271	198	525	72	159	541	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.7	6.7		3.0	6.7	6.7	2.0	6.9		3.0	6.9	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.93	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1712	4829		1732	5142	1467	1785	4909		1750	5003	
Flt Permitted	0.21	1.00		0.12	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	380	4829		217	5142	1467	1785	4909		1750	5003	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	1020	183	135	1106	271	198	525	72	159	541	60
RTOR Reduction (vph)	0	16	0	0	0	152	0	11	0	0	8	0
Lane Group Flow (vph)	86	1187	0	135	1106	119	198	586	0	159	593	0
Confl. Peds. (#/hr)	68		48	48		68	25		47	47		25
Heavy Vehicles (%)	3%	6%	1%	3%	2%	1%	0%	3%	13%	2%	3%	2%
Turn Type	Perm	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6						
Actuated Green, G (s)	59.3	59.3		70.3	70.3	70.3	20.5	54.9		18.2	52.6	
Effective Green, g (s)	59.3	59.3		70.3	70.3	70.3	21.5	54.9		18.2	52.6	
Actuated g/C Ratio	0.37	0.37		0.44	0.44	0.44	0.13	0.34		0.11	0.33	
Clearance Time (s)	6.7	6.7		3.0	6.7	6.7	3.0	6.9		3.0	6.9	
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)	140	1789		171	2259	644	239	1684		199	1644	
v/s Ratio Prot		0.25		c0.04	0.22		c0.11	c0.12		0.09	0.12	
v/s Ratio Perm	0.23			c0.31		0.08						
v/c Ratio	0.61	0.66		0.79	0.49	0.18	0.83	0.35		0.80	0.36	
Uniform Delay, d1	41.0	42.0		31.2	32.0	27.4	67.5	39.2		69.1	40.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.93	0.94		1.00	1.00	
Incremental Delay, d2	18.5	2.0		21.1	0.8	0.6	20.1	0.6		19.7	0.1	
Delay (s)	59.5	44.0		52.3	32.8	28.0	82.6	37.6		88.8	41.0	
Level of Service	E	D		D	C	C	F	D		F	D	
Approach Delay (s)		45.0			33.7			48.8			51.0	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	125.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	46	4	8	3	34	802	8	715
Future Volume (vph)	46	4	8	3	34	802	8	715
Lane Group Flow (vph)	46	26	8	18	34	808	8	725
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	46.0	46.0	46.0	46.0	8.0	67.0	8.0	67.0
Total Split (s)	58.0	58.0	58.0	58.0	22.0	80.0	22.0	80.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	13.8%	50.0%	13.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	C-Max
v/c Ratio	0.54	0.05	0.08	0.04	0.36	0.27	0.11	0.25
Control Delay	92.8	0.2	68.1	0.1	82.9	3.7	72.9	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.8	0.2	68.1	0.1	82.9	3.7	72.9	3.7
Queue Length 50th (m)	15.2	0.0	2.6	0.0	11.2	23.9	2.7	23.1
Queue Length 95th (m)	29.3	0.0	8.4	0.0	23.4	52.4	m6.2	33.3
Internal Link Dist (m)		151.1		307.7		118.2		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	376	1160	442	1158	211	3044	211	2872
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	0.02	0.02	0.02	0.16	0.27	0.04	0.25

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

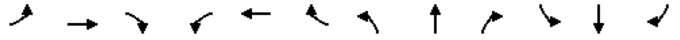
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	4	22	8	3	15	34	802	6	8	715	10
Future Volume (vph)	46	4	22	8	3	15	34	802	6	8	715	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.88		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	2926		1783	2975		1785	3575		1785	3571	
Flt Permitted	0.75	1.00		0.74	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1181	2926		1388	2975		1785	3575		1785	3571	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	46	4	22	8	3	15	34	802	6	8	715	10
RTOR Reduction (vph)	0	24	0	0	17	0	0	0	0	0	0	0
Lane Group Flow (vph)	46	2	0	8	1	0	34	808	0	8	725	0
Confl. Peds. (#/hr)	4		1	1		4	1		4	4		1
Heavy Vehicles (%)	18%	50%	0%	0%	0%	7%	0%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	10.4	10.4		10.4	10.4		7.4	131.1		1.5	125.2	
Effective Green, g (s)	10.4	10.4		10.4	10.4		7.4	131.1		1.5	125.2	
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.05	0.82		0.01	0.78	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	76	190		90	193		82	2929		16	2794	
v/s Ratio Prot		0.00			0.00		c0.02	c0.23		0.00	0.20	
v/s Ratio Perm	c0.04			0.01								
v/c Ratio	0.61	0.01		0.09	0.01		0.41	0.28		0.50	0.26	
Uniform Delay, d1	72.8	70.0		70.3	70.0		74.2	3.4		78.9	4.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.95	0.64	
Incremental Delay, d2	12.9	0.0		0.4	0.0		3.4	0.2		20.1	0.2	
Delay (s)	85.7	70.0		70.8	70.0		77.6	3.6		95.0	3.2	
Level of Service	F	E		E	E		E	A		F	A	
Approach Delay (s)		80.0			70.2			6.6			4.2	
Approach LOS		F			E			A			A	

Intersection Summary

HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

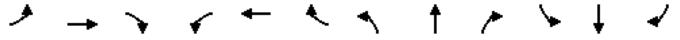
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	41	34	9	18	20	31	64	16	9	61	68
Future Volume (Veh/h)	124	41	34	9	18	20	31	64	16	9	61	68
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	124	41	34	9	18	20	31	64	16	9	61	68
Pedestrians					3			1				
Lane Width (m)					4.2			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	236	258	66	241	284	43	129			83		
vC1, stage 1 conf vol	113	113		137	137							
vC2, stage 2 conf vol	123	145		104	147							
vCu, unblocked vol	236	258	66	241	284	43	129			83		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.9		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	84	94	97	99	97	98	98			99		
cM capacity (veh/h)	759	707	991	728	689	1022	1447			1270		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	199	9	38	31	43	37	9	41	88
Volume Left	124	9	0	31	0	0	9	0	0
Volume Right	34	0	20	0	0	16	0	0	68
cSH	778	728	831	1447	1700	1700	1270	1700	1700
Volume to Capacity	0.26	0.01	0.05	0.02	0.03	0.02	0.01	0.02	0.05
Queue Length 95th (m)	8.1	0.3	1.1	0.5	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	11.2	10.0	9.5	7.5	0.0	0.0	7.9	0.0	0.0
Lane LOS	B	B	A	A			A		
Approach Delay (s)	11.2	9.6		2.1			0.5		
Approach LOS	B	A							

Intersection Summary				
Average Delay	6.0			
Intersection Capacity Utilization	35.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	22	117	0	0	91	8
Future Volume (Veh/h)	0	0	0	0	0	0	22	117	0	0	91	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	0	0	0	22	117	0	0	91	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	198	256	50	206	260	58	99			117		
vC1, stage 1 conf vol	95	95		161	161							
vC2, stage 2 conf vol	102	161		46	99							
vCu, unblocked vol	198	256	50	206	260	58	99			117		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	6.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	100	100	100	98			100		
cM capacity (veh/h)	819	707	1015	779	702	995	994			1469		

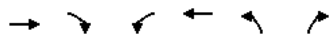
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	0	22	58	58	61	38
Volume Left	0	22	0	0	0	0
Volume Right	0	0	0	0	0	8
cSH	1700	994	1700	1700	1700	1700
Volume to Capacity	0.00	0.02	0.03	0.03	0.04	0.02
Queue Length 95th (m)	0.0	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	8.7	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0	1.4			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	11.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	842	710	57
Future Volume (Veh/h)	0	0	0	842	710	57
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	842	710	57
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					142	
pX, platoon unblocked	0.95	0.95	0.95			
vC, conflicting volume	1131	355	767			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1036	221	654			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	216	745	884			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	421	421	355	355	57
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	57
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.25	0.25	0.21	0.21	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization	26.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	51	15	22	27	20	36
Future Volume (Veh/h)	51	15	22	27	20	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	51	15	22	27	20	36
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				175		
pX, platoon unblocked						
vC, conflicting volume			66		116	33
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			66		116	33
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	97
cM capacity (veh/h)			1534		855	1033

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	34	32	31	18	56
Volume Left	0	0	22	0	20
Volume Right	0	15	0	0	36
cSH	1700	1700	1534	1700	962
Volume to Capacity	0.02	0.02	0.01	0.01	0.06
Queue Length 95th (m)	0.0	0.0	0.3	0.0	1.5
Control Delay (s)	0.0	0.0	5.3	0.0	9.0
Lane LOS			A		A
Approach Delay (s)	0.0		3.3		9.0
Approach LOS					A

Intersection Summary				
Average Delay		3.9		
Intersection Capacity Utilization	17.9%	ICU Level of Service		A
Analysis Period (min)	15			

APPENDIX F

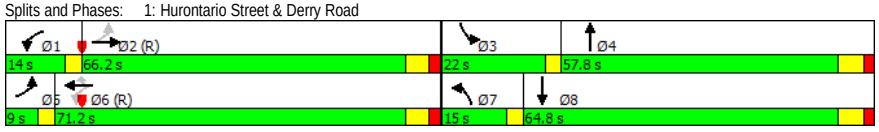
Intersection Capacity Analysis – Future Total (2031) Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	74	1736	135	956	167	112	454	197	1168
Future Volume (vph)	74	1736	135	956	167	112	454	197	1168
Lane Group Flow (vph)	74	1892	135	956	167	112	525	197	1204
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		6				
Detector Phase	5	2	1	6	6	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.7	8.0	59.7	59.7	8.0	57.8	8.0	57.8
Total Split (s)	9.0	66.2	14.0	71.2	71.2	15.0	57.8	22.0	64.8
Total Split (%)	5.6%	41.4%	8.8%	44.5%	44.5%	9.4%	36.1%	13.8%	40.5%
Yellow Time (s)	3.0	4.3	3.0	4.3	4.3	3.0	4.6	3.0	4.6
All-Red Time (s)	0.0	2.4	0.0	2.4	2.4	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-3.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.7	3.0	6.7	6.7	0.0	6.8	3.0	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	Max	None	Max
v/c Ratio	0.33	0.93	0.93	0.50	0.25	0.73	0.51	0.95	0.89
Control Delay	26.9	57.4	95.7	36.9	4.9	101.8	40.1	119.6	57.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	57.4	95.7	36.9	4.9	101.8	40.1	119.6	57.2
Queue Length 50th (m)	13.2	201.8	30.8	87.3	0.0	38.7	53.4	66.6	189.8
Queue Length 95th (m)	23.5	221.5	#75.9	101.6	15.6	#69.3	64.9	#119.4	220.4
Internal Link Dist (m)		263.7		443.5			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	226	2028	145	1904	674	156	1025	207	1352
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.93	0.93	0.50	0.25	0.72	0.51	0.95	0.89

