Edenshaw Elizabeth Developments Limited

TRANSPORTATION IMPACT STUDY

PROPOSED RESIDENTIAL DEVELOPMENT

42-46 PARK STREET EAST & 23 ELIZABETH STREET NORTH, CITY OF MISSISSAUGA

May 2020

20248

LEA Consulting Ltd.
625 Cochrane Drive, 9th Floor
Markham, ON, L3R 9R9 Canada
T | 905 470 0015 F | 905 470 0030
WWW.LEA.CA

May 6th, 2020 **Reference Number:** 20248/240

Mr. Oscar Piovesan
Edenshaw Elizabeth Developments Limited
Suite 201, 2nd Floor
129 Lakeshore Road East
Mississauga, ON
L5G 1E5

Dear Mr. Piovesan:

RE: Transportation Impact Study
Proposed Residential Development
42-46 Park Street East & 23 Elizabeth Street North, City of Mississauga

LEA Consulting Ltd. is pleased to present the findings of our Transportation Impact Study (TIS) for the proposed residential development at 42-46 Park Street East & 23 Elizabeth Street North in the City of Mississauga. This report concluded that the traffic associated with the proposed development will have minimum traffic impact to the immediate roadways. Vehicular traffic is also able to circulate the site in an acceptable manner. Based on the parking justification, the site is expected to provide adequate parking spaces to accommodate the expected parking demand.

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

Timothy Chin, MSc(Eng), P.Eng., RSP1
Transportation Engineer

Encl.

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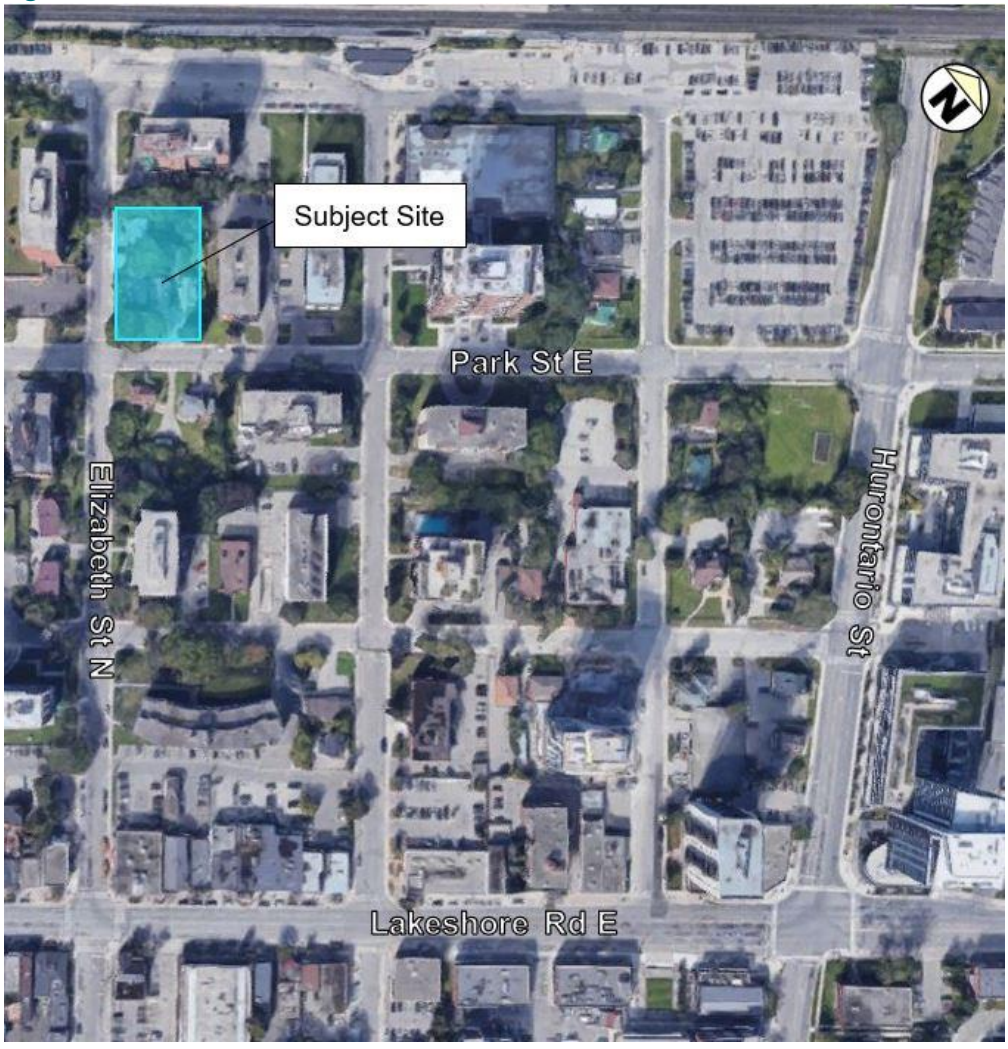
1 INTRODUCTION

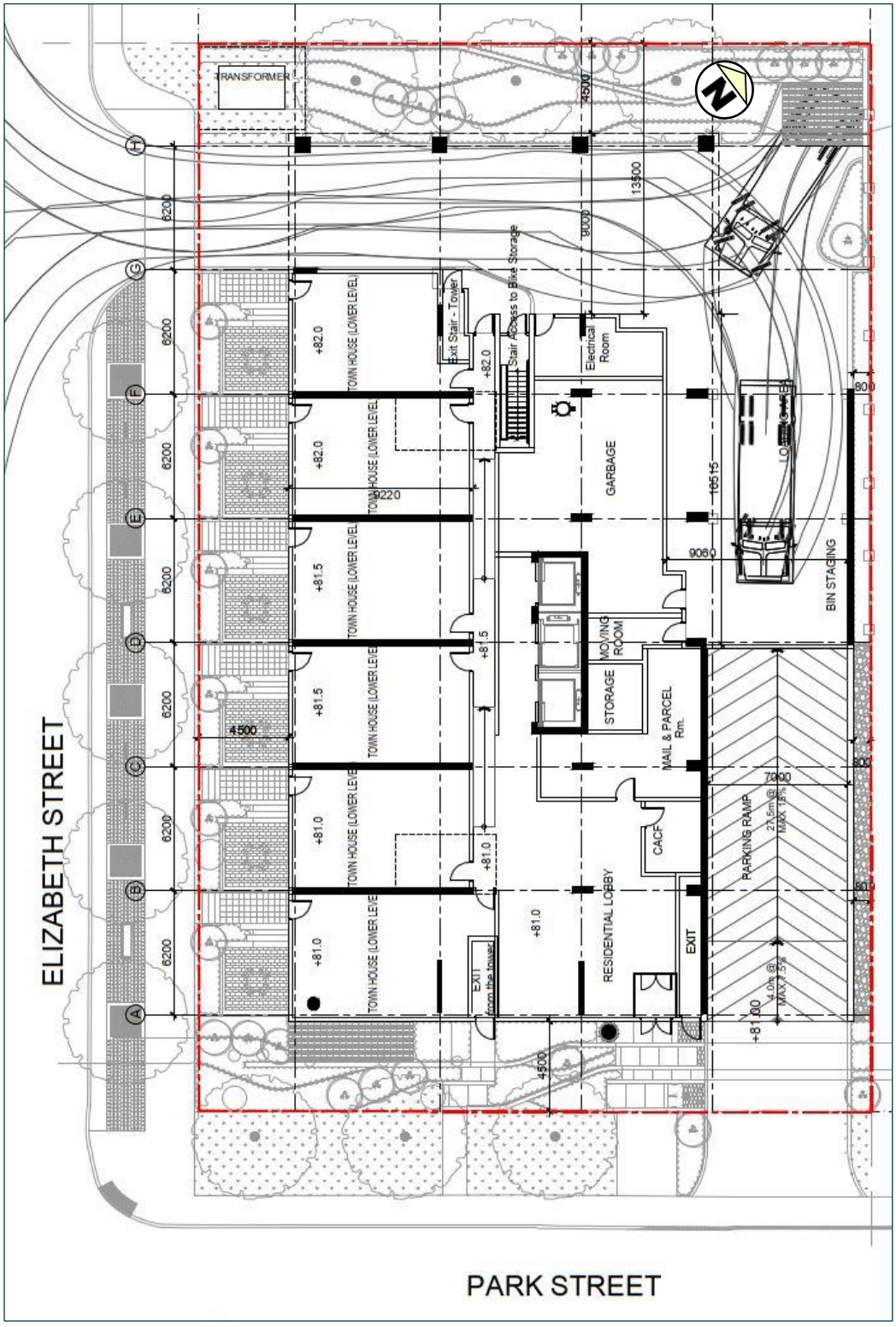
LEA Consulting Ltd. (LEA) was retained by Edenshaw Elizabeth Developments Limited to undertake a Transportation Impact Study (TIS) for the proposed mixed-use development located at 42-46 Park Street E & 23 Elizabeth Street N (herein referred to as the "subject site") in the City of Mississauga. The subject site is located on the northeast corner of Park Street E and Elizabeth Street N intersection and is currently occupied by four different properties. **Figure 1.1** illustrates the site location.

Figure 1.1: Site Location



The development proposal consists of 22-storey mixed-use building with 258 residential units and multi-level parking. Based on the proposed site plan, as illustrated in **Figure 1.2**, there are two site accesses, including one service access at Elizabeth Street N and one parking access at Park Street E (major access).

Figure 1.2: Proposed Site Plan



Source: IBI Group

2 EXISTING TRAFFIC CONDITIONS

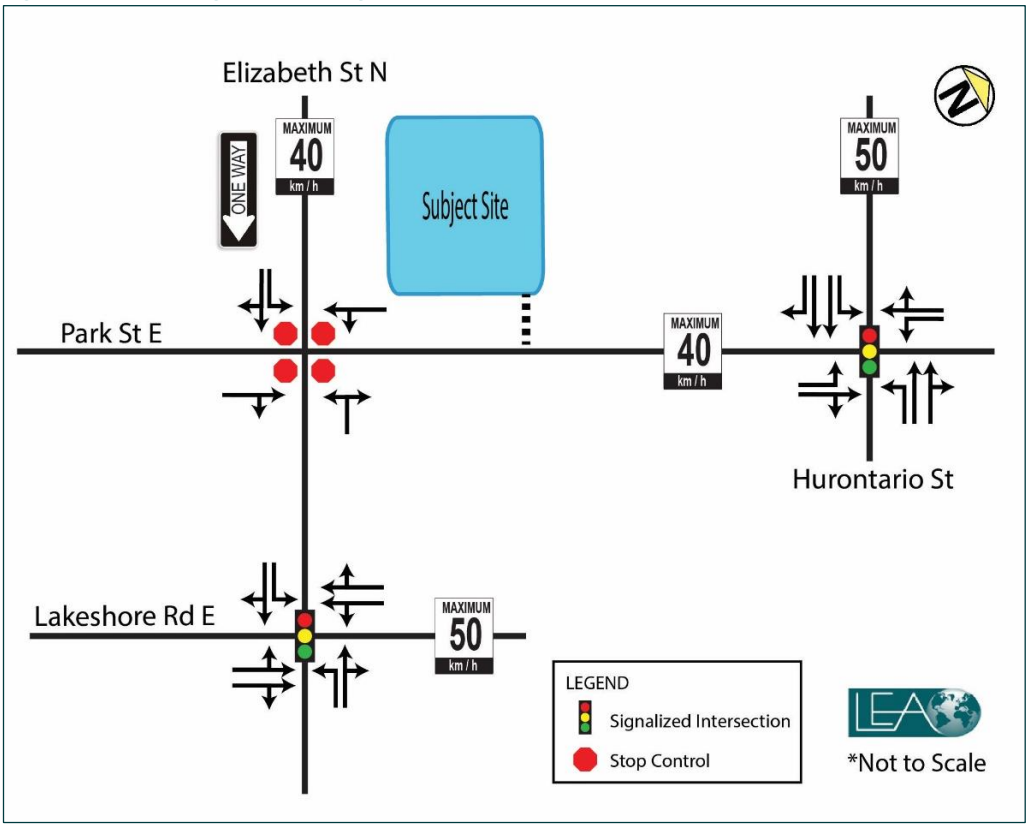
2.1 ROAD NETWORK

The Terms of Reference have been confirmed with the City of Mississauga's staff and the following existing intersections have been included in this study. The Correspondence of Terms of Reference is enclosed in **Appendix A**.

- Hurontario Street & Park Street E (Signalized);
- Lakeshore Road E & Elizabeth Street N (Signalized); and
- Elizabeth Street N & Park Street E (Unsignalized).

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

Figure 2.1: Existing Lane Configuration



The detailed description of the existing roadways is provided below. Please note that all roads are under the jurisdiction of City of Mississauga:

Hurontario Street is a north-south arterial road that operates with a four-lane cross-section (two lanes per direction) in the vicinity of the subject site. The roadway operates with a posted speed limit of 50 km/h in the study area. There are continuous sidewalks along both sites of the street as well as pedestrian crosswalks at all major intersections within the study area.

Lakeshore Road E is an east-west arterial road that operates mainly with a four-lane cross-section (two lanes per direction) in the vicinity of the subject site. The roadway operates with a posted speed limit of

50 km/h in the study area. There are continuous sidewalks along both sides of the street as well as pedestrian crosswalks at all major intersections within the study area.

Elizabeth Street N is a north-south collector road that operates with two-lane cross section. It operates as one-way street (two southbound lanes) between Queen Street E and Park Street E, and two-way street (one lane per direction) south of Park Street E. The roadway has no posted speed limit and it is assumed that the speed limit is 40 km/h in the study area. There are continuous sidewalks along both sites of the street as well as pedestrian crosswalks at all major intersections within the study area.

Park Street E is an east-west local road that operates with a two-lane cross section (one lane per direction) in the vicinity of the subject site. The roadway has no posted speed limit and it is assumed that the speed limit is 40 km/h in the study area. There are continuous sidewalks along both sites of the street as well as pedestrian crosswalks at all major intersections within the study area.