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 94 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1736	156	135	956	167	112	454	71	197	1168	36
Future Volume (vph)	74	1736	156	135	956	167	112	454	71	197	1168	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.7		3.0	6.7	6.7	0.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	*1.00		1.00	0.91	1.00	1.00	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1698	5433		1513	4725	1426	1668	3192		1750	3706	
Flt Permitted	0.23	1.00		0.06	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	415	5433		102	4725	1426	1668	3192		1750	3706	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	1736	156	135	956	167	112	454	71	197	1168	36
RTOR Reduction (vph)	0	8	0	0	0	100	0	7	0	0	1	0
Lane Group Flow (vph)	74	1884	0	135	956	67	112	518	0	197	1203	0
Confl. Peds. (#/hr)	27		119	119		27	30		78	78		30
Heavy Vehicles (%)	5%	4%	1%	18%	11%	8%	7%	9%	22%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6						
Actuated Green, G (s)	65.5	59.5		73.5	64.5	64.5	11.7	51.0		19.0	58.3	
Effective Green, g (s)	65.5	59.5		73.5	64.5	64.5	14.7	51.0		19.0	58.3	
Actuated g/C Ratio	0.41	0.37		0.46	0.40	0.40	0.09	0.32		0.12	0.36	
Clearance Time (s)	3.0	6.7		3.0	6.7	6.7	3.0	6.8		3.0	6.8	
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)	218	2020		143	1904	574	153	1017		207	1350	
v/s Ratio Prot	0.01	0.35		c0.06	0.20		0.07	0.16		c0.11	c0.32	
v/s Ratio Perm	0.13			c0.37		0.05						
v/c Ratio	0.34	0.93		0.94	0.50	0.12	0.73	0.51		0.95	0.89	
Uniform Delay, d1	29.7	48.3		45.3	35.7	29.9	70.7	44.3		70.0	47.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.08	0.88		1.00	1.00	
Incremental Delay, d2	0.9	9.4		58.1	0.9	0.4	16.0	1.8		48.7	9.2	
Delay (s)	30.6	57.8		103.4	36.7	30.3	92.3	40.7		118.7	57.0	
Level of Service	C	E		F	D	C	F	D		F	E	
Approach Delay (s)		56.7			43.0			49.8			65.7	
Approach LOS		E			D			D			E	

Intersection Summary

HCM 2000 Control Delay	55.0	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)	19.5
Intersection Capacity Utilization	123.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	16	45	17	12	135	712	101	1358
Future Volume (vph)	16	45	17	12	135	712	101	1358
Lane Group Flow (vph)	16	132	17	21	135	782	101	1371
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	47.0	47.0	47.0	47.0	8.0	65.0	8.0	65.0
Total Split (s)	54.0	54.0	54.0	54.0	19.0	87.0	19.0	87.0
Total Split (%)	33.8%	33.8%	33.8%	33.8%	11.9%	54.4%	11.9%	54.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.23	0.50	0.34	0.12	0.68	0.32	0.65	0.55
Control Delay	79.1	33.7	89.3	49.0	83.5	7.5	80.9	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.1	33.7	89.3	49.0	83.5	7.5	80.9	3.2
Queue Length 50th (m)	5.3	7.7	5.6	2.0	43.8	40.3	35.0	26.7
Queue Length 95th (m)	13.7	19.3	14.5	7.0	66.4	62.5	m38.3	m35.1
Internal Link Dist (m)		153.1		307.7		119.1		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	384	1064	280	907	203	2482	180	2499
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	0.04	0.12	0.06	0.02	0.67	0.32	0.56	0.55

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

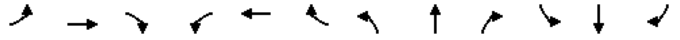
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	45	87	17	12	9	135	712	70	101	1358	13
Future Volume (vph)	16	45	87	17	12	9	135	712	70	101	1358	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.8	3.6	3.0	3.6	3.6	3.2	3.6	3.6	3.2	3.6	3.2
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1673	3416		1357	3066		1582	3315		1691	3496	
Flt Permitted	0.74	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1308	3416		955	3066		1582	3315		1691	3496	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	45	87	17	12	9	135	712	70	101	1358	13
RTOR Reduction (vph)	0	82	0	0	9	0	0	2	0	0	0	0
Lane Group Flow (vph)	16	50	0	17	12	0	135	780	0	101	1371	0
Confl. Peds. (#/hr)	6		1	1		6	1		5	5		1
Heavy Vehicles (%)	0%	7%	7%	24%	8%	11%	9%	8%	0%	2%	3%	14%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	8.5	8.5		8.5	8.5		20.1	119.7		14.8	114.4	
Effective Green, g (s)	8.5	8.5		8.5	8.5		20.1	119.7		14.8	114.4	
Actuated g/C Ratio	0.05	0.05		0.05	0.05		0.13	0.75		0.09	0.72	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	69	181		50	162		198	2480		156	2499	
v/s Ratio Prot		0.01			0.00		c0.09	0.24		0.06	c0.39	
v/s Ratio Perm	0.01			c0.02								
v/c Ratio	0.23	0.27		0.34	0.08		0.68	0.31		0.65	0.55	
Uniform Delay, d1	72.6	72.8		73.0	72.0		66.9	6.6		70.1	10.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.04	0.25	
Incremental Delay, d2	1.7	0.8		4.0	0.2		9.3	0.3		4.0	0.4	
Delay (s)	74.3	73.6		77.1	72.2		76.2	7.0		77.0	3.0	
Level of Service	E	E		E	E		E	A		E	A	
Approach Delay (s)		73.7			74.4			17.2			8.1	
Approach LOS		E			E			B			A	

Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

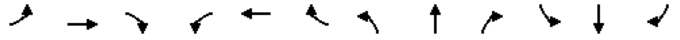
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	4	19	2	30	11	166	25	69	445	22
Future Volume (Veh/h)	6	5	4	19	2	30	11	166	25	69	445	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	6	5	4	19	2	30	11	166	25	69	445	22
Pedestrians		1			2			4				
Lane Width (m)		3.6			4.2			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	731	810	238	574	808	98	468			193		
vC1, stage 1 conf vol	595	595		202	202							
vC2, stage 2 conf vol	136	215		371	606							
vCu, unblocked vol	731	810	238	574	808	98	468			193		
tC, single (s)	7.5	6.5	7.9	7.9	6.5	7.0	4.3			4.2		
tC, 2 stage (s)	6.5	5.5		6.9	5.5							
tF (s)	3.5	4.0	3.8	3.7	4.0	3.3	2.3			2.2		
p0 queue free %	99	99	99	96	100	97	99			95		
cM capacity (veh/h)	417	435	632	485	429	935	1041			1361		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	15	19	32	11	111	80	69	297	170
Volume Left	6	19	0	11	0	0	69	0	0
Volume Right	4	0	30	0	0	25	0	0	22
cSH	466	485	871	1041	1700	1700	1361	1700	1700
Volume to Capacity	0.03	0.04	0.04	0.01	0.07	0.05	0.05	0.17	0.10
Queue Length 95th (m)	0.8	1.0	0.9	0.3	0.0	0.0	1.3	0.0	0.0
Control Delay (s)	13.0	12.7	9.3	8.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	B	A	A			A		
Approach Delay (s)	13.0	10.6		0.5			1.0		
Approach LOS	B	B							

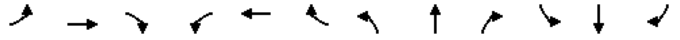
Intersection Summary					
Average Delay	1.7				
Intersection Capacity Utilization	33.4%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	15	0	8	19	193	13	26	446	13
Future Volume (Veh/h)	0	0	0	15	0	8	19	193	13	26	446	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	15	0	8	19	193	13	26	446	13
Pedestrians								2				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	647	748	232	514	748	103	459			206		
vC1, stage 1 conf vol	504	504		238	238							
vC2, stage 2 conf vol	142	244		277	511							
vCu, unblocked vol	647	748	232	514	748	103	459			206		
tC, single (s)	7.5	6.5	6.9	8.0	6.5	6.9	6.0			4.2		
tC, 2 stage (s)	6.5	5.5		7.0	5.5							
tF (s)	3.5	4.0	3.3	3.8	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	97	100	99	97			98		
cM capacity (veh/h)	486	482	776	536	473	938	646			1341		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	23	19	129	77	26	297	162
Volume Left	15	19	0	0	26	0	0
Volume Right	8	0	0	13	0	0	13
cSH	630	646	1700	1700	1341	1700	1700
Volume to Capacity	0.04	0.03	0.08	0.05	0.02	0.17	0.10
Queue Length 95th (m)	0.9	0.7	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	10.9	10.7	0.0	0.0	7.7	0.0	0.0
Lane LOS	B	B			A		
Approach Delay (s)	10.9	0.9			0.4		
Approach LOS	B						

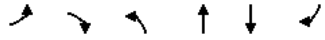
Intersection Summary					
Average Delay	0.9				
Intersection Capacity Utilization	34.1%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	9	0	0	17	28	0	0	0	17	0	0
Future Volume (Veh/h)	0	9	0	0	17	28	0	0	0	17	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	9	0	0	17	28	0	0	0	17	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	70	34	0	38	34	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	70	34	0	38	34	0	0			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	100	100	98	97	100			99		
cM capacity (veh/h)	877	850	1085	951	850	1085	1623			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	45	0	17
Volume Left	0	0	0	17
Volume Right	0	28	0	0
cSH	850	982	1700	1623
Volume to Capacity	0.01	0.05	0.00	0.01
Queue Length 95th (m)	0.3	1.2	0.0	0.3
Control Delay (s)	9.3	8.8	0.0	7.2
Lane LOS	A	A		A
Approach Delay (s)	9.3	8.8	0.0	7.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	8.5			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	917	1419	27
Future Volume (Veh/h)	0	0	0	917	1419	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	917	1419	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					143	
pX, platoon unblocked	0.81	0.81	0.81			
vC, conflicting volume	1878	710	1446			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1618	181	1087			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	76	675	518			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	458	458	710	710	27
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	27
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.27	0.27	0.42	0.42	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	42.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	99	0	17	51	0	28
Future Volume (Veh/h)	99	0	17	51	0	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	99	0	17	51	0	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				177		
pX, platoon unblocked						
vC, conflicting volume			99		158	50
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			99		158	50
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	97
cM capacity (veh/h)			1492		808	1008

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	66	33	34	34	28
Volume Left	0	0	17	0	0
Volume Right	0	0	0	0	28
cSH	1700	1700	1492	1700	1008
Volume to Capacity	0.04	0.02	0.01	0.02	0.03
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.7
Control Delay (s)	0.0	0.0	3.8	0.0	8.7
Lane LOS			A		A
Approach Delay (s)	0.0		1.9		8.7
Approach LOS					A