2.2 TRANSIT NETWORK

The proposed development is located within an area that is well served by multiple transit services including rail and buses. The Port Credit GO Station is located about 200 m (about 2-minute walk) northeast of the proposed development. GO Transit and MiWay routes within the study area are described below and illustrated in **Figure 2.2**.

Figure 2.2: Existing Transit Network

Source: MiWay, April 2020

GO Rail – Lakeshore West Line is the east-west GO rail line providing service to and from Union Station and has an average of 15-minute service on weekdays. On the weekend, it runs every 30 minutes. With

the planned GO Expansion by 2025, the line will provide 15-minute all-day two-way service throughout the week.

MiWay Bus Route 8 – Cawthra is a bus route that operates generally in north-south direction between Port Credit GO Station and the City Centre Transit Terminal at Square One, traveling along Cawthra Road between Atwater Avenue and Bloor Street. It operates all day, Monday to Saturday with a 15 to 20-minute headways during the AM and PM peak periods.

Access Location: The closest stop is located at the Elizabeth Street N & Park Street E intersection.

MiWay Bus Route 14 – Lorne Park is a bus route that offers two services during the week (Route 14 and 14A), Route 14 operates during off peak periods Monday to Friday, while Route 14A only operates during peak periods on weekdays. It operates generally in east-west direction between Port Credit GO Station and Clarkson GO Station, with Route 14A extending south on Southdown Road to loop around Lakeshore Road West and Royal Windsor Drive back to Clarkson GO Station. It operates with approximately 35 to 40-minute headways during the AM and PM peak periods.

Access Location: The closest stop is located at the Elizabeth Street N & Park Street E intersection.

MiWay Bus Route 19 – Hurontario is a bus route that offers four services during the week (Route 19, 19A, 19B and 19C), Route 19 operates all day, seven days a week, Routes 19A and 19B operate all day during the weekdays, and Route 19C only operates on Saturdays. It operates generally in north-south direction between the Port Credit GO Station and the Park & Ride at Highway 407/Hurontario Street, while the branch routes operate from Trillium Health Centre towards Britannia Road West. It operates with approximately 10 to 15-minute headways throughout the day.

Access Location: The closest stop is located at the Elizabeth Street N & Park Street E intersection.

MiWay Bus Route 23 – Lakeshore is a bus route that operates generally in east-west direction between Clarkson GO Station, Port Credit GO Station and Long Branch GO Station. It operates all day, Monday to Sunday with 10 to 15-minute headways during the AM and PM peak periods.

Access Location: The closest stop is located at the Elizabeth Street N & Park Street E intersection.

MiWay Route 103 – Hurontario Express is an express bus route that operates generally in north-south direction. It operates between Port Credit GO Station and the Brampton Gateway Terminal. It operates all day, Monday to Sunday with 10-minute headways during the AM and PM peak periods.

Access Location: The closest stop is located at Port Credit GO Station.

In addition, the Hurontario Light Rail Transit (HLRT) project is expected to be completed by 2024. The Hurontario LRT will run along Hurontario Street between Port Credit GO Station and Brampton Gateway Terminal on Steeles Avenue. When it is completed, the Port Credit GO Station will serve as a transportation mobility hub of the area in the future.

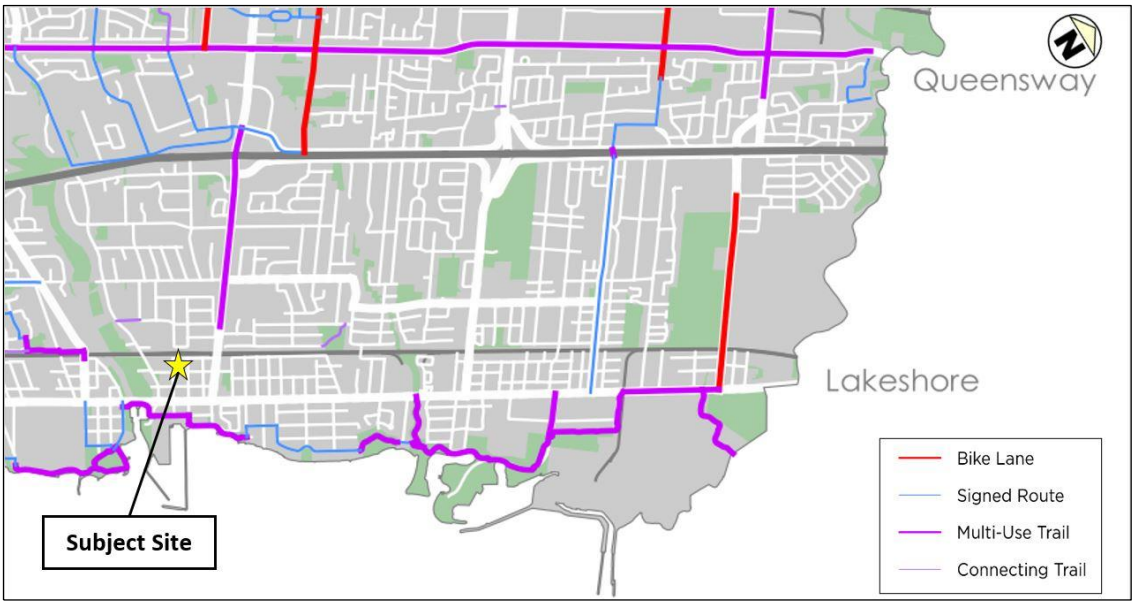
2.3 PEDESTRIAN NETWORK

In the area immediately surrounding the subject site, continuous sidewalk is available along both sides of Hurontario Street, Lakeshore Road E, Elizabeth Street N and Park Street E. There are crosswalks available at all signalized intersections. The existing pedestrian network provides good connections between the residential, commercial and other amenities in the area as well as the nearby bus stops and Port Credit GO Station.

2.4 CYCLING NETWORK

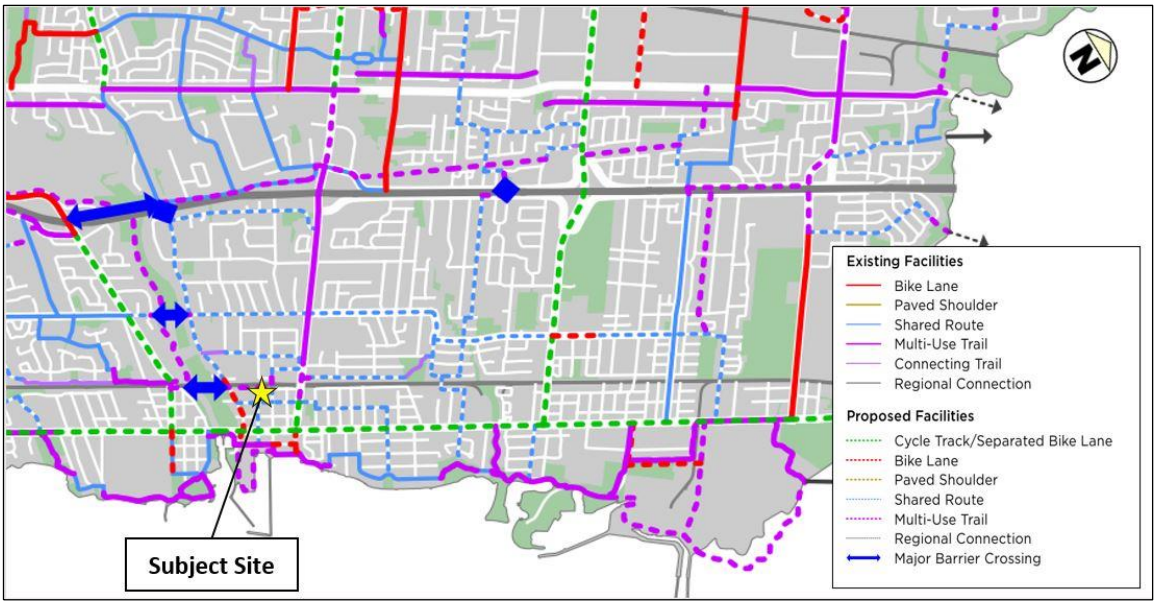
The existing cycling network in the vicinity of the subject site is the illustrated in **Figure 2.3**. Cycling infrastructure in the form of multi-use trails are available near the site along Hurontario Street and Port Street East; however, the network-wide connectivity is limited. The Mississauga Cycling Master Plan 2018 proposes an integrated cycling network as shown in **Figure 2.4**. The master plan does not specify an implementation timeline but contemplates overall completion within twenty years. When implemented, the site will have safer and better-connected bike access to surrounding neighbourhoods.

Figure 2.3: Existing Cycling Network



Source: City of Mississauga Cycling Master Plan 2018

Figure 2.4: Future Cycling Network



Source: City of Mississauga Cycling Master Plan 2018

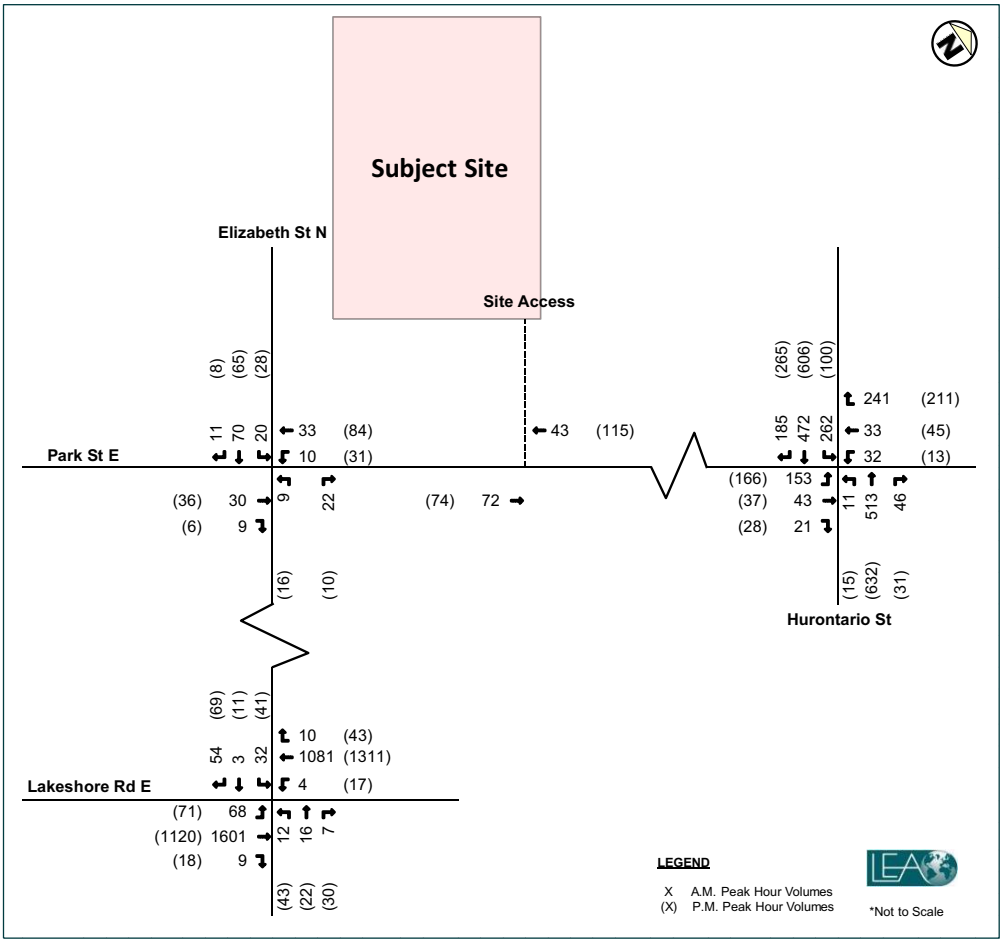
2.5 DATA COLLECTION

Traffic data was obtained through Turning Movement Count (TMC) surveys conducted by LEA. The TMCs for intersections noted in Section 2.1 were performed on Thursday, December 5, 2019 from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. The signal timing plans were obtained from the City. Detailed TMCs and signal timing plans are included in **Appendix B**.

2.6 EXISTING INTERSECTION CAPACITY ANALYSIS

The existing traffic volumes for the weekday AM and PM peak hours are illustrated in **Figure 2.5.**

Figure 2.5: Existing Traffic Volumes



The existing intersection capacity analysis was performed using Synchro 9.1 which incorporates to the Highway Capacity Manual (HCM) 2000 methodology, and adhering to the City of Mississauga Traffic Impact Study Guidelines. The Synchro default Peak Hour Factor of 0.92 was adopted. Existing intersection capacity analysis results are summarized in **Table 2-1**. Detailed Synchro reports are provided in **Appendix C**.

Table 2-1: Existing Intersection Capacity Analysis – Signalized

Intersection	Movement	AM Peak Hour								PM Peak Hour							
		Overall			Movements					Overall			Movements				
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th							50th	95th
Hurontario St & Park St E	EBL	0.73	29	C	1.01	123	F	44	#89	0.55	21	C	0.99	100	F	35	#61
	EBTR				0.13	39	D	11	23				0.12	29	C	6	14
	WBL				0.11	39	D	7	16				0.05	28	C	2	6
	WBTR				0.31	41	D	7	34				0.45	32	C	20	39
	NBL				0.04	18	B	2	6				0.04	8	A	1	5
	NBTR				0.41	23	C	58	80				0.37	10	B	34	59
	SBL				0.59	14	B	34	49				0.30	12	B	9	26
	SBT				0.27	12	B	34	44				0.33	10	B	31	54
	SBR				0.20	12	B	12	24				0.29	10	B	13	36
Lakeshore Rd E & Elizabeth St N	EBLTR	0.82	22	B	0.96	29	C	185	#268	0.69	16	B	0.81	17	B	101	136
	WBLTR				0.52	9	A	62	77				0.65	11	B	91	112
	NBL				0.06	40	D	3	8				0.20	42	D	9	20
	NBTR				0.06	40	D	3	11				0.10	40	D	5	16
	SBL				0.20	43	D	7	17				0.26	45	D	9	20
	SBTR				0.05	40	D	1	12				0.16	41	D	7	21

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

As shown in **Table 2-1**, all the analyzed intersections are operating at an acceptable overall Level of Service (LOS) during all peak hours under existing traffic conditions. The EBL at Hurontario/Park intersection is operating around or just below capacity during the peak hours analyzed. However, the overall intersection operates with residual capacity.

Table 2-2: Existing Intersection Capacity Analysis – Unsignalized

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		Delay (s)	95th Queue (m)	V/C	LOS	Delay (s)	95th Queue (m)	V/C	LOS
Elizabeth St N & Park St E	EBTR	7	-	-	A	8	-	-	A
	WBLT	8	-	-	A	8	-	-	A
	NBLR	7	-	-	A	8	-	-	A
	SBLTR	7	-	-	A	8	-	-	A

As shown in **Table 2-2**, the unsignalized intersection is operating at an acceptable overall LOS during all peak hours under existing traffic conditions.

3 FUTURE BACKGROUND TRAFFIC CONDITIONS

For the analysis of future traffic conditions, this study considers a five-year horizon (2025). Other background assumptions were also confirmed with the City, as per the Terms of Reference included in **Appendix A**.

3.1 CORRIDOR GROWTH

Corridor growth rates applicable to Hurontario Street and Lakeshore Road E were confirmed with the City and are summarized in **Table 3-1**.

Table 3-1: Corridor Growth Rates

Corridors	Directions	Annual Growth Rate	
		AM Peak Hour	PM Peak Hour
Hurontario Street	Northbound	0.00%	0.50%
	Southbound	1.50%	1.00%
Lakeshore Road E	Eastbound	0.25%	1.25%
	Westbound	1.75%	0.50%

3.2 BACKGROUND DEVELOPMENTS

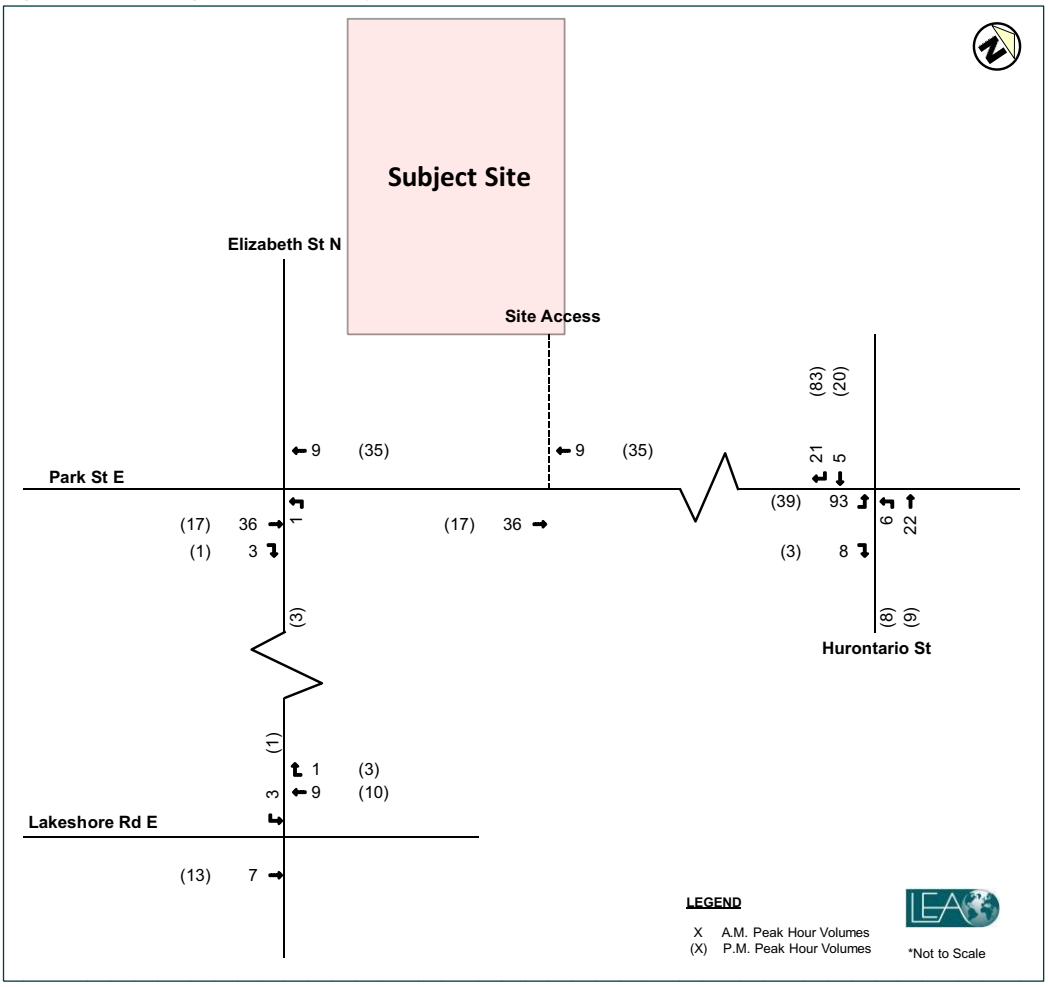
As confirmed with the City, the following four background developments within the vicinity of the subject site have been considered in the study. Details regarding the background developments are summarized in **Table 3-2**.

Table 3-2: Summary of Background Developments

#	Address of Development	Description	Source
1	6, 8, 10 Ann Street	69 residential units	GHD (October 2014)
2	21-29 Park Street E	204 residential units	LEA Consulting (April 2018)
3	55 Port Street	35 residential units	R.J. Burnside (February 2018)
4	22-28 Ann Street & 78 Park Street E	351 residential units and 308 m^2 retail/office GFA	LEA Consulting (November 2019)

The site traffic volumes of the background developments were extracted from the respective Traffic Impact Studies (TIS) and were then assigned to the study area road network. The background development traffic volumes are illustrated in **Figure 3.1**.

Figure 3.1: Background Development Traffic Volumes



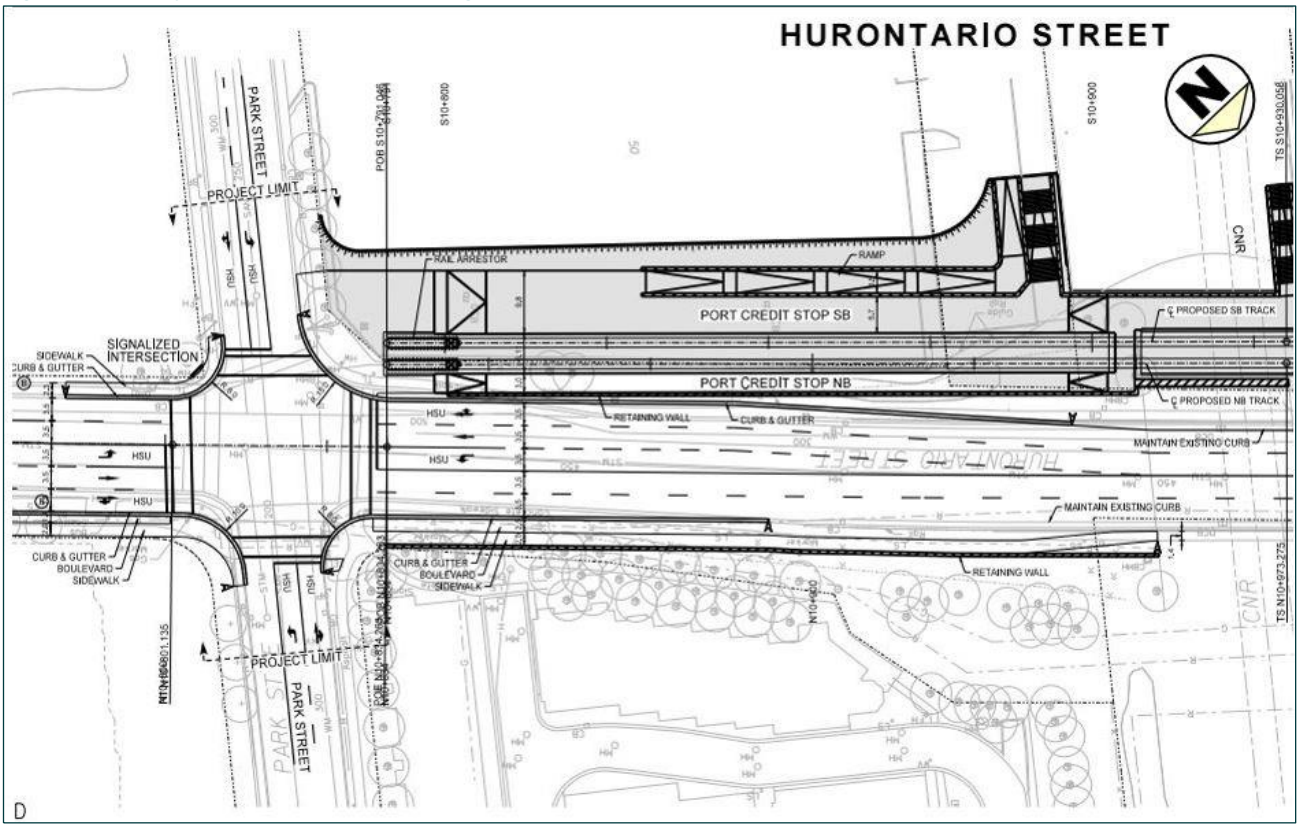
3.3 FUTURE ROAD NETWORK CHANGES

The Hurontario Light Rail Transit (HLRT) project is expected to be completed by 2024. Lane configuration changes will be made to the southbound approach at the Hurontario Street and Park Street E intersection, including:

- The removal of the southbound right-turn lane;
- The conversion of the curbside southbound through lane to a shared through-right lane; and
- An increase in the amount of storage for the southbound left-turn lane from 20m to 60m.

It is assumed that the lane configuration changes will be made by 2024 and were included in the analysis. The intersection layout is illustrated in **Figure 3.2**.

Figure 3.2: Proposed Future Lane Configuration at Hurontario St and Park Street E

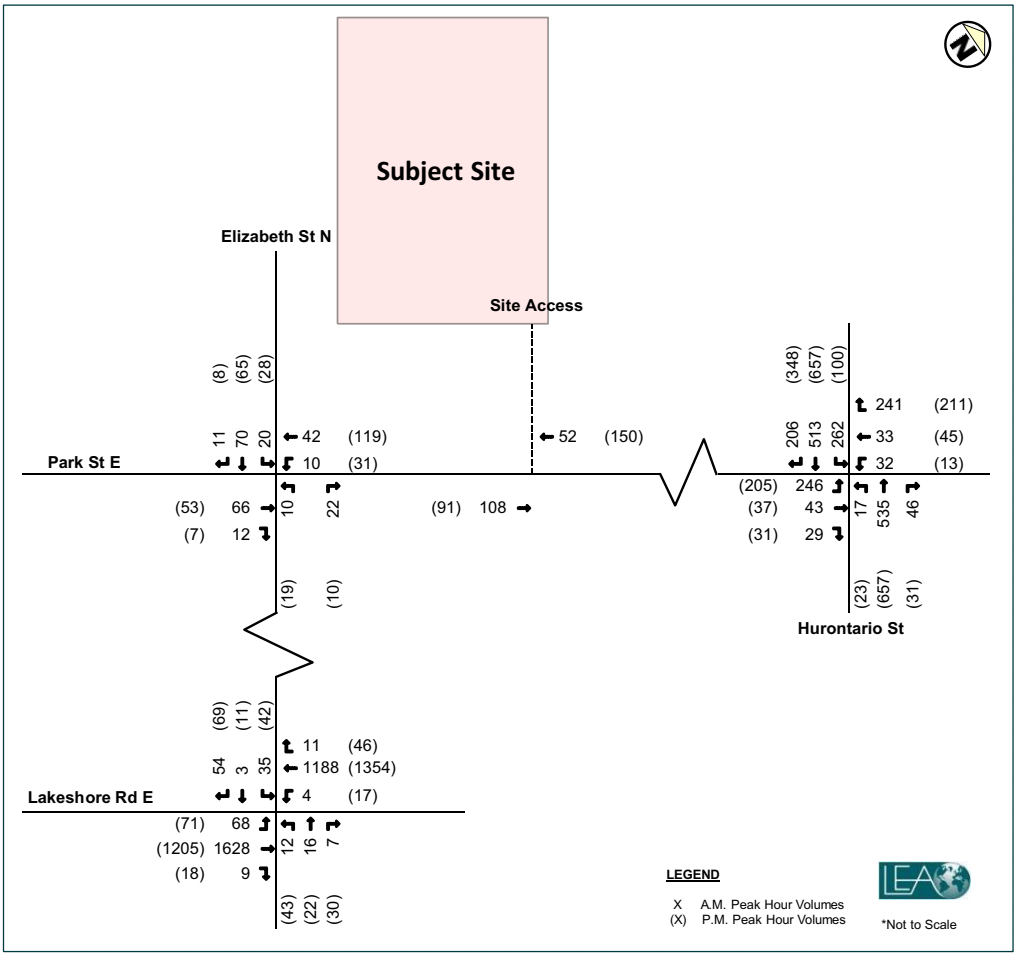


Source: Hurontario/Main Street LRT Preliminary Engineering & TRAP – Preferred Alignment (June 2014)

3.4 FUTURE BACKGROUND INTERSECTION CAPACITY ANALYSIS

The future background traffic volumes were derived by applying corridor growth rates (as mentioned in Section 3.1) compounded annually for five years on the existing traffic volumes, adding the background development traffic volumes (**Figure 3.1**). The future background traffic volumes are illustrated in **Figure 3.3**.

Figure 3.3: Future Background Traffic Volumes



The future background intersection capacity analyses are summarized in **Table 3-3** and **Table 3-4**. The improvement (advanced left-turn for EBL movement during AM peak) at Hurontario/Park intersection which was proposed in the 22-28 Ann Street & 78 Park Street E TIS report (one of the background developments) was adopted in the analysis. The signal timing plans were optimized while maintaining the cycle length. These were carried forward to future total traffic conditions. Detailed Synchro reports are provided in **Appendix D**.