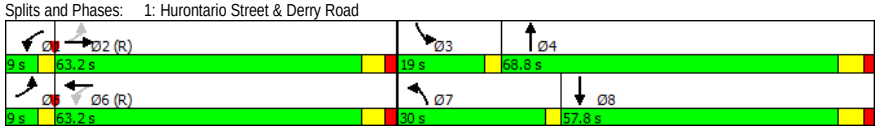
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	106	983	140	1890	443	283	956	99	466
Future Volume (vph)	106	983	140	1890	443	283	956	99	466
Lane Group Flow (vph)	106	1088	140	1890	443	283	985	99	518
Turn Type	pm+pt	NA	pm+pt	NA	Free	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		7	4	3	8
Permitted Phases	2		6		Free				
Detector Phase	5	2	1	6		7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	12.0	5.0	12.0		5.0	12.0	5.0	12.0
Minimum Split (s)	8.0	59.7	8.0	59.7		8.0	57.9	8.0	57.8
Total Split (s)	9.0	63.2	9.0	63.2		30.0	68.8	19.0	57.8
Total Split (%)	5.6%	39.5%	5.6%	39.5%		18.8%	43.0%	11.9%	36.1%
Yellow Time (s)	3.0	4.3	3.0	4.3		3.0	4.6	3.0	4.6
All-Red Time (s)	0.0	2.4	0.0	2.4		0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.7	3.0	6.7		3.0	6.8	3.0	6.8
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	Max	None	Max
v/c Ratio	0.94	0.65	0.93	0.97	0.29	0.96	0.70	0.68	0.48
Control Delay	101.8	45.1	91.9	64.3	0.5	102.4	54.0	93.4	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.8	45.1	91.9	64.3	0.5	102.4	54.0	93.4	44.8
Queue Length 50th (m)	21.3	110.8	29.0	207.1	0.0	96.0	149.6	32.6	72.5
Queue Length 95th (m)	#59.7	127.9	#67.7	#237.5	0.0	#156.5	204.3	53.7	91.3
Internal Link Dist (m)		270.0		315.9			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	113	1674	151	1957	1541	298	1404	173	1083
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.65	0.93	0.97	0.29	0.95	0.70	0.57	0.48

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	983	105	140	1890	443	283	956	29	99	466	52
Future Volume (vph)	106	983	105	140	1890	443	283	956	29	99	466	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.7		3.0	6.7	4.0	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	*1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1733	4717		1576	5542	1541	1767	3480		1733	3369	
Flt Permitted	0.07	1.00		0.15	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	129	4717		248	5542	1541	1767	3480		1733	3369	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	983	105	140	1890	443	283	956	29	99	466	52
RTOR Reduction (vph)	0	8	0	0	0	0	0	1	0	0	5	0
Lane Group Flow (vph)	106	1080	0	140	1890	443	283	984	0	99	513	0
Confl. Peds. (#/hr)	45		130	130		45	8		139	139		8
Heavy Vehicles (%)	3%	9%	1%	13%	4%	1%	1%	3%	37%	3%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Free	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		Free						
Actuated Green, G (s)	62.5	56.5		62.5	56.5	160.0	26.8	64.5		13.5	51.2	
Effective Green, g (s)	62.5	56.5		62.5	56.5	160.0	26.8	64.5		13.5	51.2	
Actuated g/C Ratio	0.39	0.35		0.39	0.35	1.00	0.17	0.40		0.08	0.32	
Clearance Time (s)	3.0	6.7		3.0	6.7		3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	1665		146	1957	1541	295	1402		146	1078	
v/s Ratio Prot	c0.04	0.23		0.04	c0.34		c0.16	c0.28		0.06	0.15	
v/s Ratio Perm	0.34			0.34		0.29						
v/c Ratio	0.96	0.65		0.96	0.97	0.29	0.96	0.70		0.68	0.48	
Uniform Delay, d1	41.9	43.4		44.4	50.8	0.0	66.1	39.7		71.1	43.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.95	1.27		1.00	1.00	
Incremental Delay, d2	73.7	2.0		61.3	13.7	0.5	39.4	2.8		11.8	1.5	
Delay (s)	115.7	45.4		105.7	64.5	0.5	101.9	53.1		83.0	45.1	
Level of Service	F	D		F	E	A	F	D		F	D	
Approach Delay (s)		51.6			55.4			64.0			51.2	
Approach LOS		D			E			E			D	

Intersection Summary

HCM 2000 Control Delay	56.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	128.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	34	10	101	111	122	1118	14	755
Future Volume (vph)	34	10	101	111	122	1118	14	755
Lane Group Flow (vph)	34	145	101	210	122	1128	14	769
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	44.0	44.0	44.0	44.0	8.0	32.0	8.0	32.0
Total Split (s)	53.0	53.0	53.0	53.0	30.0	77.0	30.0	77.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	18.8%	48.1%	18.8%	48.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.47	0.33	0.72	0.44	0.68	0.42	0.22	0.33
Control Delay	83.3	12.6	93.5	35.7	87.1	8.4	108.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.3	12.6	93.5	35.7	87.1	8.4	108.6	5.7
Queue Length 50th (m)	10.8	1.5	33.1	18.1	40.1	52.6	4.8	12.0
Queue Length 95th (m)	22.6	12.2	52.4	30.4	61.2	108.7	m9.4	m103.0
Internal Link Dist (m)		157.1		307.7		116.0		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	177	869	338	1013	301	2699	248	2347
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	0.19	0.17	0.30	0.21	0.41	0.42	0.06	0.33

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

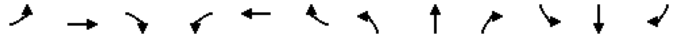
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	10	135	101	111	99	122	1118	10	14	755	14
Future Volume (vph)	34	10	135	101	111	99	122	1118	10	14	755	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.93		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1066	2691		1693	3282		1785	3533		1475	3491	
Flt Permitted	0.55	1.00		0.66	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	616	2691		1176	3282		1785	3533		1475	3491	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	10	135	101	111	99	122	1118	10	14	755	14
RTOR Reduction (vph)	0	119	0	0	87	0	0	0	0	0	0	0
Lane Group Flow (vph)	34	26	0	101	123	0	122	1128	0	14	769	0
Confl. Peds. (#/hr)	3		4	4		3	4		1	1		4
Heavy Vehicles (%)	67%	40%	13%	5%	4%	1%	0%	3%	20%	21%	4%	17%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	19.2	19.2		19.2	19.2		16.2	120.3		3.5	107.6	
Effective Green, g (s)	19.2	19.2		19.2	19.2		16.2	120.3		3.5	107.6	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.10	0.75		0.02	0.67	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	73	322		141	393		180	2656		32	2347	
v/s Ratio Prot		0.01			0.04		c0.07	c0.32		0.01	0.22	
v/s Ratio Perm	0.06			c0.09								
v/c Ratio	0.47	0.08		0.72	0.31		0.68	0.42		0.44	0.33	
Uniform Delay, d1	65.6	62.6		67.8	64.4		69.4	7.2		77.3	11.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.40	0.44	
Incremental Delay, d2	4.6	0.1		15.9	0.5		9.7	0.5		8.0	0.3	
Delay (s)	70.3	62.7		83.7	64.8		79.1	7.7		115.9	5.1	
Level of Service	E	E		F	E		E	A		F	A	
Approach Delay (s)		64.1			70.9			14.7			7.1	
Approach LOS		E			E			B			A	

Intersection Summary

HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0	
Intersection Capacity Utilization	72.6%	ICU Level of Service	C	
Analysis Period (min)	15			

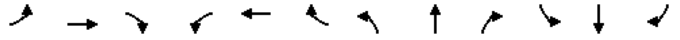
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	6	12	68	11	116	3	516	13	15	289	7
Future Volume (Veh/h)	29	6	12	68	11	116	3	516	13	15	289	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	29	6	12	68	11	116	3	516	13	15	289	7
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	710	858	149	718	856	266	297			529		
vC1, stage 1 conf vol	324	324		528	528							
vC2, stage 2 conf vol	386	535		190	327							
vCu, unblocked vol	710	858	149	718	856	266	297			529		
tC, single (s)	7.5	6.5	6.9	7.6	6.5	6.9	4.1			4.8		
tC, 2 stage (s)	6.5	5.5		6.6	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.5		
p0 queue free %	93	99	99	85	98	84	100			98		
cM capacity (veh/h)	439	457	876	455	466	732	1275			847		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	68	127	3	344	185	15	193	103
Volume Left	29	68	0	3	0	0	15	0	0
Volume Right	12	0	116	0	0	13	0	0	7
cSH	506	455	698	1275	1700	1700	847	1700	1700
Volume to Capacity	0.09	0.15	0.18	0.00	0.20	0.11	0.02	0.11	0.06
Queue Length 95th (m)	2.4	4.2	5.3	0.1	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	12.8	14.3	11.3	7.8	0.0	0.0	9.3	0.0	0.0
Lane LOS	B	B	B	A			A		
Approach Delay (s)	12.8	12.4		0.0			0.4		
Approach LOS	B	B							

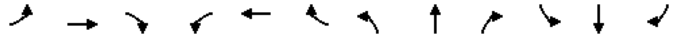
Intersection Summary					
Average Delay	2.9				
Intersection Capacity Utilization	36.0%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	26	0	18	20	532	12	11	358	10
Future Volume (Veh/h)	0	0	0	26	0	18	20	532	12	11	358	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	26	0	18	20	532	12	11	358	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	709	969	184	779	968	272	368			544		
vC1, stage 1 conf vol	385	385		578	578							
vC2, stage 2 conf vol	324	584		201	390							
vCu, unblocked vol	709	969	184	779	968	272	368			544		
tC, single (s)	7.5	6.5	6.9	7.7	6.5	7.2	6.1			4.7		
tC, 2 stage (s)	6.5	5.5		6.7	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	3.2			2.5		
p0 queue free %	100	100	100	94	100	97	97			99		
cM capacity (veh/h)	499	420	833	415	423	688	707			855		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	44	20	355	189	11	239	129
Volume Left	26	20	0	0	11	0	0
Volume Right	18	0	0	12	0	0	10
cSH	495	707	1700	1700	855	1700	1700
Volume to Capacity	0.09	0.03	0.21	0.11	0.01	0.14	0.08
Queue Length 95th (m)	2.3	0.7	0.0	0.0	0.3	0.0	0.0
Control Delay (s)	13.0	10.2	0.0	0.0	9.3	0.0	0.0
Lane LOS	B	B			A		
Approach Delay (s)	13.0	0.4			0.3		
Approach LOS	B						

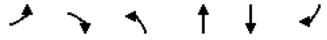
Intersection Summary					
Average Delay	0.9				
Intersection Capacity Utilization	26.6%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	12	0	0	17	43	0	0	0	28	0	0
Future Volume (Veh/h)	0	12	0	0	17	43	0	0	0	28	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	12	0	0	17	43	0	0	0	28	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	108	56	0	62	56	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	108	56	0	62	56	0	0			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	100	100	98	96	100			98		
cM capacity (veh/h)	813	821	1085	910	821	1085	1623			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	60	0	28
Volume Left	0	0	0	28
Volume Right	0	43	0	0
cSH	821	994	1700	1623
Volume to Capacity	0.01	0.06	0.00	0.02
Queue Length 95th (m)	0.4	1.5	0.0	0.4
Control Delay (s)	9.5	8.9	0.0	7.3
Lane LOS	A	A		A
Approach Delay (s)	9.5	8.9	0.0	7.3
Approach LOS	A	A		

Intersection Summary				
Average Delay	8.5			
Intersection Capacity Utilization	13.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1250	953	20
Future Volume (Veh/h)	0	0	0	1250	953	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	1250	953	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					140	
pX, platoon unblocked	0.91	0.91	0.91			
vC, conflicting volume	1578	476	973			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1441	233	778			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	113	701	761			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	625	625	476	476	20
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	20
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.37	0.37	0.28	0.28	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	37.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	34	0	28	195	0	43
Future Volume (Veh/h)	34	0	28	195	0	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	34	0	28	195	0	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				181		
pX, platoon unblocked						
vC, conflicting volume			34		188	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			34		188	17
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	96
cM capacity (veh/h)			1576		770	1058

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	23	11	93	130	43
Volume Left	0	0	28	0	0
Volume Right	0	0	0	0	43
cSH	1700	1700	1576	1700	1058
Volume to Capacity	0.01	0.01	0.02	0.08	0.04
Queue Length 95th (m)	0.0	0.0	0.4	0.0	1.0
Control Delay (s)	0.0	0.0	2.3	0.0	8.5
Lane LOS			A		A
Approach Delay (s)	0.0		1.0		8.5
Approach LOS					A

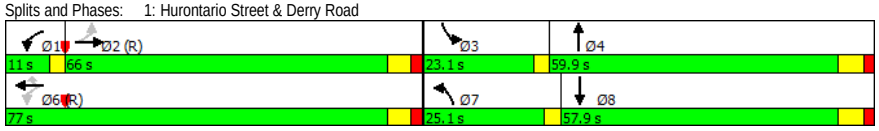
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	19.5%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	88	1053	140	1143	280	197	521	159	539
Future Volume (vph)	88	1053	140	1143	280	197	521	159	539
Lane Group Flow (vph)	88	1242	140	1143	280	197	590	159	599
Turn Type	Perm	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2	1	6		7	4	3	8
Permitted Phases	2		6		6				
Detector Phase	2	2	1	6	6	7	4	3	8
Switch Phase									
Minimum Initial (s)	12.0	12.0	5.0	12.0	12.0	5.0	12.0	5.0	12.0
Minimum Split (s)	59.7	59.7	8.0	59.7	59.7	8.0	57.9	8.0	57.9
Total Split (s)	66.0	66.0	11.0	77.0	77.0	25.1	59.9	23.1	57.9
Total Split (%)	41.3%	41.3%	6.9%	48.1%	48.1%	15.7%	37.4%	14.4%	36.2%
Yellow Time (s)	4.3	4.3	3.0	4.3	4.3	3.0	4.6	3.0	4.6
All-Red Time (s)	2.4	2.4	0.0	2.4	2.4	0.0	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	3.0	6.7	6.7	2.0	6.8	3.0	6.8
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.40	0.49	0.48	0.36	0.28	0.82	0.70	0.80	0.77
Control Delay	33.0	26.1	17.9	16.2	2.3	88.9	62.5	96.8	70.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	26.1	17.9	16.2	2.3	88.9	62.5	96.8	70.6
Queue Length 50th (m)	17.8	96.2	18.1	68.2	0.0	64.6	68.0	52.0	70.2
Queue Length 95th (m)	40.0	124.1	31.2	85.7	13.4	#102.4	79.7	#84.0	82.0
Internal Link Dist (m)		266.2		323.6			747.4		155.7
Turn Bay Length (m)	154.0		192.0		117.0	72.0		56.0	
Base Capacity (vph)	221	2523	293	3163	1010	257	1640	219	1606
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.49	0.48	0.36	0.28	0.77	0.36	0.73	0.37

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 80 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario Street & Derry Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	1053	189	140	1143	280	197	521	69	159	539	60
Future Volume (vph)	88	1053	189	140	1143	280	197	521	69	159	539	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.7	6.7		3.0	6.7	6.7	2.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.93	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	4829		1732	5142	1467	1785	4914		1750	5003	
Flt Permitted	0.24	1.00		0.16	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	426	4829		288	5142	1467	1785	4914		1750	5003	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	88	1053	189	140	1143	280	197	521	69	159	539	60
RTOR Reduction (vph)	0	12	0	0	0	108	0	13	0	0	10	0
Lane Group Flow (vph)	88	1230	0	140	1143	172	197	577	0	159	589	0
Confl. Peds. (#/hr)	68		48	48		68	25		47	47		25
Heavy Vehicles (%)	3%	6%	1%	3%	2%	1%	0%	3%	13%	2%	3%	2%
Turn Type	Perm	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6						
Actuated Green, G (s)	83.2	83.2		98.4	98.4	98.4	20.5	26.9		18.2	24.6	
Effective Green, g (s)	83.2	83.2		98.4	98.4	98.4	21.5	26.9		18.2	24.6	
Actuated g/C Ratio	0.52	0.52		0.62	0.62	0.62	0.13	0.17		0.11	0.15	
Clearance Time (s)	6.7	6.7		3.0	6.7	6.7	3.0	6.8		3.0	6.8	
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)	221	2511		287	3162	902	239	826		199	769	
v/s Ratio Prot		0.25		c0.04	0.22		c0.11	0.12		0.09	c0.12	
v/s Ratio Perm	0.21			c0.26		0.12						
v/c Ratio	0.40	0.49		0.49	0.36	0.19	0.82	0.70		0.80	0.77	
Uniform Delay, d1	23.2	24.7		15.3	15.2	13.4	67.4	62.7		69.1	64.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.94	0.95		1.00	1.00	
Incremental Delay, d2	5.3	0.7		1.3	0.3	0.5	19.7	2.5		19.7	4.6	
Delay (s)	28.5	25.4		16.6	15.6	13.9	82.9	62.1		88.8	69.5	
Level of Service	C	C		B	B	B	F	E		F	E	
Approach Delay (s)		25.6			15.4			67.3			73.6	
Approach LOS		C			B			E			E	

Intersection Summary

HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	119.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	38	4	8	3	46	802	8	709
Future Volume (vph)	38	4	8	3	46	802	8	709
Lane Group Flow (vph)	38	45	8	18	46	808	8	723
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	1	6	5	2
Permitted Phases	8		4					
Detector Phase	8	8	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	46.0	46.0	46.0	46.0	8.0	67.0	8.0	67.0
Total Split (s)	58.0	58.0	58.0	58.0	22.0	80.0	22.0	80.0
Total Split (%)	36.3%	36.3%	36.3%	36.3%	13.8%	50.0%	13.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	3.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	7.0	3.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	C-Max
v/c Ratio	0.47	0.09	0.09	0.04	0.44	0.26	0.11	0.25
Control Delay	89.1	0.3	69.6	0.2	84.5	3.4	65.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.1	0.3	69.6	0.2	84.5	3.4	65.9	4.2
Queue Length 50th (m)	12.5	0.0	2.6	0.0	15.2	22.6	2.6	26.0
Queue Length 95th (m)	25.4	0.0	8.5	0.0	29.4	50.1	m6.6	31.6
Internal Link Dist (m)		146.3		307.7		118.2		747.4
Turn Bay Length (m)	26.0		27.0		60.0		31.0	
Base Capacity (vph)	376	1178	434	1158	211	3066	211	2869
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	0.04	0.02	0.02	0.22	0.26	0.04	0.25

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

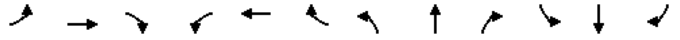
Splits and Phases: 2: Skyway Drive & Hurontario Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	4	41	8	3	15	46	802	6	8	709	14
Future Volume (vph)	38	4	41	8	3	15	46	802	6	8	709	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.88		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	2981		1783	2975		1785	3575		1785	3569	
Flt Permitted	0.75	1.00		0.73	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1181	2981		1363	2975		1785	3575		1785	3569	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	4	41	8	3	15	46	802	6	8	709	14
RTOR Reduction (vph)	0	42	0	0	17	0	0	0	0	0	0	0
Lane Group Flow (vph)	38	3	0	8	1	0	46	808	0	8	723	0
Confl. Peds. (#/hr)	4		1	1		4	1		4	4		1
Heavy Vehicles (%)	18%	50%	0%	0%	0%	7%	0%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								
Actuated Green, G (s)	9.4	9.4		9.4	9.4		8.3	132.1		1.5	125.3	
Effective Green, g (s)	9.4	9.4		9.4	9.4		8.3	132.1		1.5	125.3	
Actuated g/C Ratio	0.06	0.06		0.06	0.06		0.05	0.83		0.01	0.78	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	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)	69	175		80	174		92	2951		16	2794	
v/s Ratio Prot		0.00			0.00		c0.03	c0.23		0.00	0.20	
v/s Ratio Perm	c0.03			0.01								
v/c Ratio	0.55	0.02		0.10	0.01		0.50	0.27		0.50	0.26	
Uniform Delay, d1	73.2	70.9		71.3	70.9		73.8	3.1		78.9	4.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.85	0.73	
Incremental Delay, d2	9.2	0.0		0.5	0.0		4.2	0.2		21.0	0.2	
Delay (s)	82.4	71.0		71.8	70.9		78.1	3.4		88.1	3.7	
Level of Service	F	E		E	E		E	A		F	A	
Approach Delay (s)		76.2			71.2			7.4			4.6	
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	0.31		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

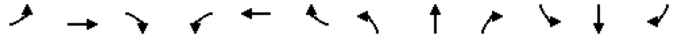
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	41	34	3	18	6	31	66	5	5	63	68
Future Volume (Veh/h)	124	41	34	3	18	6	31	66	5	5	63	68
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	124	41	34	3	18	6	31	66	5	5	63	68
Pedestrians					3			1				
Lane Width (m)					4.2			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	217	243	66	230	274	38	131			74		
vC1, stage 1 conf vol	107	107		134	134							
vC2, stage 2 conf vol	110	136		97	141							
vCu, unblocked vol	217	243	66	230	274	38	131			74		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.9		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.6		
p0 queue free %	84	94	97	100	97	99	98			100		
cM capacity (veh/h)	785	718	989	738	695	1028	1445			1282		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	199	3	24	31	44	27	5	42	89
Volume Left	124	3	0	31	0	0	5	0	0
Volume Right	34	0	6	0	0	5	0	0	68
cSH	798	738	757	1445	1700	1700	1282	1700	1700
Volume to Capacity	0.25	0.00	0.03	0.02	0.03	0.02	0.00	0.02	0.05
Queue Length 95th (m)	7.9	0.1	0.8	0.5	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	11.0	9.9	9.9	7.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	A	A	A			A		
Approach Delay (s)	11.0	9.9		2.3			0.3		
Approach LOS	B	A							