Table 3-3: Future Background Intersection Capacity Analysis – Signalized

Intersection	Movement	AM Peak Hour								PM Peak Hour							
		Overall			Movements					Overall			Movements				
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th							50th	95th
Hurontario St & Park St E	EBL	0.73	32	C	0.84	60	E	60	72	0.73	22	C	0.93	73	E	41	#66
	EBTR				0.12	36	D	10	19				0.11	25	C	6	13
	WBL				0.28	58	E	9	18				0.04	25	C	2	5
	WBTR				0.60	66	E	16	47				0.46	29	C	25	42
	NBL				0.08	22	C	3	11				0.14	12	B	2	9
	NBTR				0.46	27	C	60	107				0.42	13	B	42	69
	SBL				0.63	17	B	34	66				0.35	15	B	11	30
	SBTR				0.44	16	B	54	91				0.62	17	B	64	108
Lakeshore Rd E & Elizabeth St N	EBLTR	0.85	22	C	0.97	30	C	190	#275	0.73	16	B	0.84	17	B	109	148
	WBLTR				0.55	9	A	66	81				0.66	10	B	89	109
	NBL				0.07	42	D	3	8				0.22	45	D	10	21
	NBTR				0.06	42	D	3	11				0.11	42	D	5	17
	SBL				0.25	47	D	8	19				0.30	48	D	10	21
	SBTR				0.06	42	D	1	13				0.17	44	D	7	21

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

Table 3-4: Future Background Intersection Capacity Analysis – Unsignalized

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		Delay (s)	95th Queue (m)	V/C	LOS	Delay (s)	95th Queue (m)	V/C	LOS
Elizabeth St N & Park St E	EBTR	8	-	-	A	8	-	-	A
	WBLT	8	-	-	A	9	-	-	A
	NBLR	7	-	-	A	8	-	-	A
	SBLTR	7	-	-	A	8	-	-	A

As shown in **Table 3-3** and **Table 3-4**, with the increase in background development traffic and corridor growth, all the signalized and unsignalized intersections are expected to operate at an acceptable overall LOS during all peak hours and within capacity under future background traffic conditions. With signal optimization and adopted improvement, the EBL at Hurontario/Park intersection has improved from existing conditions with v/c ratio decreased from 1.01 to 0.84 during AM peak hour.

4 SITE GENERATED TRAFFIC

4.1 MODAL SPLIT ASSUMPTION

The Hurontario LRT is expected to be completed by 2024. Although some modal shift from auto to transit would be expected by 2024, for conservative approach, the 2016 Transportation Tomorrow Survey (TTS) modal split has been adopted for the 2025 horizon. The TTS 2016 modal split was reviewed for home-based trips originating from the 2006 Traffic Zones 3877. The existing modal split are summarized in **Table 4-1**.

Table 4-1: Existing Modal Split

Transportation Mode	AM Peak (1)		PM Peak (1)	
	Person Trips	Percentage (%)	Person Trips	Percentage (%)
Auto Driver	1,173	61%	1,141	62%
Auto Passenger	116	6%	95	5%
Transit	527	27%	448	24%
Walk	116	6%	166	9%
Total	**1,932**	**100%**	**1,850**	**100%**

Note: (1) – Based on peak direction (i.e. AM outbound and PM inbound)

Currently, about 67% of trips are made by personal vehicles (auto driver or passenger), 24%-27% of trips are made by transit while 6%-9% trips are made by walking during weekday AM and PM peak hours.

4.2 AUTO TRIP GENERATION

Trip generation for the development was based on the ITE Trip Generation Manual 10th Edition. Given the proposed uses, LUC 222 Multifamily Housing (High-Rise) was used. The auto trip generation is summarized in **Table 4-2**. It is recognized that the ITE trip generation rates also captures some Non-Auto trips. As such, a conservative reduction of 27% is assumed for the analysis.

Table 4-2: Trip Generation of the Subject Site

Land Use		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Residential (258 Units)	Trip Rate	0.07	0.27	0.34	0.24	0.15	0.39
	In/Out Distribution	21%	79%	100%	62%	38%	100%
Total Site Trips		18	69	87	62	38	100
Modal Split Reduction (27%)		*-5*	*-19*	*-24*	*-17*	*-10*	*-27*
Total Auto Trips		**13**	**50**	**63**	**45**	**28**	**73**

As shown in **Table 4-2**, the proposed development is expected to generate 63 and 73 two-way trips during AM and PM peak hours, respectively.

4.3 AUTO TRIP DISTRIBUTION AND ASSIGNMENT

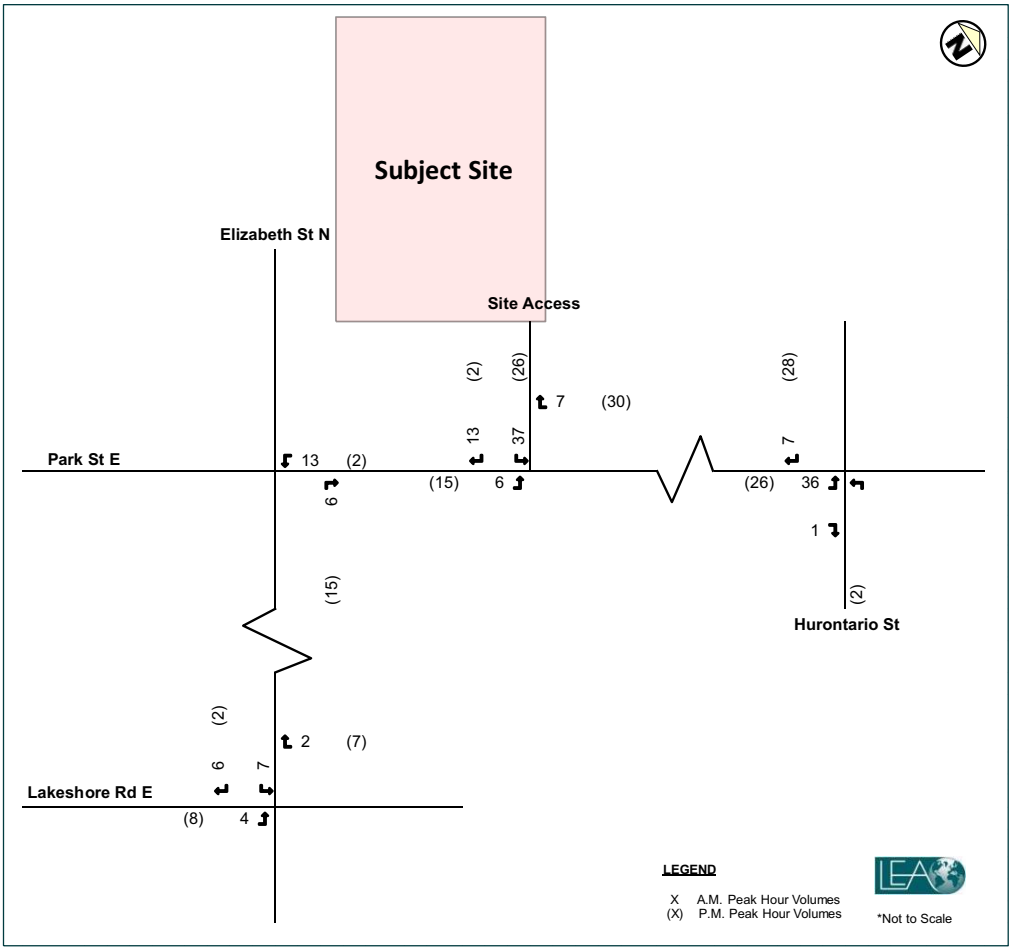
Directional trip distribution of site traffic was derived using Transportation Tomorrow Survey (TTS) 2016 data. The estimated trip distribution for this study is outlined in **Table 4-3**. The site traffic was assigned to the road network based on the trip patterns in the study area, location and configuration of the site access, and the route providing the shortest travel time. The site traffic volumes are illustrated in **Figure 4.1**.

Table 4-3: Subject Site Trip Distribution

Gateway No.	Locations	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
1	Hurontario St (N of Park St E)	52%	72%	63%	92%
2	Hurontario St (S of Park St E)	3%	3%	4%	0%
3	Lakeshore Rd E (E of Elizabeth St N)	19%	13%	16%	2%
4	Lakeshore Rd E (W of Elizabeth St N)	27%	12%	17%	6%

**Total may not add up to 100% due to rounding*

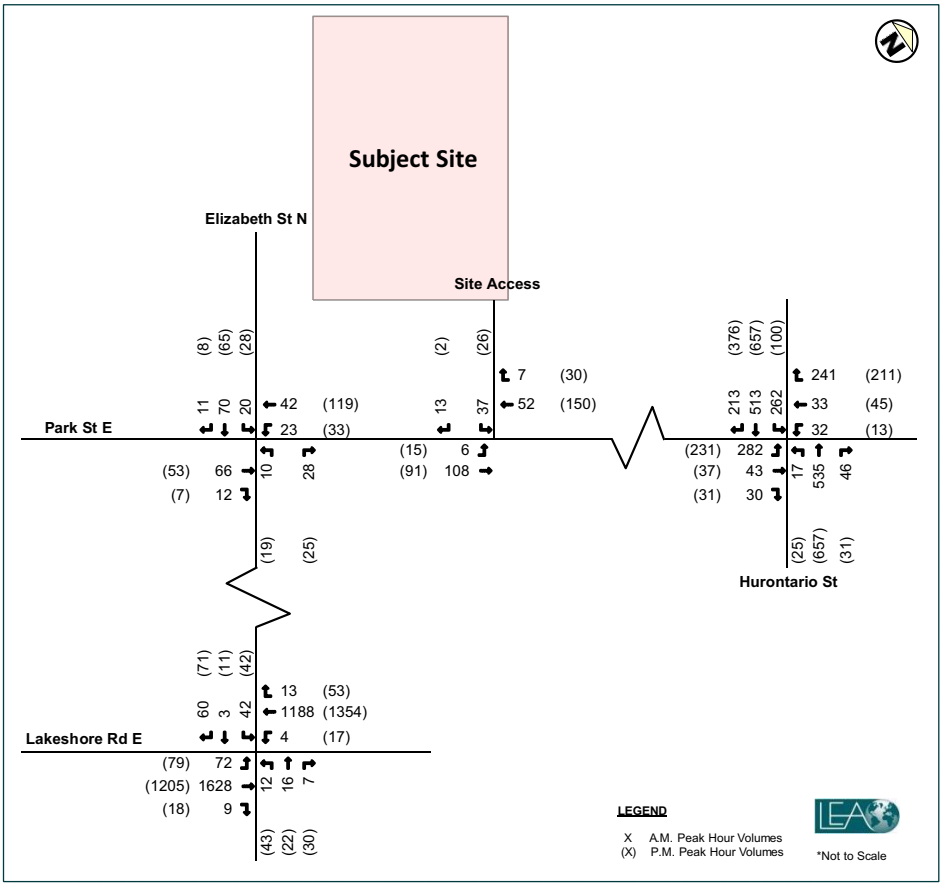
Figure 4.1: Site Traffic Volumes



5 FUTURE TOTAL TRAFFIC CONDITIONS

The future total traffic volumes were derived by adding future background traffic volumes (**Figure 3.3**) and site traffic volumes (**Figure 4.1**). The future total traffic volumes are illustrated in **Figure 5.1**.

Figure 5.1: Future Total Traffic Volumes



The future total intersection capacity analysis are summarized in **Table 5-1** and **Table 5-2**. Detailed Synchro reports are provided in **Appendix E**.

Table 5-1: Future Total Intersection Capacity Analysis – Signalized

Intersection	Movement	AM Peak Hour								PM Peak Hour							
		Overall			Movements					Overall			Movements				
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th							50th	95th
Hurontario St & Park St E	EBL	0.77	34	C	0.93	73	E	70	#96	0.76	24	C	0.94	71	E	46	#80
	EBTR				0.12	35	C	10	19				0.10	24	C	5	13
	WBL				0.28	58	E	9	18				0.04	23	C	2	5
	WBTR				0.60	66	E	16	47				0.43	27	C	24	42
	NBL				0.08	23	C	3	11				0.17	14	B	3	9
	NBTR				0.47	28	C	61	107				0.43	15	B	45	69
	SBL				0.64	18	B	34	66				0.37	17	B	12	30
	SBTR				0.45	17	B	56	93				0.66	19	B	72	111
Lakeshore Rd E & Elizabeth St N	EBLTR	0.88	26	C	0.99	36	D	200	#281	0.77	17	B	0.88	20	C	119	167
	WBLTR				0.55	9	A	66	82				0.66	10	B	90	110
	NBL				0.07	42	D	3	8				0.22	45	D	10	21
	NBTR				0.06	42	D	3	11				0.11	42	D	5	17
	SBL				0.30	48	D	10	21				0.30	48	D	10	21
	SBTR				0.06	42	D	1	13				0.18	44	D	7	22

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

Table 5-2: Future Total Intersection Capacity Analysis – Unsignalized

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		Delay (s)	95th Queue (m)	V/C	LOS	Delay (s)	95th Queue (m)	V/C	LOS
Elizabeth St N & Park St E	EBTR	8	-	-	A	8	-	-	A
	WBLT	8	-	-	A	9	-	-	A
	NBLR	7	-	-	A	8	-	-	A
	SBLTR	7	-	-	A	8	-	-	A
Park St E & Site Access	EBLT	0	0	0.00	A	1	0	0.01	A
	SBLR	10	2	0.06	A	11	1	0.04	B

As shown in **Table 5-1** and **Table 5-2**, with the increase in site traffic, all the signalized and unsignalized intersections are expected to operate at an acceptable overall LOS during all peak hours, with all individual movements operating within capacity under future total traffic conditions.

Based on the above-noted, and our comparison in traffic operations between future background and total traffic conditions, it is concluded that the proposed development will have minimal traffic impact on the study area intersections.

6 PARKING AND LOADING

6.1 VEHICULAR PARKING REQUIREMENT

The subject site is governed by the City of Mississauga's Comprehensive Zoning By-law 0225-2007. **Table 6.1** summarizes the parking requirements and proposed parking supply.

Table 6.1: Parking Requirement and Supply

Land Use	No. of Units	Minimum Parking Requirement Rates	Parking Spaces Required		Proposed Parking Supply
1-bedroom	162	1.25 spaces/unit	203	340	174 (0.67 spaces/unit)
2-bedroom	90	1.40 spaces/unit	126		
3-bedroom	6	1.75 spaces/unit	11		
Visitors	258	0.2 spaces/unit	52		26 (0.1 spaces/unit)
		Total	**392**		**200**

As per the City's Zoning By-law, a total of 392 parking spaces is required for the proposed development. A parking supply of 200 spaces (174 residential and 26 visitor) is proposed which represents a shortage of 192 spaces compared to the City's By-law requirement. The proposed parking supply is equivalent to parking rates of 0.67 spaces/unit for residential and 0.1 spaces/unit for visitor. The following subsections will provide justification for the proposed parking supply.

6.2 PARKING JUSTIFICATION

6.2.1 Vehicle Ownership

The vehicle ownership data were extracted from the 2016 Transportation Tomorrow Survey (TTS) for the surrounding area and summarized in **Table 6.2**.

Table 6.2: Vehicle Ownership in Apartment Households

Number of Cars in Household	Apartment Units	%
0	730	23%
1	1,698	53%
2	687	21%
3	118	4%
Total	**3,233**	**100%**

It was found that about 23% of apartment households in the neighbourhood do not own a car. Given the proposed residential parking rate at 0.76 spaces/unit which is equivalent to 24% of households (units) do not own a vehicle/parking space; therefore, the proposed residential parking rate is consistent with the 2016 vehicle ownership situation. Given the general trend of lowering car ownership, the percentage of zero car household is expected to continue to increase going into the future horizon. By the studied future horizon of 2025, this percentage will be much higher.

6.2.2 Parking Sales Data

The recent parking sales data of the new residential development at 21 Park Street E (about 2 mins walk from the subject site) were also reviewed. Considering that the majority of units are 1-bedroom unit (162/258 = 63%) in the subject site, the parking sales data of 1-bedroom unit was referenced. The sales data of 1-bedroom is listed as below:

- Total number of 1-bedroom units: 79 (all units were sold)
- Number of 1-bedroom units sold with parking space attached: 59

The recent parking sales data represents a residential parking rate of 0.75 spaces/unit (59 spaces/79 units). Therefore, there is room for reduction from the City's Zoning By-law parking rates, in particular for 1-bedroom unit.

6.2.3 Parking Utilization Survey

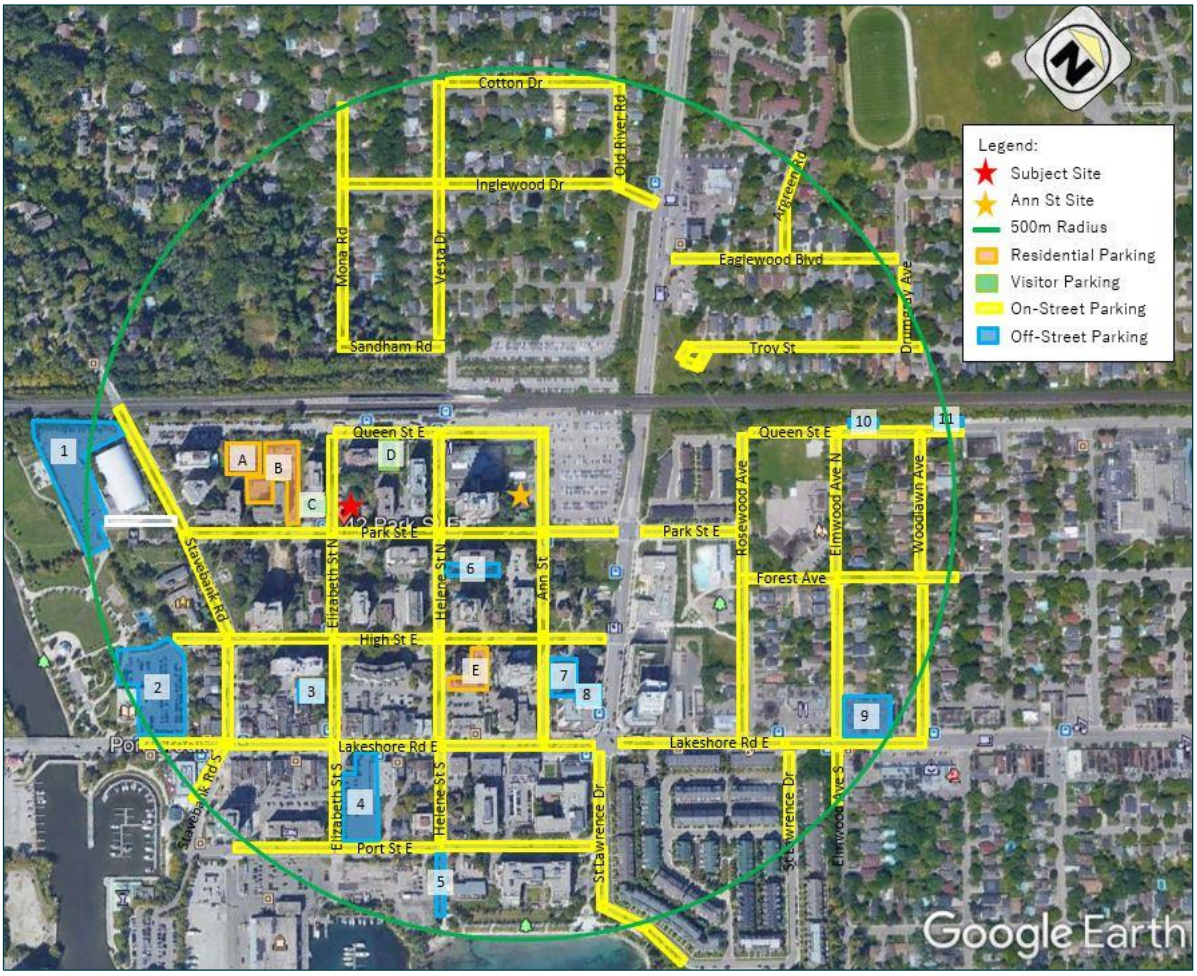
A parking utilization survey was conducted recently for the development application at 22-28 Ann Street & 78 Park Street East (Ann St Site), which is about 200m east of the subject site. Prior to undertaking the survey, a Terms of Reference (**Appendix F**) was submitted for City's confirmation on proposed survey days and time periods. Considering the close proximity of the subject site and the Ann St Site, it would seem appropriate to utilize the same survey results to justify the proposed parking reduction. The parking utilization survey was planned on two consecutive weeks including Fridays, January 10 & 17, 2020 and Saturdays, January 11 & 18, 2020. The survey period was 6:00-11:00 PM for each survey date. The survey location is summarized in **Table 6.3** and illustrated in **Figure 6.1**.

Table 6.3: Parking Survey Location

Residential		Visitor	
Map Label	**Address**	**Map Label**	**Address**
A	12 Park Street East	B	26 Park Street East
B	26 Park Street East	C	28 Elizabeth Street North
E	7 Helene Street North	D	49 Queen Street East
		*on-/off-street public parking within 500m radius of Ann St Site.	

Due to unexpected weather conditions (i.e. snowstorm) on Saturday January 18, the survey was cancelled and did not recount on the following Saturday. The survey results of the two consecutive Fridays were reviewed and found to be consistent. Therefore, the survey results on the two Saturdays were also assumed to be similar as well since one Saturday (January 11) parking survey data was used in this study. Summarized parking survey data is attached in **Appendix G**.

Figure 6.1: Parking Survey Map



Residential Parking

The residential proxy parking surveys included three sites within the neighborhood. The survey result for residential parking is summarized in **Table 6.4**.

Table 6.4: Observed Residential Parking Rates

Map Label	A		B		E		85th Percentile Observed Parking Rate
Proxy Sites	12 Park St E (60 units)		26 Park St E (84 units)		7 Helene St N (39 units)		
	Peak Demand	Observed Parking Rate (spaces/unit)	Peak Demand	Observed Parking Rate (spaces/unit)	Peak Demand	Observed Parking Rate (spaces/unit)	
Friday, January 10, 2020	37	0.62	67	0.80	23	0.59	0.66
Saturday, January 11, 2020	37	0.62	62	0.74	21	0.54	0.61
Friday, January 17, 2020	33	0.55	62	0.74	21	0.54	0.61
Saturday, January 18, 2020	The parking survey was cancelled due to snowstorm.						

As detailed above, the 85th percentile observed residential parking rates are ranged 0.61-0.66 spaces/unit. Given these proxy sites are located very close to the subject site and with similar transportation context, it can be anticipated that the subject site will exhibit similar parking demand. Therefore, the proposed residential parking supply rate of 0.67 spaces/unit is deemed appropriate.

Visitor Parking

The visitor proxy parking surveys included three sites with the neighborhood. The survey result for visitor parking is summarized in **Table 6.5**.

Table 6.5: Observed Visitor Parking Rates

Map Label	B		C		D		85th Percentile Observed Parking Rate
Proxy Sites	26 Park St E (84 units)		28 Elizabeth St N (102 units)		49 Queen St E (48 units)		
	Peak Demand	Observed Parking Rate (spaces/unit)	Peak Demand	Observed Parking Rate (spaces/unit)	Peak Demand	Observed Parking Rate (spaces/unit)	
Friday, January 10, 2020	7	0.08	1	0.01	3	0.06	0.05
Saturday, January 11, 2020	7	0.08	0	0.00	5	0.10	0.06
Friday, January 17, 2020	6	0.07	2	0.02	4	0.08	0.06
Saturday, January 18, 2020	The parking survey was cancelled due to snowstorm.						

As detailed above, the 85th percentile observed visitor parking rates are ranged 0.05-0.06 spaces/unit. Again, given these proxy sites are located very close to the subject site and with similar transportation context, it can be anticipated that the subject site will exhibit similar parking demand. Therefore, the proposed visitor parking supply rate of 0.10 spaces/unit is also deemed appropriate.

A parking inventory was also conducted by LEA to document on-street and off-street parking supply within approximately 500m from the subject site. The following off-street parking facilities, summarized in **Table 6.6**, were counted towards the parking inventory and accounted for in the parking utilization survey.

Table 6.6: Off-Street Public Parking Facilities

Map Label	Location	Type	Parking Supply
1	Port Credit Arena	Surface	184
2	Port Credit Library	Surface	158
3	112 Elizabeth St	Surface	9
4	Elizabeth St & Port St E	Surface	90
5	St. Lawrence Park	Surface	10
6	65 Park St E	Surface	7
7	Ann St & High St E	Garage	31
8	Hurontario St & Lakeshore Rd E	Surface	17
9	Elmwood Ave N & Lakeshore Rd E	Surface	61
10	Elmwood Ave N & Queen St E	Surface	13
11	Woodlawn Ave & Queen St E	Surface	54
		Total	**634**

Based on the parking utilization survey, the residual public parking supply within the study area for the Friday and Saturday survey periods are summarized in **Table 6.7**. The presented overall parking supply accounted for on-street parking restrictions at the time of survey.

Table 6.7: Summary of Public Parking Utilization Survey Results

Date	Time of Peak Parking Demand	Overall Supply	Peak Parking Demand	Residual Parking
Friday, January 10, 2020	8:00 PM	1,507* (On-Street: 873, Off-Street: 634)	595	+912
Saturday, January 11, 2020	8:30 PM		587	+920
Friday, January 17, 2020	7:00 PM	1,521 (On-Street: 887, Off-Street: 634)	583	+938
Saturday, January 18, 2020	The parking survey was cancelled due to snowstorm.			

*Note: * A total of 14 on-street parking spaces at Park St E (north side) from Stavebank Rd to Elizabeth St N were blocked by construction during survey period.*

The maximum observed on-street and off-street parking demand was ranged between 583 and 595 spaces occurring during the evening time on Friday and Saturday. The minimum resulting residual parking at those times corresponded would be ranged between 912 and 938.

The overall minimum observed residual parking supply of 912 parking spaces is much greater than the visitor parking shortfall of 26 spaces required. Thus, the visitor parking shortfall can readily be accommodated by the existing public parking supply within reasonable walking distance from the subject site.

Based on the above parking justification and considering the Transportation Demand Management (TDM) opportunities and measures mentioned in Section 8 below, the proposed parking supply of 200 spaces including 174 residential (0.67 spaces/unit) and 26 visitor (0.1 spaces/unit) spaces is considered appropriate for the proposed development.

6.3 BICYCLE PARKING

The City of Mississauga Zoning By-law does not specify bicycle parking, but the City of Mississauga Cycling Master Plan recommends 0.7 and 0.08 spaces per unit for long-term and short-term bicycle parking, respectively. The proposed development will provide bicycle parking spaces at the recommended rates. The required and proposed bicycle parking is summarized in **Table 6.8**.

Table 6.8: Comparison of Required and Proposed Bicycle Parking Supply

Land Use	No. of Units	City of Mississauga Cycling Master Plan			Proposed Bicycle Parking Supply
		Recommended Bicycle Parking Rates		Bicycle Spaces Required	
Residential	258	Long-Term	0.7 spaces/unit	181	181
		Short-Term	0.08 spaces/unit	21	21
			Total	**202**	**202**

6.4 LOADING

As per the City of Mississauga Comprehensive Zoning By-law 0225-2007, one loading space is required per apartment building containing a minimum of 30 dwelling units. One loading space that meets the minimum dimensional requirements is proposed for the one residential building proposed at the subject site. The minimum loading requirement is met as a result.

A site circulation review was completed using AutoTURN 9.1 software package to ensure adequate maneuverability through the site for garbage trucks. The swept path diagrams are provided in **Appendix H**. Based on the swept path diagrams, the garbage and delivery trucks are able to effectively access, circulate and complete required activities on-site.