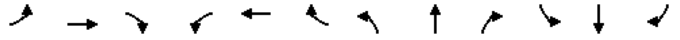
Intersection Summary					
Average Delay	5.9				
Intersection Capacity Utilization	35.4%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	8	0	2	22	106	3	2	85	8
Future Volume (Veh/h)	0	0	0	8	0	2	22	106	3	2	85	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	0	0	8	0	2	22	106	3	2	85	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	192	246	46	198	248	54	93			109		
vC1, stage 1 conf vol	93	93		152	152							
vC2, stage 2 conf vol	99	153		46	97							
vCu, unblocked vol	192	246	46	198	248	54	93			109		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	6.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2			2.2		
p0 queue free %	100	100	100	99	100	100	98			100		
cM capacity (veh/h)	821	716	1019	794	713	1007	1001			1494		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	10	22	71	38	2	57	36
Volume Left	8	22	0	0	2	0	0
Volume Right	2	0	0	3	0	0	8
cSH	829	1001	1700	1700	1494	1700	1700
Volume to Capacity	0.01	0.02	0.04	0.02	0.00	0.03	0.02
Queue Length 95th (m)	0.3	0.5	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.4	8.7	0.0	0.0	7.4	0.0	0.0
Lane LOS	A	A			A		
Approach Delay (s)	9.4	1.5			0.2		
Approach LOS	A						

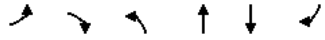
Intersection Summary					
Average Delay	1.3				
Intersection Capacity Utilization	17.9%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	0	0	10	46	0	0	0	37	0	0
Future Volume (Veh/h)	0	5	0	0	10	46	0	0	0	37	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	0	5	0	0	10	46	0	0	0	37	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	125	74	0	76	74	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	125	74	0	76	74	0	0			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	100	100	99	96	100			98		
cM capacity (veh/h)	791	798	1085	893	798	1085	1623			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	56	0	37
Volume Left	0	0	0	37
Volume Right	0	46	0	0
cSH	798	1019	1700	1623
Volume to Capacity	0.01	0.05	0.00	0.02
Queue Length 95th (m)	0.2	1.4	0.0	0.6
Control Delay (s)	9.5	8.7	0.0	7.3
Lane LOS	A	A		A
Approach Delay (s)	9.5	8.7	0.0	7.3
Approach LOS	A	A		

Intersection Summary				
Average Delay	8.2			
Intersection Capacity Utilization	13.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	854	709	29
Future Volume (Veh/h)	0	0	0	854	709	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	854	709	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					142	
pX, platoon unblocked	0.95	0.95	0.95			
vC, conflicting volume	1136	354	738			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1042	220	623			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	214	746	908			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	427	427	354	354	29
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	29
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.25	0.25	0.21	0.21	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	26.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	51	0	37	27	0	46
Future Volume (Veh/h)	51	0	37	27	0	46
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	51	0	37	27	0	46
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				170		
pX, platoon unblocked						
vC, conflicting volume			51		138	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			51		138	26
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	96
cM capacity (veh/h)			1553		821	1045

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	34	17	46	18	46
Volume Left	0	0	37	0	0
Volume Right	0	0	0	0	46
cSH	1700	1700	1553	1700	1045
Volume to Capacity	0.02	0.01	0.02	0.01	0.04
Queue Length 95th (m)	0.0	0.0	0.6	0.0	1.1
Control Delay (s)	0.0	0.0	6.0	0.0	8.6
Lane LOS			A		A
Approach Delay (s)	0.0		4.3		8.6
Approach LOS					A

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	18.7%	ICU Level of Service		A
Analysis Period (min)	15			

APPENDIX G

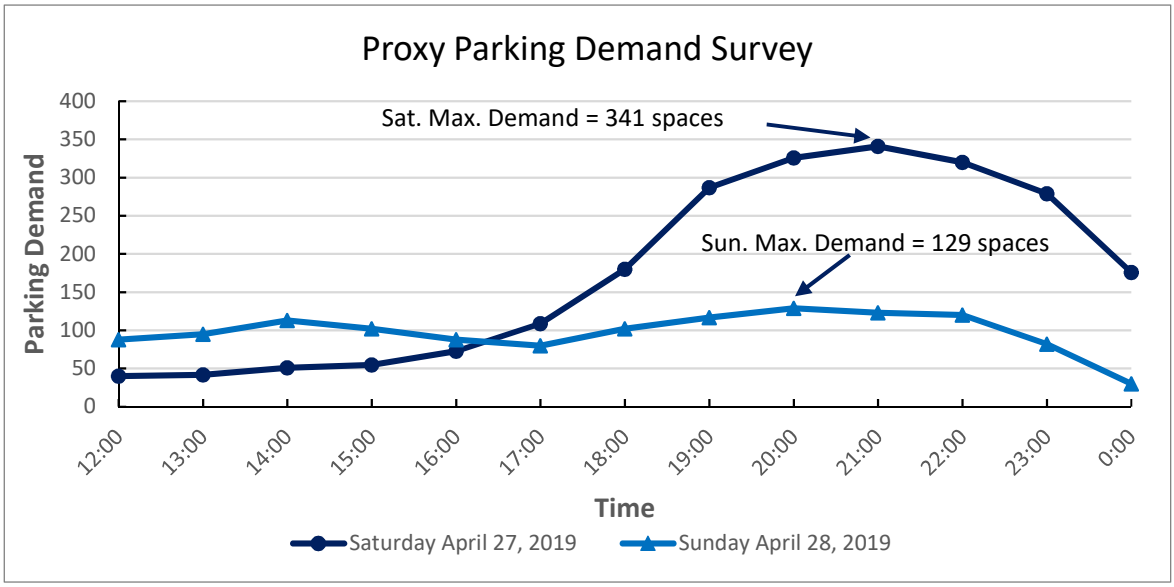
Parking Justification

19310.220 - 6710 Hurontario St Proxy Parking Survey

Proxy Location:	**Mississauga Convention Centre (75 Derry Rd W, Mississauga)**
Approx. GFA (m²):	5,400
Max. Parking Demand:	341
Max.Demand Ratio:	6.31
Survey Date:	Sat Apr 27 & Sun Apr 28, 2019
Surveyor:	Tim Sheng

Time Beginning	Saturday April 27, 2019		Sunday April 28, 2019	
	Parking Demand	Parking Demand Ratio (Spaces per 100m²)	Parking Demand	Parking Demand Ratio (Spaces per 100m²)
12:00	40	0.74	88	1.63
13:00	42	0.78	95	1.76
14:00	51	0.94	113	2.09
15:00	55	1.02	102	1.89
16:00	73	1.35	88	1.63
17:00	109	2.02	80	1.48
18:00	180	3.33	102	1.89
19:00	287	5.31	117	2.17
20:00	326	6.04	***129***	***2.39***
21:00	***341***	***6.31***	123	2.28
22:00	320	5.93	120	2.22
23:00	279	5.17	82	1.52
0:00	176	3.26	30	0.56

Note: Peak Demand Intervals for each survey day are shown in bold italic font



Excerpt of Table 2-5 and 2-6 of Urban Land Institute's Shared Parking, 2nd Edition (2005)

Table 2-5 Recommended Time-of-Day Factors for Weekdays

Land Use	User	6 a.m.	7 a.m.	8 a.m.	9 a.m.	10 a.m.	11 a.m.	Noon	1 p.m.	2 p.m.	3 p.m.	4 p.m.	5 p.m.	6 p.m.	7 p.m.	8 p.m.	9 p.m.	10 p.m.	11 p.m.	Midnight	Source
Hotel—Business	Guest	95%	90%	80%	70%	60%	60%	55%	55%	60%	60%	65%	70%	75%	75%	80%	85%	95%	100%	100%	5
Hotel—Leisure	Guest	95%	95%	90%	80%	70%	70%	65%	65%	70%	70%	75%	80%	85%	85%	90%	95%	95%	100%	100%	2
Restaurant/Lounge	Customer	—	10%	30%	10%	10%	5%	100%	100%	33%	10%	10%	30%	55%	60%	70%	67%	60%	40%	30%	5, 3
Conference/Banquet	Customer	—	—	30%	60%	60%	60%	65%	65%	65%	65%	65%	100%	100%	100%	100%	100%	50%	—	—	2
Convention	Customer	—	—	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	30%	30%	10%	—	—	—	2
	Employee	5%	30%	90%	90%	100%	100%	100%	100%	100%	100%	90%	70%	40%	20%	20%	20%	20%	10%	5%	2

Table 2-6 Recommended Time-of-Day Factors for Weekends

Land Use	User	6 a.m.	7 a.m.	8 a.m.	9 a.m.	10 a.m.	11 a.m.	Noon	1 p.m.	2 p.m.	3 p.m.	4 p.m.	5 p.m.	6 p.m.	7 p.m.	8 p.m.	9 p.m.	10 p.m.	11 p.m.	Midnight	Source
Hotel—Business	Guest	95%	90%	80%	70%	60%	60%	55%	55%	60%	60%	65%	70%	75%	75%	80%	85%	95%	100%	100%	5
Hotel—Leisure	Guest	95%	95%	90%	80%	70%	70%	65%	65%	70%	70%	75%	80%	85%	85%	90%	95%	95%	100%	100%	2
Restaurant/Lounge	Customer	—	10%	30%	10%	10%	5%	100%	100%	33%	10%	10%	30%	55%	60%	70%	67%	60%	40%	30%	5
Conference/Banquet	Customer	—	—	30%	60%	60%	60%	65%	65%	65%	65%	65%	100%	100%	100%	100%	100%	50%	—	—	5
Convention	Customer	—	—	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	30%	30%	10%	—	—	—	2
	Employee	5%	30%	90%	90%	100%	100%	100%	100%	100%	100%	90%	75%	60%	55%	55%	55%	45%	45%	30%	5