7 SIGHTLINE REVIEW

As per the Terms of Reference, a sightline assessment was completed to ensure the sight line visibility with regard to ingress and egress. The proposed development has two site accesses, including one service access at Elizabeth Street N and one parking access at Park Street E (major access).

The required stopping sight distance (SSD) is determined based on Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads*. **Table 7.1** summarizes required SSD for a roadway with the assumed posted speed of 50 km/h (design speed of 60 km/h). Details of the sightline review, conducted in accordance to the TAC Guidelines can be found in **Appendix I**.

Table 7.1: Required SSD for Proposed Development

	Stopping Sight Distance	
	Parking Access	Service Access
Required	85 m	85 m
Available	>85 m	60 m
Satisfied?	Yes	No

Based on our review, with a posted speed limit of 50 km/h (equivalent to a design speed of 60 km/h), the parking access meets the minimum SSD requirements of 85 m while the parking access has available SSD of 60 m which is below the minimum SSD requirement. For road safety, additional signage and traffic calming measures to be required to lower the traveling speed and warn motorist of the driveway.

8 TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN

Transportation Demand Management (referred to as TDM) is a set of initiatives and polices to reduce traffic demand by influencing travel behavior. Effective TDM measures can reduce vehicle usage and encourage people to engage in more sustainable transportation mode including public transit, shared rides as well as active transportation, such as walking and cycling. The TDM opportunities and proposed TDM measures are described in the following sections.

8.1 PEDESTRIAN-BASED STRATEGIES

1. *Direct pedestrian connections to the public road network*

   The proposed entrances are oriented towards Park Street E and provide convenient access for pedestrian and transit users. A direct pedestrian connection between the existing sidewalks on Park Street E. This connection will further help service the connection to the current MiWay bus stops and Port Credit GO Station (as mentioned in Section 2.2).

2. *Walking distance to nearby amenities.*

   Major complementary uses to the proposed development have been identified in particular along Lakeshore Road E (about 5 minutes walk) including, ground floor retail stores, grocery stores and coffee shop, etc. The Port Credit Memorial Park, Port Credit Library and Port Credit Harbour Marina are also located within a reasonable walking distance (about 5 minutes walk). This will greatly minimize the need for automobile travel in the area.

8.2 TRANSIT-BASED STRATEGIES

3. *Connection to the existing transit network.*

   A clear pedestrian pathway is provided to the nearby MiWay bus stop at Elizabeth Street N and Park Street E intersection, and Port Credit GO Station. As mentioned in Section 2.2, The Port Credit GO Station is located about 200 m (about 2 minutes walk) northeast of the proposed development.

4. *Future Hurontario LRT*

   The Hurontario Light Rail Transit (HLRT) project is expected to be completed by 2024. The Hurontario LRT will run along Hurontario Street between Port Credit GO Station and Brampton Gateway Terminal on Steeles Avenue. When it is completed, residents will have another public transit option for their travelling.

5. *Presto cards with pre-loaded value to be provided to all new residents.*

   A Presto Card with preloaded value should be provided to encourage residents of the subject site to use the current MiWay, GO and future Hurontario LRT services. This provides an opportunity for residents to experience the benefits of using transit and induce transit behavior to new users.

6. *Transit screens to be provided at the lobby.*

   Transit screens in the Lobby would provide residents and visitors the ability to plan their transit route and transit vehicle timing from the lobby will allow them to wait inside until they know a rail/bus is about to arrive or make alternate arrangements if there is a significant delay. This

enables transit to become less unattractive in the winter months and when there is poor weather.

8.3 CYCLING-BASED STRATEGIES

7. *Provide bicycle parking.*

   The proposed development will be providing bicycle parking facilities to support encourage active transportation. As mentioned in Section 2.4, the Mississauga Cycling Master Plan 2018 proposes an integrated cycling network which will enhance the network-wide connectivity in the area. A supply of 202 bicycle parking spaces are provided at the proposed development.

8. *Promote and increase of cycling awareness.*

   Provide information packages on Smart Commute initiatives and encourage cycling as a viable opportunity of active transportation. This could include educating residents on the health and environmental benefits of cycling, as well as providing maps of the cycling network and available infrastructure in the surrounding area.

8.4 PARKING-BASED STRATEGIES

9. *Reduction in available parking spaces.*

   The reduction in the availability of parking will serve to encourage residents to take transit instead of driving. This will reduce the number of vehicles on the road. The proposed 200 parking spaces represents about 49% reduction, as compared to the City's By-law requirements.

9 CONCLUSIONS

The proposed residential development at 42-46 Park Street E & 23 Elizabeth St N consists of 22-storey building with 258 residential units and multi-level parking. A parking supply of 200 spaces and 1 loading space are proposed.

The following is a summary and conclusions of the study:

- Under existing traffic conditions, all the signalized and unsignalized intersections are operating within capacity and with acceptable overall LOS except for the EBL at Hurontario/Park intersection which is operating around or just below capacity during the peak hours.
- Under future background and total traffic conditions, all the signalized and unsignalized intersections are expected to operate within capacity and with acceptable overall LOS during all peak hours.
- The proposed development is expected to generate about 63 and 73 two-way trips during AM and PM peak hour, respectively.
- Based on the traffic analyses, it is concluded that the road network in the study area could support the traffic impact induced by the proposed development and therefore it is feasible in terms of transportation engineering perspective.
- A total of 200 parking spaces (174 residential and 26 visitor) is proposed for the proposed development which is 192 spaces (166 residential and 26 visitor) short of the City's By-law requirements.
- Parking justification was presented includes vehicle ownership, parking sales data, parking utilization surveys at proxy sites, on-street and off-street public parking in the vicinity of the subject site. It concludes that the proposed parking supply which is equivalent to parking rates of 0.67 spaces/unit for residential and 0.1 spaces/unit for visitor is considered appropriate for the proposed development.
- The subject site will provide 202 bicycle spaces which will meet the City's By-law requirements.
- The proposed provision of 1 loading space satisfies the City's By-law requirement.
- A site circulation review was completed to ensure adequate maneuverability through the site for trucks. Based on the swept path diagrams, the garbage and delivery trucks are able to effectively access, circulate and complete required activities on-site.
- Transportation Demand Management (TDM) opportunities and measures have been recommended to reduce vehicle usage and encourage people to engage in more sustainable transportation mode. They consist of pedestrian-based, transit-based, cycling-based and parking-based strategies.

APPENDIX A

Correspondence of Terms of Reference

Timothy Chin

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: November 22, 2019 11:09 AM
To: Timothy Chin
Subject: RE: Terms of Reference for Proposed Residential Development at 23 Elizabeth Street N, City of Mississauga

Hi Timothy,

The rates provided for the previous TIS of 21-29 Park street are ok to use for the 23 Elizabeth Street.

Regards

Tyler

From: Timothy Chin [mailto:TChin@lea.ca]
Sent: 2019/11/21 10:13 AM
To: Tyler Xuereb
Cc: Nixon Chan
Subject: FW: Terms of Reference for Proposed Residential Development at 23 Elizabeth Street N, City of Mississauga

Hi Tyler,

I was forwarded your contact for confirming the growth rates for proposed residential development at 23 Elizabeth Street.

Please find below the Terms of Reference we sent to the City including our assumptions on growth rate for your review and comment.

Thanks

Timothy Chin, MSc(Eng), RSP, EIT
Intermediate Transportation Analyst
T: 905 470 0015, ext.322 **E:** tchin@lea.ca **W:** www.LEA.ca
LEA Consulting Ltd.

From: Greg Borys <Gregory.Borys@mississauga.ca>
Sent: November-20-19 2:57 PM
To: Timothy Chin <TChin@lea.ca>
Cc: Nixon Chan <NChan@lea.ca>
Subject: RE: Terms of Reference for Proposed Residential Development at 23 Elizabeth Street N, City of Mississauga

Good afternoon Timothy,

Thank you for your patience and providing the Terms of Reference for the proposed development at 23 Elizabeth Street, please find some additional comments below:

Timothy Chin

From: Greg Borys <Gregory.Borys@mississauga.ca>
Sent: November 20, 2019 2:57 PM
To: Timothy Chin
Cc: Nixon Chan
Subject: RE: Terms of Reference for Proposed Residential Development at 23 Elizabeth Street N, City of Mississauga

Good afternoon Timothy,

Thank you for your patience and providing the Terms of Reference for the proposed development at 23 Elizabeth Street, please find some additional comments below:

- Safety & Operational Analysis required under the TIS, site line analysis to be included;
  - pedestrian and vehicular sight line visibility with regard to ingress and egress;
  - detailed turning movements for the most constrained vehicles expected (e.g. access, dead end drive aisle, etc.);
  - gaps and queuing;
  - intersection capacity and level of service
- TIS to include a comprehensive Traffic Demand Management Plan (TDM);

- The historical AADT data and Turning Movement Count can be obtained from William Wright (William.Wright@mississauga.ca, Ext. 3221). If the data is older than 2 years, than consultant is responsible to conduct the latest counts;
- Please contact Tyler Xuereb tyler.xuereb@mississauga.ca Ext. 4783) to confirm growth rates;
- Please use the following link to gather information of any development proposed in the neighbouring lands for background traffic: http://www.mississauga.ca/portal/residents/developmentinformation ;
- The signal timing plan for signalized intersections can be obtained from Jim Kartsomaniz (Jim.Kartsomanis@mississauga.ca, Ext. 3964);

*This department does not review Parking Studies for parking reduction justification, the applicant is advised to contact the City of Mississauga Planner on file to confirm ToR for parking reduction study

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From: Timothy Chin [mailto:TChin@lea.ca]
Sent: Wednesday, November 20, 2019 11:09 AM
To: Greg Borys
Cc: Nixon Chan
Subject: RE: Terms of Reference for Proposed Residential Development at 23 Elizabeth Street N, City of Mississauga

Hi Gregory,

I would like to follow up on my previous email regarding the Terms of Reference for proposed residential development at 23 Elizabeth Street N, City of Mississauga.

Should you have any comments with our assumptions or have any concern, please do not hesitate to contact me.

Thanks

Timothy Chin, MSc(Eng), RSP, EIT
Intermediate Transportation Analyst
T: 905 470 0015, ext.322 **E:** tchin@lea.ca **W:** www.LEA.ca
LEA Consulting Ltd.

From: Timothy Chin
Sent: October-30-19 10:52 AM
To: Gregory.Borys@mississauga.ca
Cc: Nixon Chan <NChan@lea.ca>
Subject: Terms of Reference for Proposed Residential Development at 23 Elizabeth Street N, City of Mississauga

Hi Gregory,

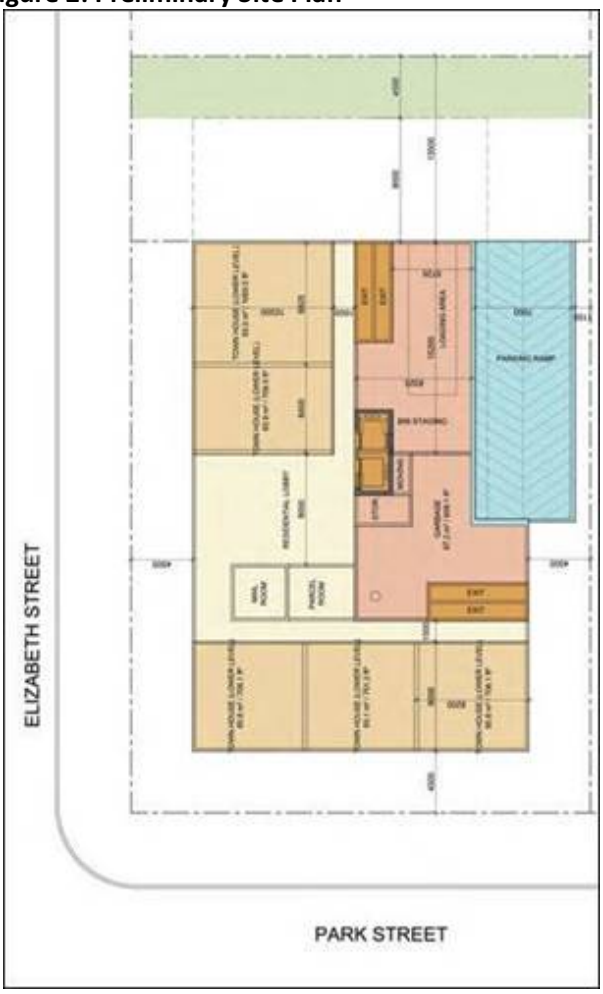
We wish to confirm the following work plan for a Traffic Impact Study (TIS) in support of the rezoning application for the proposed residential development located at 23 Elizabeth Street N in the City of Mississauga. The subject site is located on the northeast corner of Park Street E & Elizabeth Street N intersection and is currently occupied by 4 different properties. **Figure 1** below illustrates the subject site.

Figure 1: Subject Site

Proposed Development

The proposed residential development will consist of a 15-storey tower with about 180 residential units and multi-levels parking. Based on the preliminary site plan, the parking and loading spaces will be accessible from Elizabeth Street N.

Figure 2: Preliminary Site Plan



Study Area & Traffic Data

The TIS will assess weekday AM (7:00 to 9:00 a.m.) and PM (4:00 to 6:00 p.m.) peak hours. The proposed study area will include the analysis of the following intersections:

- Site Access at Elizbeth Street N (Unsignalized);
- Hurontario Street at Park Street E (Signalized);
- Park Street E at Elizabeth Street N (Unsignalized); and
- Lakeshore Road E at Elizabeth Street N (Unsignalized).

Turning movement counts at all intersections will be within the last 2 years.

Traffic Assessment and Study Horizon Year

The study will focus on weekday AM and PM peak hour traffic operations. Synchro version 9.0 will be used to assess intersection operations during the peak hours. A five-year horizon will be assessed in this study for the year 2024.

Background Traffic

General Corridor Growth Rate – LEA recently completed TIS for 21-29 Park Street East and 22-28 Ann Street & 78 Park Street E, which utilized following corridor growth rates based on the discussion with the City Staff. It is proposed to use the same rates for this study and summarized in **Table 1**.

Table 1: Proposed General Corridor Growth Rates

Corridors	Directions	Annual Growth Rate	
		AM Peak Hour	PM Peak Hour
Hurontario Street	Northbound	0.00%	0.50%
	Southbound	1.50%	1.00%
Lakeshore Road E	Eastbound	0.25%	1.25%
	Westbound	1.75%	0.50%

LEA will note any road network improvements (e.g. road widening) identified within the study area and account for any traffic diversions associated with these improvements within our analysis. The Hurontario LRT is expected to be completed in 2022, therefore, the road network alterations associated with this project will be included in the analysis.

Background Development Traffic – Upon initial review of the City of Mississauga Development Applications online database, the background developments in the study area was identified as summarized in **Table 2**.

Table 2: Identified Background Developments in the Study Area

#	Address of Development	Description
1	6,8,10 Ann Street	69 Residential Units
2	21-29 Park Street E	204 Residential Units
3	55 Port Street	35 Residential Units
4	22-28 Ann Street & 78 Park Street E	313 Residential Units with at-grade retail/commercial and office space

Trip Generation, Distribution and Assignment

The trip generation of the proposed development will be based on site trips calculated from the 10th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual or historical proxy trip rates applied at similar developments in the vicinity of the study area during the weekday AM and PM peak periods.

The general trip distribution utilized will be based on a review of the latest 2016 Transportation Tomorrow Survey (TTS) data in the vicinity of the subject site as well as observations of traffic patterns and existing turn permissions/prohibitions. Trip assignment will be revised accordingly to reflect the configuration of the site access, turning restrictions and logical routings.

Parking & Loading

The site is currently under the jurisdiction of the City of Mississauga Zoning By-Law 0225-2007, which will be reviewed for parking and loading requirements. If a parking reduction is proposed, appropriate analyses and justification will be provided to illustrate that the proposed parking supply will meet the projected parking demand.

Site Plan Review

Site plan review will also be undertaken to ensure the vehicular movements can be accommodated at the proposed loading bay, parking lots, drive aisles, garage ramps, etc.

Should you have any comments with our assumptions or have any concerns, please do not hesitate to contact me.

Thanks

Timothy Chin, MSc(Eng), RSP, EIT
Intermediate Traffic Analyst
LEA Consulting Ltd.

625 Cochrane Drive, 9th Floor | Markham, ON | L3R 9R9
T: 905-470-0015 ext. 322 **E:** tchin@lea.ca **W:** www.LEA.ca

APPENDIX B

Turning Movement Counts (TMCs) and Signal Timing Plan

LEA Consulting Ltd.
625 Cochrane Drive

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

Count Name: 20248_HurontarioSt&ParkStE-AM
Site Code: 20248
Start Date: 12/05/2019

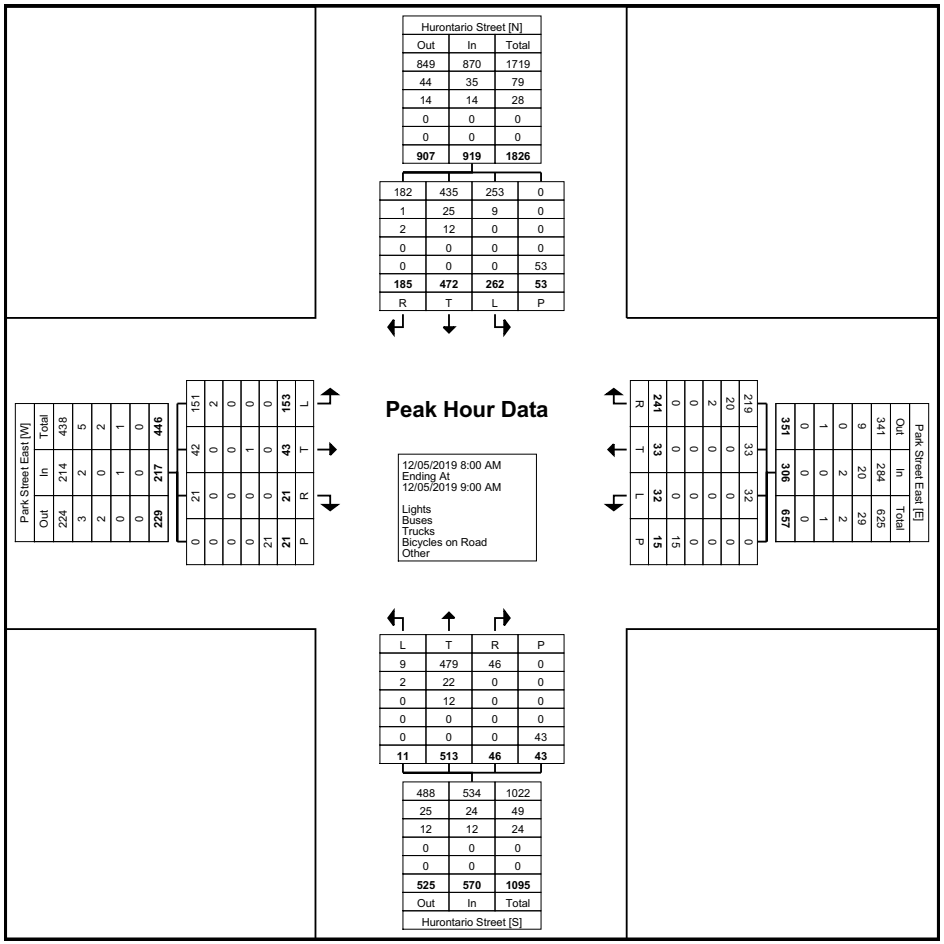
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Hurontario Street Southbound					Park Street East Westbound					Hurontario Street Northbound					Park Street East Eastbound					
	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
8:00 AM	44	95	44	16	183	0	9	31	5	40	3	141	6	8	150	36	13	5	10	54	427
8:15 AM	74	91	49	17	214	5	5	66	4	76	1	115	12	12	128	50	14	3	6	67	485
8:30 AM	109	147	52	9	308	13	7	87	2	107	4	114	23	6	141	32	10	7	3	49	605
8:45 AM	35	139	40	11	214	14	12	57	4	83	3	143	5	17	151	35	6	6	2	47	495
Total	262	472	185	53	919	32	33	241	15	306	11	513	46	43	570	153	43	21	21	217	2012
Approach %	28.5	51.4	20.1	-	-	10.5	10.8	78.8	-	-	1.9	90.0	8.1	-	-	70.5	19.8	9.7	-	-	-
Total %	13.0	23.5	9.2	-	45.7	1.6	1.6	12.0	-	15.2	0.5	25.5	2.3	-	28.3	7.6	2.1	1.0	-	10.8	-
PHF	0.601	0.803	0.889	-	0.746	0.571	0.688	0.693	-	0.715	0.688	0.897	0.500	-	0.944	0.765	0.768	0.750	-	0.810	0.831
Lights	253	435	182	-	870	32	33	219	-	284	9	479	46	-	534	151	42	21	-	214	1902
% Lights	96.6	92.2	98.4	-	94.7	100.0	100.0	90.9	-	92.8	81.8	93.4	100.0	-	93.7	98.7	97.7	100.0	-	98.6	94.5
Buses	9	25	1	-	35	0	0	20	-	20	2	22	0	-	24	2	0	0	-	2	81
% Buses	3.4	5.3	0.5	-	3.8	0.0	0.0	8.3	-	6.5	18.2	4.3	0.0	-	4.2	1.3	0.0	0.0	-	0.9	4.0
Trucks	0	12	2	-	14	0	0	2	-	2	0	12	0	-	12	0	0	0	-	0	28
% Trucks	0.0	2.5	1.1	-	1.5	0.0	0.0	0.8	-	0.7	0.0	2.3	0.0	-	2.1	0.0	0.0	0.0	-	0.0	1.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	2.3	0.0	-	0.5	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	53	-	-	-	-	15	-	-	-	-	43	-	-	-	-	21	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

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

Count Name: 20248_HurontarioSt&ParkStE-AM
Site Code: 20248
Start Date: 12/05/2019



Turning Movement Peak Hour Data Plot (8:00 AM)

LEA Consulting Ltd.
625 Cochrane Drive

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

Count Name: 20248_HurontarioSt&ParkStE-PM
Site Code: 20248
Start Date: 12/05/2019

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Hurontario Street Southbound					Park Street East Westbound					Hurontario Street Northbound					Park Street East Eastbound					
	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
5:00 PM	24	152	58	9	234	4	10	66	3	80	3	158	9	9	170	31	5	4	9	40	524
5:15 PM	31	153	75	6	259	3	16	47	10	66	2	188	9	9	199	50	12	3	10	65	589
5:30 PM	23	162	64	6	249	4	10	46	7	60	3	134	5	7	142	20	4	2	2	26	477
5:45 PM	22	139	68	17	229	2	9	52	7	63	7	152	8	14	167	65	16	19	9	100	559
Total	100	606	265	38	971	13	45	211	27	269	15	632	31	39	678	166	37	28	30	231	2149
Approach %	10.3	62.4	27.3	-	-	4.8	16.7	78.4	-	-	2.2	93.2	4.6	-	-	71.9	16.0	12.1	-	-	-
Total %	4.7	28.2	12.3	-	45.2	0.6	2.1	9.8	-	12.5	0.7	29.4	1.4	-	31.5	7.7	1.7	1.3	-	10.7	-
PHF	0.806	0.935	0.883	-	0.937	0.813	0.703	0.799	-	0.841	0.536	0.840	0.861	-	0.852	0.638	0.578	0.368	-	0.578	0.912
Lights	98	591	264	-	953	13	45	210	-	268	15	614	31	-	660	165	37	27	-	229	2110
% Lights	98.0	97.5	99.6	-	98.1	100.0	100.0	99.5	-	99.6	100.0	97.2	100.0	-	97.3	99.4	100.0	96.4	-	99.1	98.2
Buses	1	14	1	-	16	0	0	0	-	0	0	13	0	-	13	1	0	0	-	1	30
% Buses	1.0	2.3	0.4	-	1.6	0.0	0.0	0.0	-	0.0	0.0	2.1	0.0	-	1.9	0.6	0.0	0.0	-	0.4	1.4
Trucks	1	1	0	-	2	0	0	0	-	0	0	5	0	-	5	0	0	1	-	1	8
% Trucks	1.0	0.2	0.0	-	0.2	0.0	0.0	0.0	-	0.0	0.0	0.8	0.0	-	0.7	0.0	0.0	3.6	-	0.4	0.4
Bicycles on Road	0	0	0	-	0	0	0	1	-	1	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.5	-	0.4	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	2	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	5.3	-	-	-	-	3.7	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	36	-	-	-	-	26	-	-	-	-	39	-	-	-	-	30	-	-
% Pedestrians	-	-	-	94.7	-	-	-	-	96.3	-	-	-	-	100.0	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
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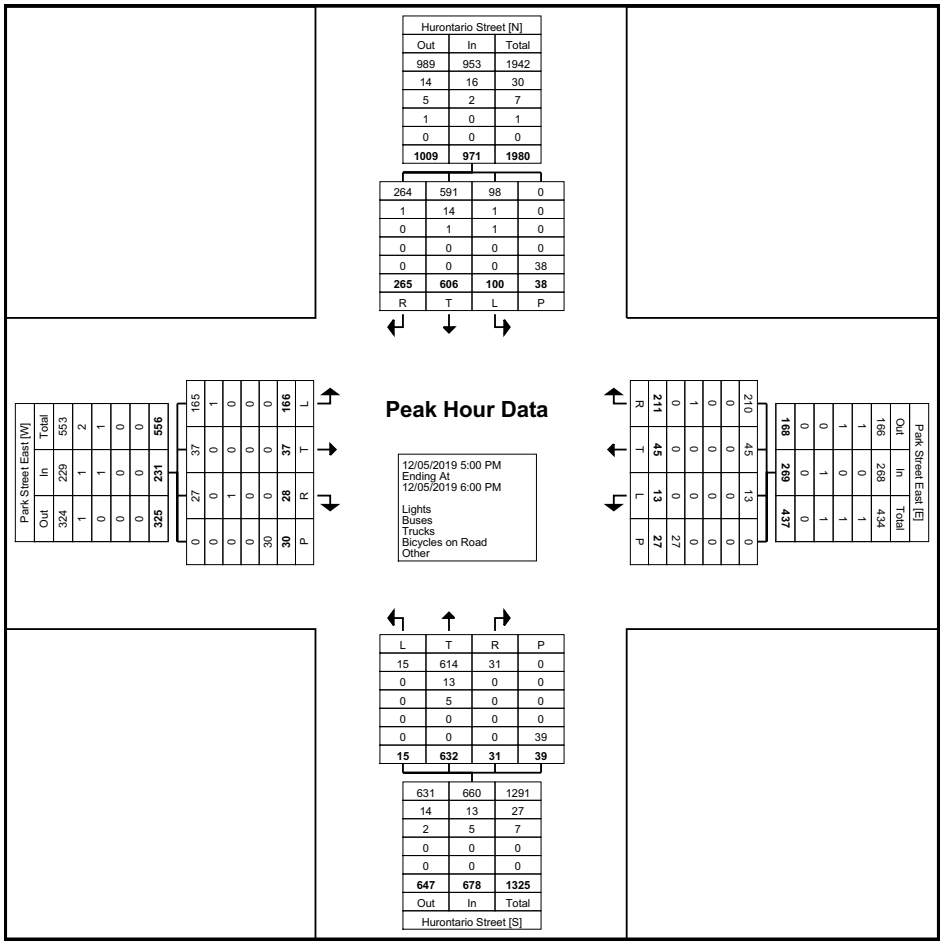