6710 Hurontario St - Shared Parking Based on ULI Time-of-Day Factors

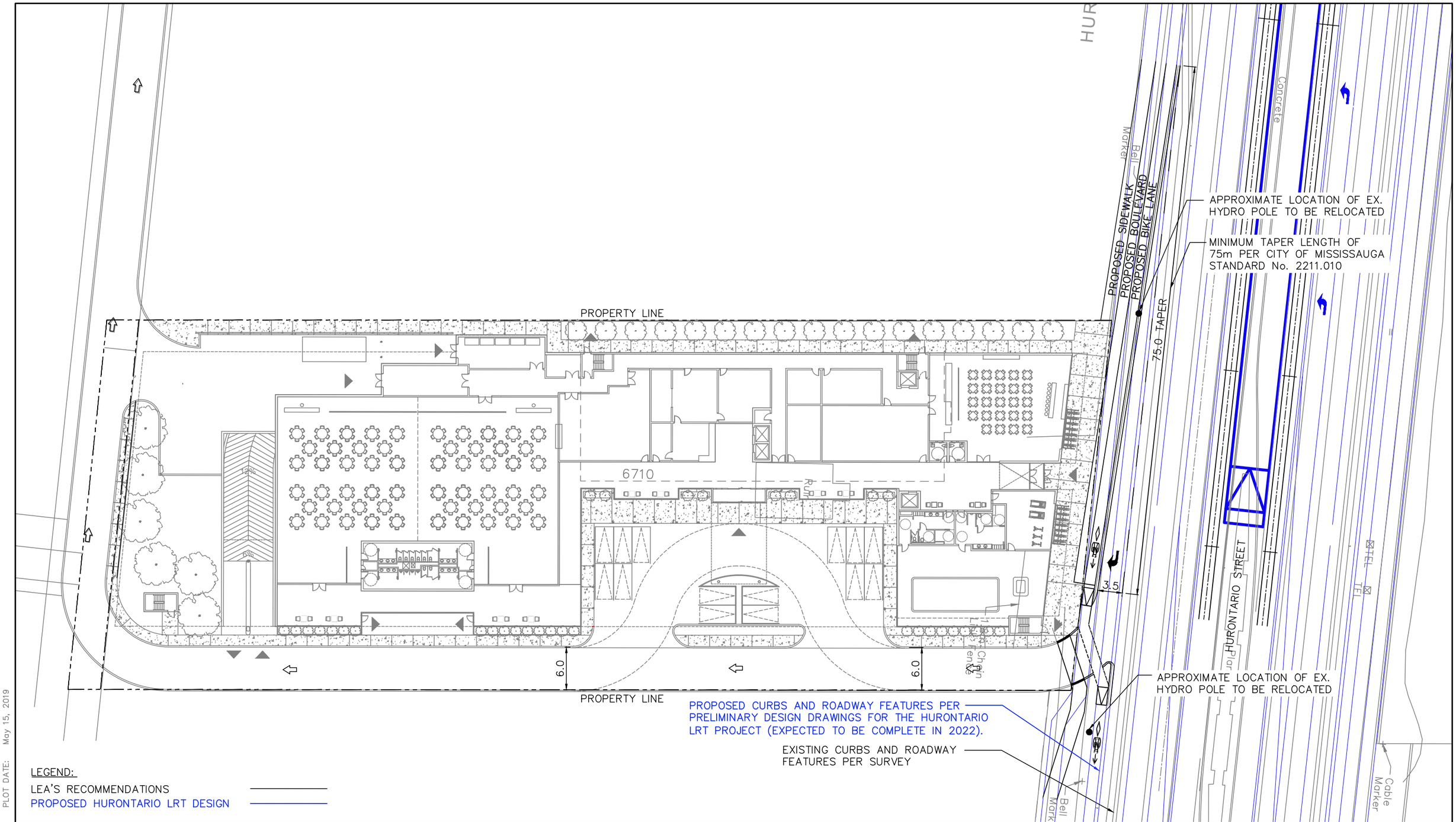
Ref: 19310

						Weekday																
	Proposed Use	**Size**	**Requirement Rate**	**# of Spaces**		**6:00 AM**	**7:00 AM**	**8:00 AM**	**9:00 AM**	**10:00 AM**	**11:00 AM**	**12:00 PM**	**1:00 PM**	**2:00 PM**	**3:00 PM**	**4:00 PM**	**5:00 PM**	**6:00 PM**	**7:00 PM**	**8:00 PM**	**9:00 PM**	**10:00 PM**	**11:00 PM**	**12:00 AM**
	Guest Room	164 Guest Rooms	0.8 space per guest room &;	131		95%	95%	90%	80%	70%	70%	65%	65%	70%	70%	75%	80%	85%	85%	90%	95%	95%	100%	100%
	Restaurant	284	10.0 spaces per 100 m² GFA non-residential used for public use areas including	28		-	10%	30%	10%	10%	5%	100%	100%	33%	10%	10%	30%	55%	60%	70%	67%	60%	40%	30%
Overnight accomodatiosn	Conference/Banquet	1165 m²	meeting rooms, conference rooms, recreation facilities, dining and lounge areas and other commerical faciltiies, but excluding bedrooms, kitchens, laundry rooms, washrooms, lobbies, hallways, elevators, stairways and recreational facilities directly related to the function of the overnight accomodation	74		-	-	30%	60%	60%	60%	65%	65%	65%	65%	65%	100%	100%	100%	100%	100%	50%	-	-
	Office	759 m²	3.2 spaces per 100 m² **GFA non-residential**	24		3%	30%	75%	95%	100%	100%	90%	90%	100%	100%	90%	50%	25%	10%	7%	3%	1%	-	-
			Total	**257**		**125**	**134**	**167**	**175**	**163**	**162**	**183**	**183**	**173**	**167**	**171**	**199**	**207**	**205**	**213**	**218** ↑ **Max**	**178**	**142**	**139**

						Weekend																		
	Proposed Use	**Size**	**Rate**	**# of Spaces**		**6:00 AM**	**7:00 AM**	**8:00 AM**	**9:00 AM**	**10:00 AM**	**11:00 AM**	**12:00 PM**	**1:00 PM**	**2:00 PM**	**3:00 PM**	**4:00 PM**	**5:00 PM**	**6:00 PM**	**7:00 PM**	**8:00 PM**	**9:00 PM**	**10:00 PM**	**11:00 PM**	**12:00 AM**
	Guest Room	164 Guest Rooms	0.8 space per guest room &;	131		95%	95%	90%	80%	70%	70%	65%	65%	70%	70%	75%	80%	85%	85%	90%	95%	95%	100%	100%
	Restaurant	284	10.0 spaces per 100 m² GFA non-residential used for public use areas including	28		-	10%	30%	10%	10%	5%	100%	100%	33%	10%	10%	30%	55%	60%	70%	67%	60%	40%	30%
Overnight accomodatiosn	Conference/Banquet	1165 m²	meeting rooms, conference rooms, recreation facilities, dining and lounge areas and other commerical faciltiies, but excluding bedrooms, kitchens, laundry rooms, washrooms, lobbies, hallways, elevators, stairways and recreational facilities directly related to the function of the overnight accomodation	74		-	-	30%	60%	60%	60%	65%	65%	65%	65%	65%	100%	100%	100%	100%	100%	50%	-	-
	Office	759 m²	3.2 spaces per 100 m² **GFA non-residential**	24		-	20%	60%	80%	90	100%	90%	80%	60%	40%	20%	10%	5%	-	-	-	-	-	-
			Total	**257**		**124**	**132**	**163**	**171**	**2299**	**162**	**183**	**180**	**163**	**152**	**154**	**190**	**202**	**202**	**212**	**217**	**178**	**142**	**139**

APPENDIX H

Vehicle Swept Paths



DRAWN BY: D.C. PLOT DATE: May 15, 2019

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Project No.
19310–230

Date
MAY 15, 2019

6710 HURONTARIO STREET
MISSISSAUGA ONTARIO

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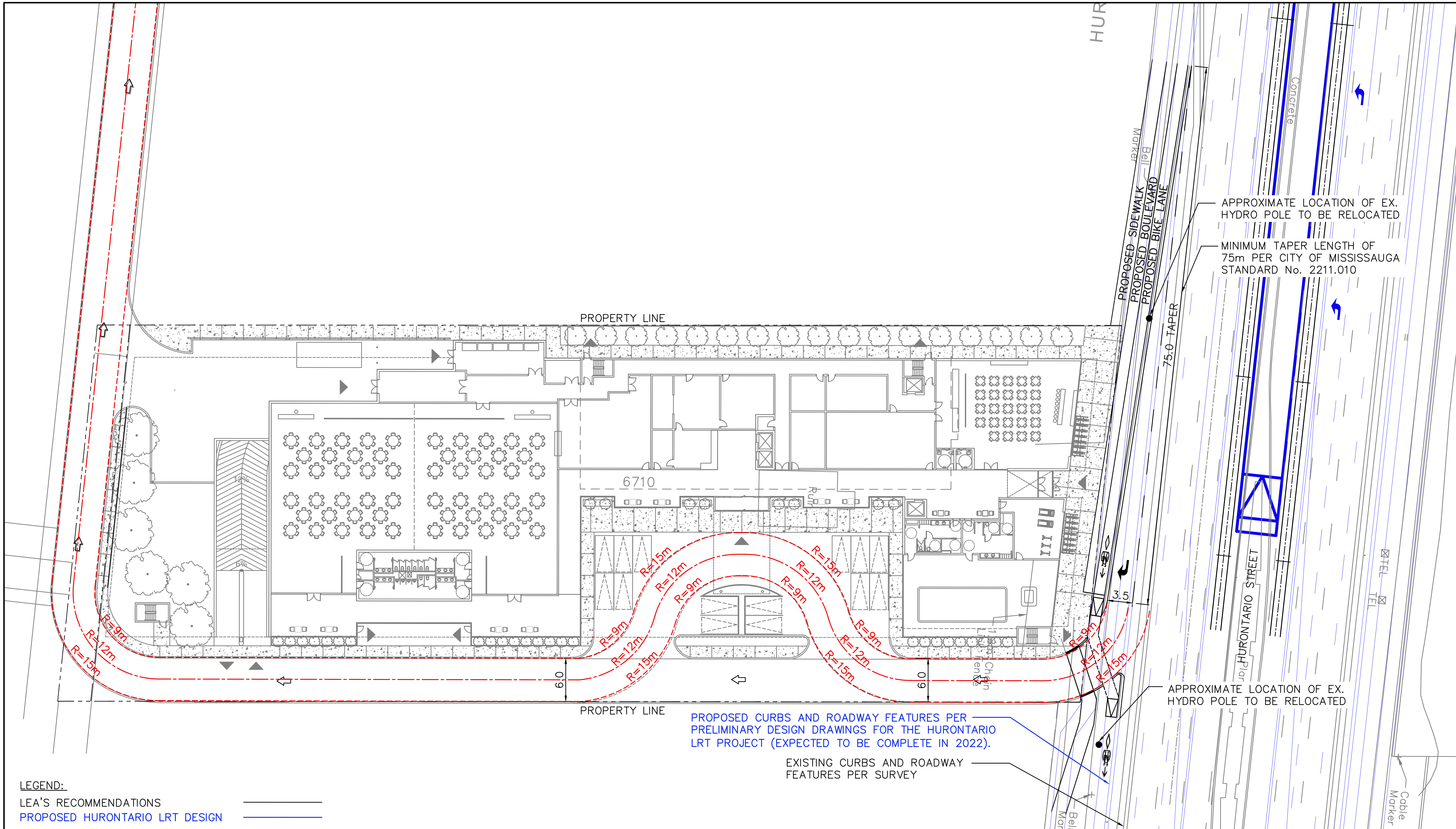
FUNCTIONAL DESIGN REVIEW
SITE PLAN

Drawing No.
001

DRAWING NAME: F:\19310\Drafting\19310 WF008 Functional Review.dwg



PROPERTY LINE
6710
R=9m
R=12m
R=15m
6.0
3.5
75.0 TAPER
PROPOSED SIDEWALK
PROPOSED BOULEVARD
PROPOSED BIKE LANE
HURONTARIO STREET
APPROXIMATE LOCATION OF EX. HYDRO POLE TO BE RELOCATED
MINIMUM TAPER LENGTH OF 75m PER CITY OF MISSISSAUGA STANDARD No. 2211.010
PROPOSED CURBS AND ROADWAY FEATURES PER PRELIMINARY DESIGN DRAWINGS FOR THE HURONTARIO LRT PROJECT (EXPECTED TO BE COMPLETE IN 2022).
EXISTING CURBS AND ROADWAY FEATURES PER SURVEY
Bell Marker
Concrete
TEL
Cable Marker
LEGEND:
LEA'S RECOMMENDATIONS
PROPOSED HURONTARIO LRT DESIGN

DRAWN BY: D.C. PLOT DATE: May 15, 2019

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Project No. 19310–230

Date MAY 15, 2019

6710 HURONTARIO STREET
MISSISSAUGA ONTARIO

5 0 5 10 15m
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FUNCTIONAL DESIGN REVIEW
FIRE ROUTE

Drawing No. 002

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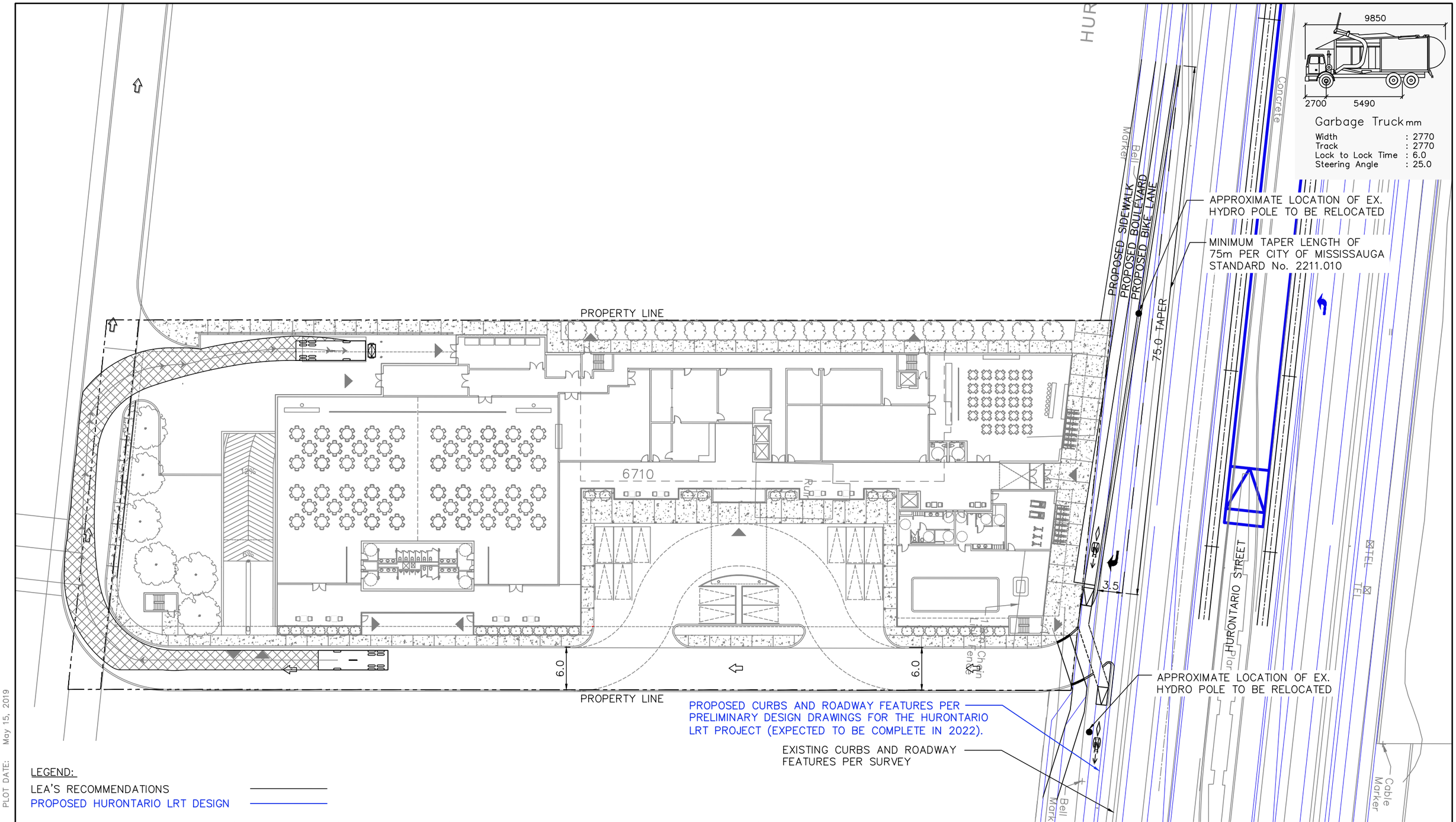

DRAWN BY: D.C. PLOT DATE: May 15, 2019

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Project No.
19310–230

Date
MAY 15, 2019

6710 HURONTARIO STREET
MISSISSAUGA ONTARIO

5 0 5 10 15m
1:500

FUNCTIONAL DESIGN REVIEW
LOADING AREA
CITY GARBAGE TRUCK
ENTRY PATH

Drawing No.
003

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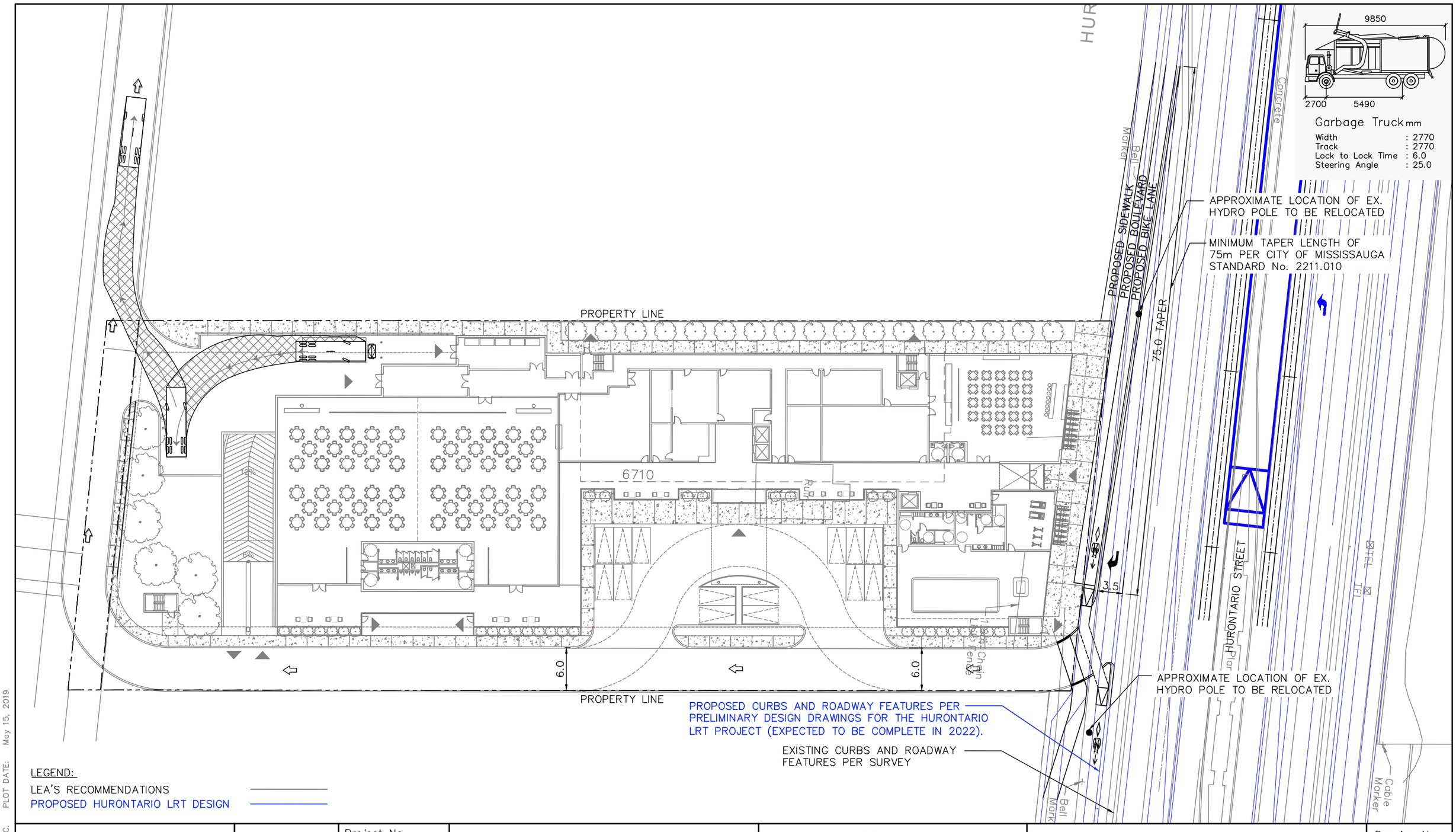

DRAWN BY: D.C. PLOT DATE: May 15, 2019

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19310–230

Date
MAY 15, 2019

6710 HURONTARIO STREET
MISSISSAUGA ONTARIO

5 0 5 10 15m
1:500

FUNCTIONAL DESIGN REVIEW
LOADING AREA
CITY GARBAGE TRUCK
EXIT PATH

Drawing No.
004

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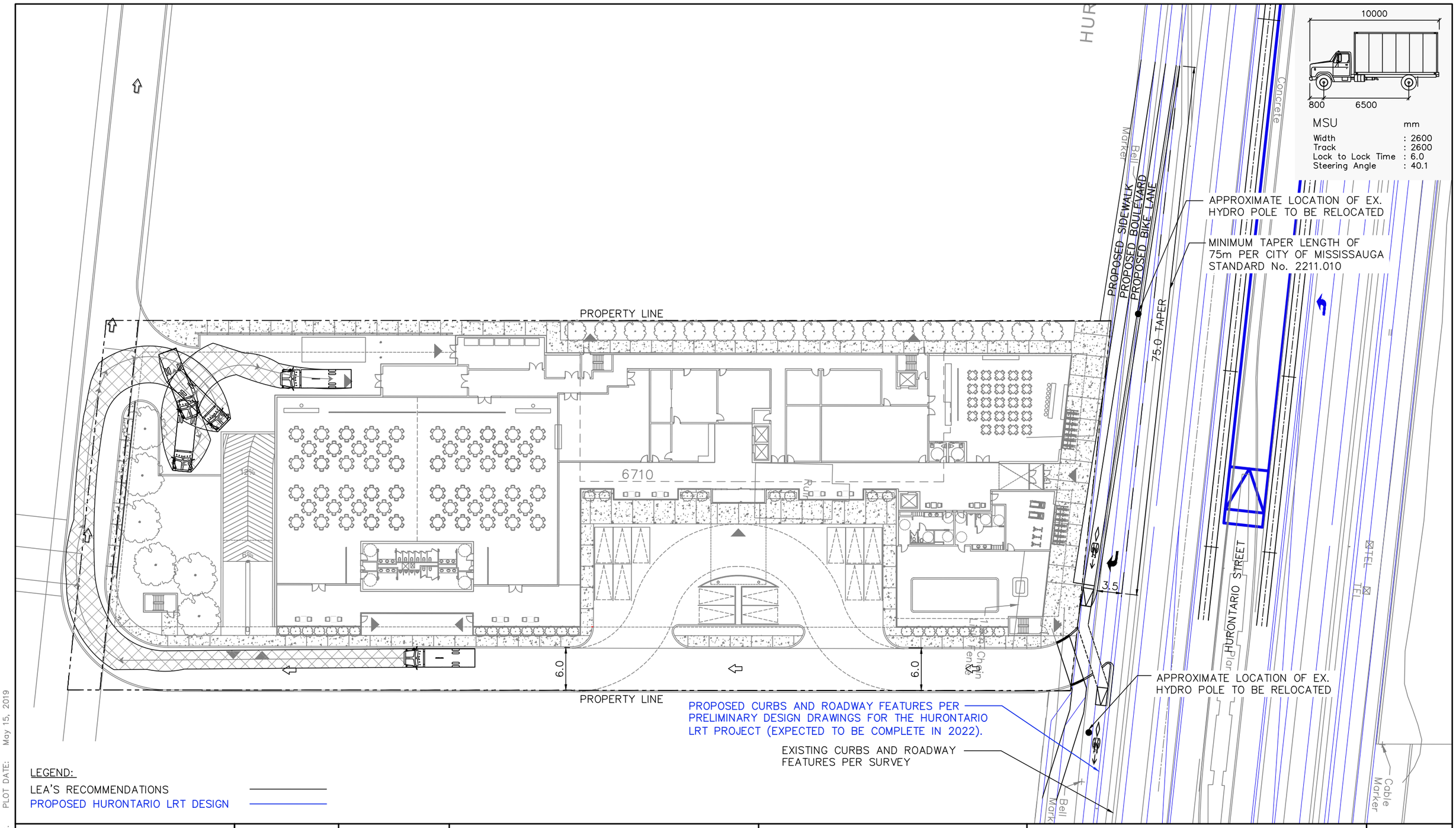

LEGEND:

LEA'S RECOMMENDATIONS

PROPOSED HURONTARIO LRT DESIGN

PLOT DATE: May 15, 2019

DRAWN BY: D.C.

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19310–230

Date
MAY 15, 2019

6710 HURONTARIO STREET
MISSISSAUGA ONTARIO

5 0 5 10 15m
1:500

FUNCTIONAL DESIGN REVIEW LOADING AREA DELIVERY TRUCK ENTRY PATH

Drawing No.
005

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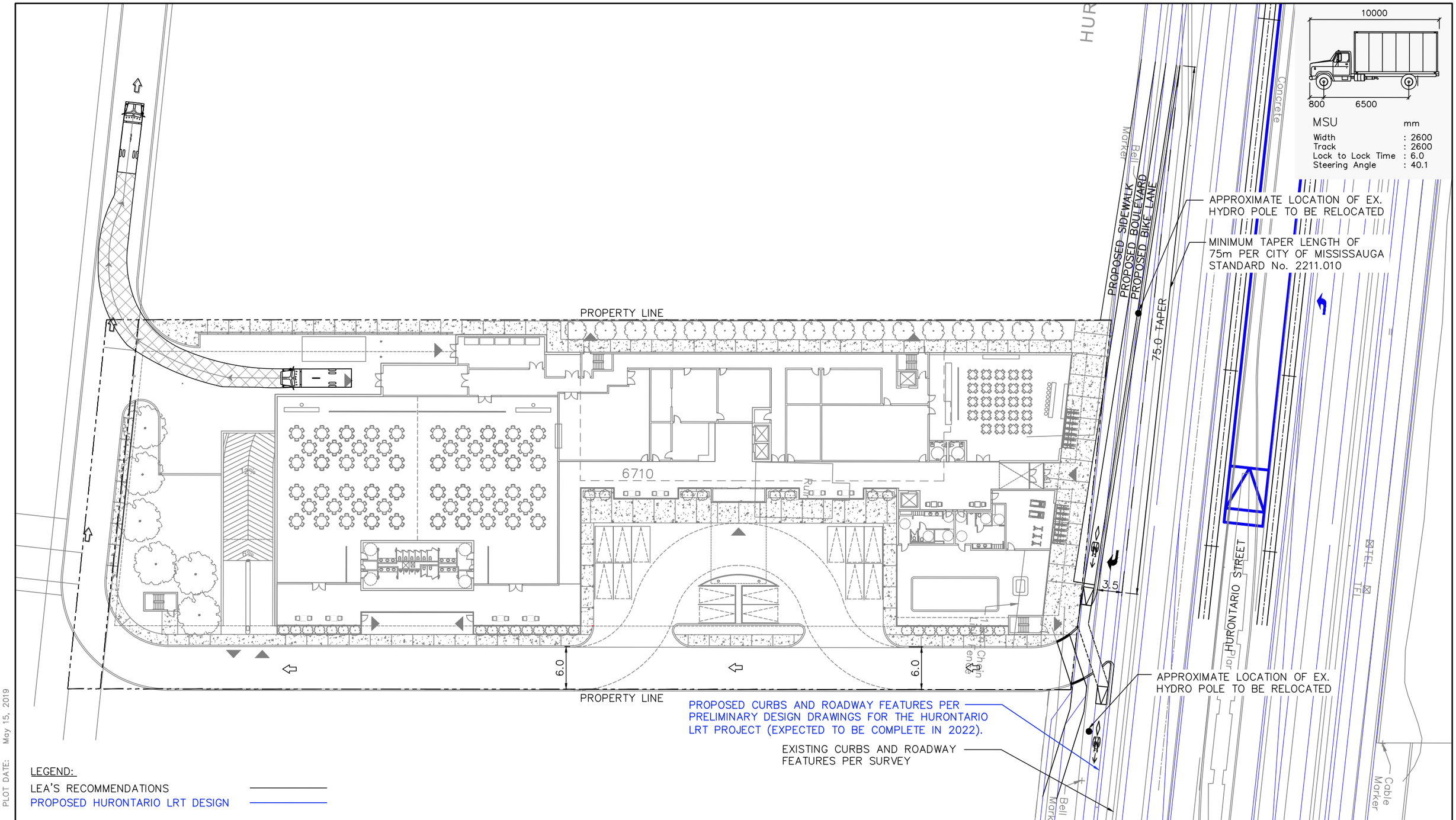

DRAWN BY: D.C. PLOT DATE: May 15, 2019

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Project No.
19310–230

Date
MAY 15, 2019

6710 HURONTARIO STREET
MISSISSAUGA ONTARIO

5 0 5 10 15m
1:500

FUNCTIONAL DESIGN REVIEW
LOADING AREA
DELIVERY TRUCK
EXIT PATH

Drawing No.
006

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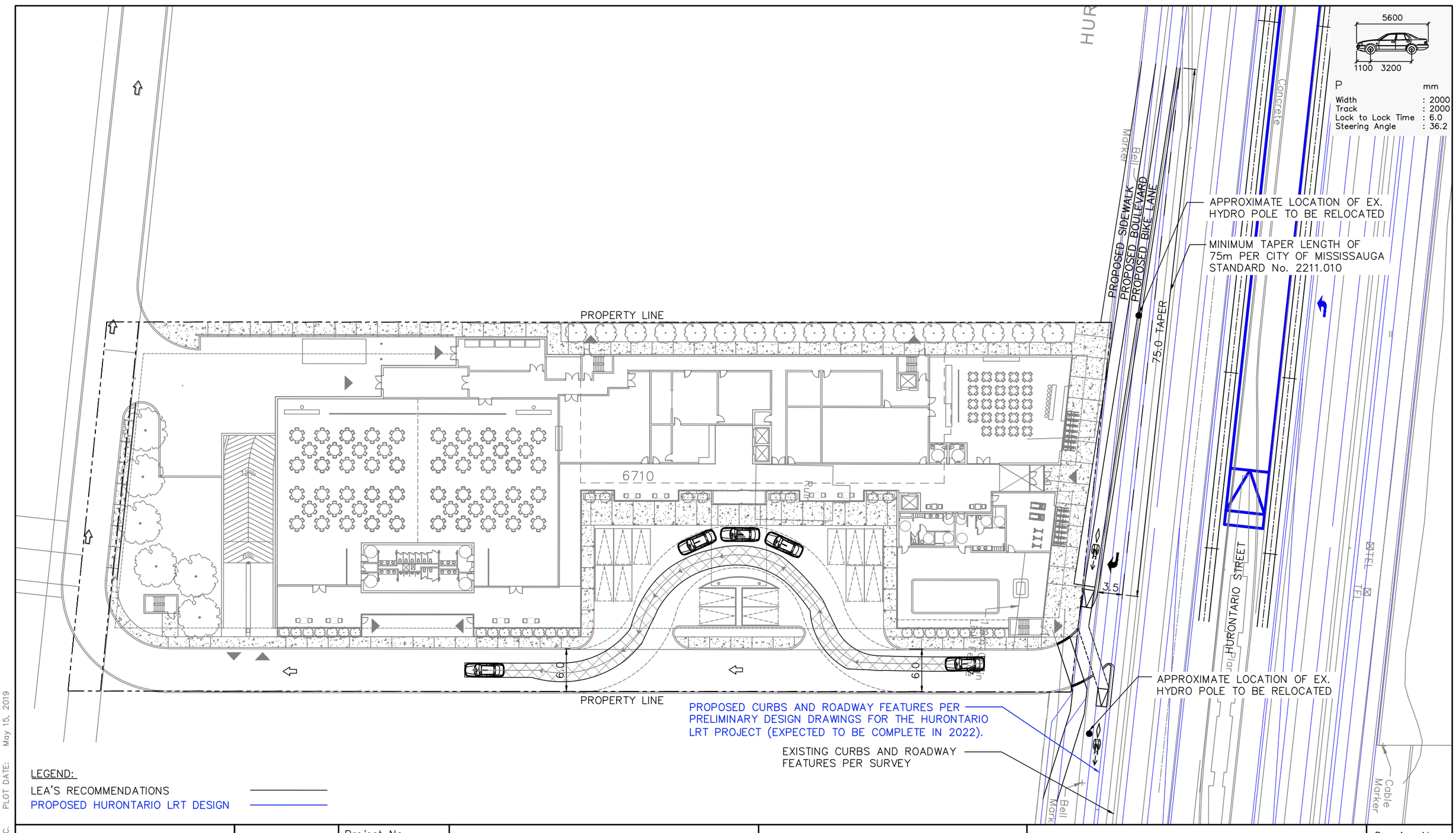

LEGEND:

LEA'S RECOMMENDATIONS

PROPOSED HURONTARIO LRT DESIGN

DRAWN BY: D.C. PLOT DATE: May 15, 2019

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Project No.
19310–230

Date
MAY 15, 2019

6710 HURONTARIO STREET
MISSISSAUGA ONTARIO

5 0 5 10 15m
1:500

FUNCTIONAL DESIGN REVIEW
DROP–OFF AREA

Drawing No.
007

DRAWING NAME: F:\19310\Drafting\19310 WF008 Functional Review.dwg