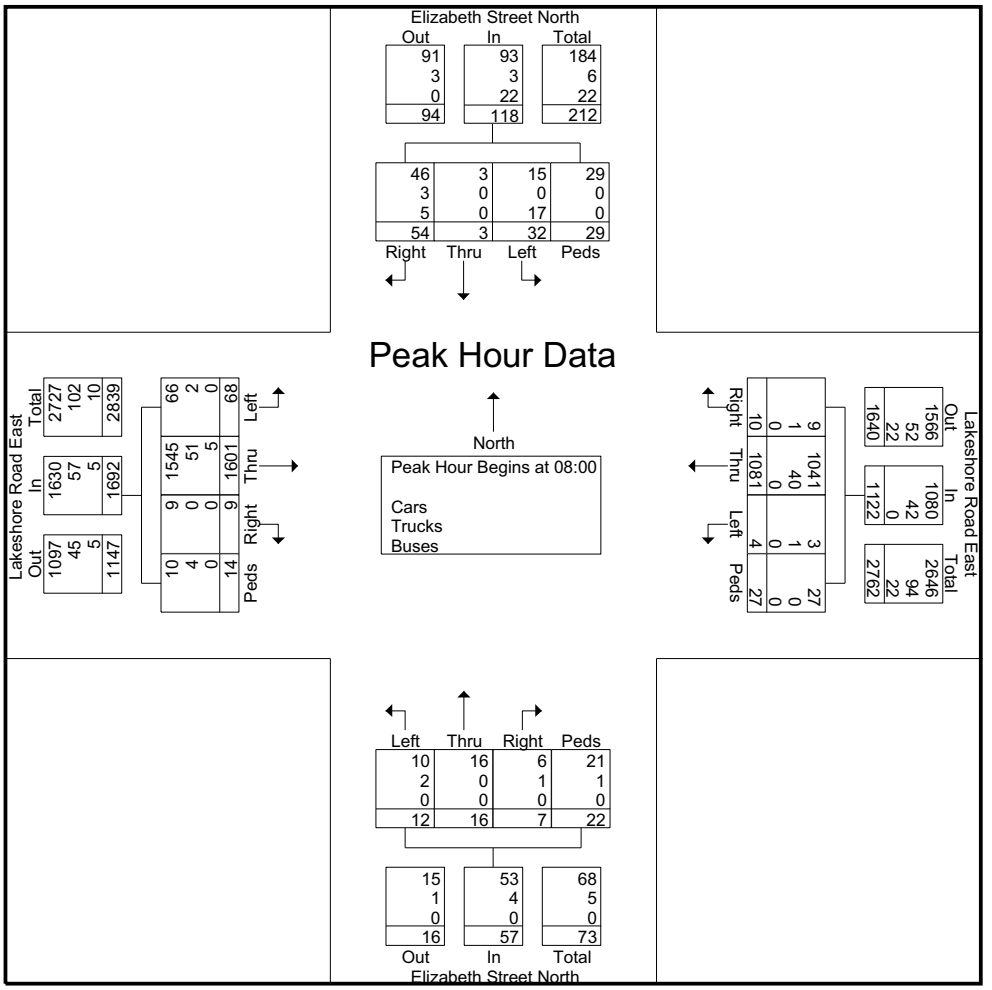
Turning Movement Peak Hour Data Plot (5:00 PM)

LEA CONSULTING LTD

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

File Name : ElizabethStN&LakeshoreRdE-AM
Site Code : 02024819
Start Date : 2019-12-05
Page No : 3

	Elizabeth Street North Southbound					Lakeshore Road East Westbound					Elizabeth Street North Northbound					Lakeshore Road East 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 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	7	0	**16**	7	30	**2**	229	**3**	**9**	243	**4**	1	1	**7**	13	**21**	**430**	**3**	**5**	**459**	745
08:15	8	**1**	15	8	**32**	0	251	2	6	259	3	4	**4**	3	14	12	390	1	2	405	710
08:30	**9**	1	12	3	25	1	**305**	3	3	**312**	4	2	2	5	13	14	425	3	3	445	**795**
08:45	8	1	11	**11**	31	1	296	2	9	308	1	**9**	0	7	**17**	21	356	2	4	383	739
Total Volume	32	3	54	29	118	4	1081	10	27	1122	12	16	7	22	57	68	1601	9	14	1692	2989
% App. Total	27.1	2.5	45.8	24.6		0.4	96.3	0.9	2.4		21.1	28.1	12.3	38.6		4	94.6	0.5	0.8		
PHF	.889	.750	.844	.659	.922	.500	.886	.833	.750	.899	.750	.444	.438	.786	.838	.810	.931	.750	.700	.922	.940
Cars	15	3	46	29	93	3	1041	9	27	1080	10	16	6	21	53	66	1545	9	10	1630	2856
% Cars	46.9	100	85.2	100	78.8	75.0	96.3	90.0	100	96.3	83.3	100	85.7	95.5	93.0	97.1	96.5	100	71.4	96.3	95.6
Trucks	0	0	3	0	3	1	40	1	0	42	2	0	1	1	4	2	51	0	4	57	106
% Trucks	0	0	5.6	0	2.5	25.0	3.7	10.0	0	3.7	16.7	0	14.3	4.5	7.0	2.9	3.2	0	28.6	3.4	3.5
Buses	17	0	5	0	22	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	27
% Buses	53.1	0	9.3	0	18.6	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0.3	0.9

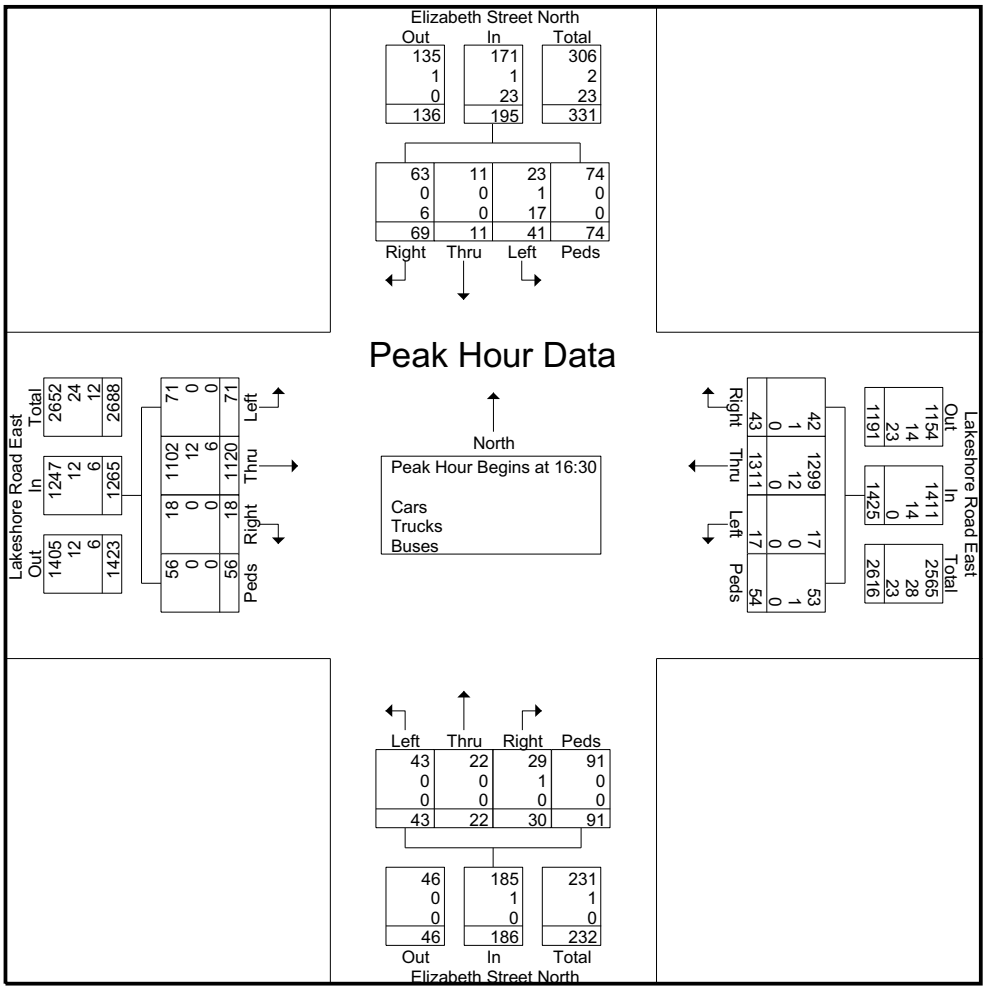


LEA CONSULTING LTD

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

File Name : ElizabethStN&LakeshoreRdE-PM
Site Code : 02024819
Start Date : 2019-12-05
Page No : 3

	Elizabeth Street North Southbound					Lakeshore Road East Westbound					Elizabeth Street North Northbound					Lakeshore Road East 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 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	9	2	12	**22**	45	3	325	11	**24**	**363**	9	5	**9**	28	51	15	**302**	4	**21**	**342**	**801**
16:45	10	2	19	19	50	**9**	**334**	8	10	361	**14**	**8**	7	**30**	**59**	12	234	**8**	11	265	735
17:00	8	3	**23**	18	**52**	2	318	**13**	15	348	10	5	6	20	41	**26**	298	5	11	340	781
17:15	**14**	**4**	15	15	48	3	334	11	5	353	10	4	8	13	35	18	286	1	13	318	754
Total Volume	41	11	69	74	195	17	1311	43	54	1425	43	22	30	91	186	71	1120	18	56	1265	3071
% App. Total	21	5.6	35.4	37.9		1.2	92	3	3.8		23.1	11.8	16.1	48.9		5.6	88.5	1.4	4.4		
PHF	.732	.688	.750	.841	.938	.472	.981	.827	.563	.981	.768	.688	.833	.758	.788	.683	.927	.563	.667	.925	.958
Cars	23	11	63	74	171	17	1299	42	53	1411	43	22	29	91	185	71	1102	18	56	1247	3014
% Cars	56.1	100	91.3	100	87.7	100	99.1	97.7	98.1	99.0	100	100	96.7	100	99.5	100	98.4	100	100	98.6	98.1
Trucks	1	0	0	0	1	0	12	1	1	14	0	0	1	0	1	0	12	0	0	12	28
% Trucks	2.4	0	0	0	0.5	0	0.9	2.3	1.9	1.0	0	0	3.3	0	0.5	0	1.1	0	0	0.9	0.9
Buses	17	0	6	0	23	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	29
% Buses	41.5	0	8.7	0	11.8	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0.5	0.9

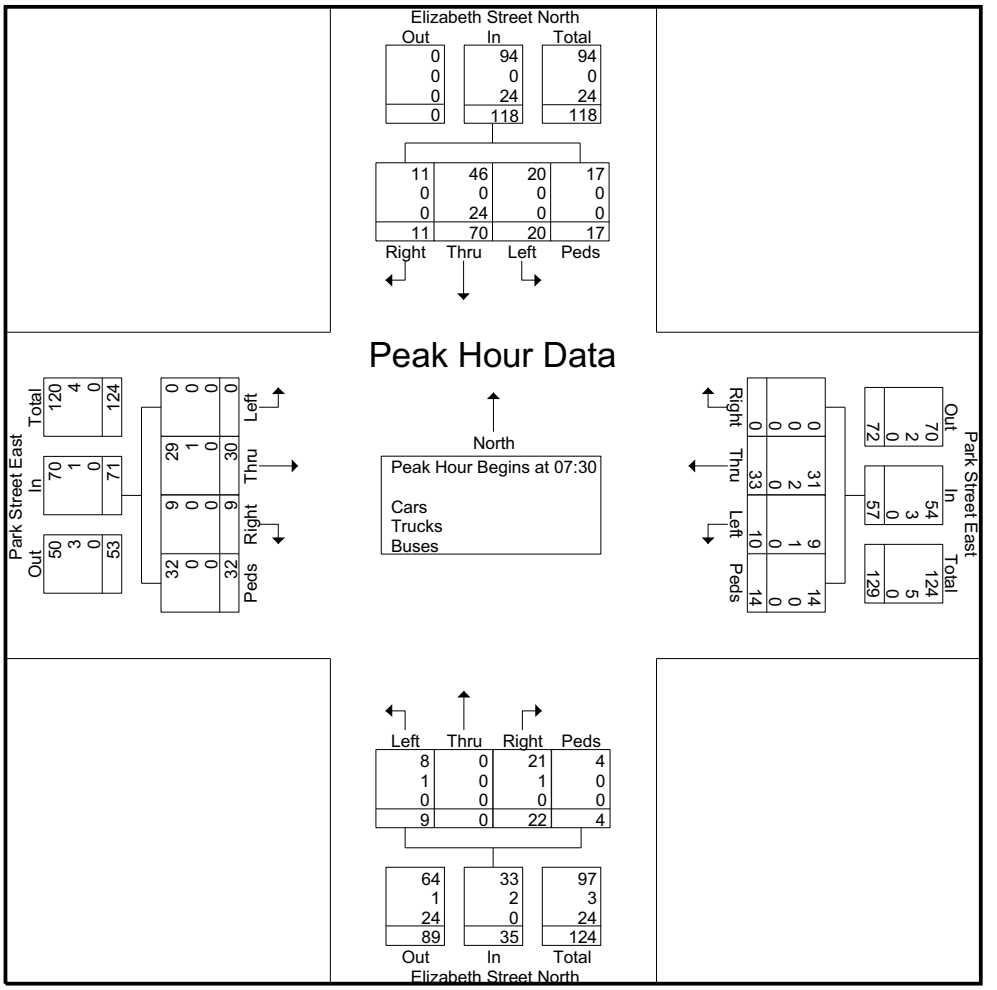


LEA CONSULTING LTD

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

File Name : ElizabethStN&ParkStE-AM
Site Code : 02024806
Start Date : 2019-12-05
Page No : 3

	Elizabeth Street North Southbound					Park Street East Westbound					Elizabeth Street North Northbound					Park Street East 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 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	4	19	4	2	29	1	10	0	1	12	**7**	0	2	**2**	**11**	0	8	2	**13**	**23**	**75**
07:45	4	**22**	**5**	5	**36**	**4**	4	0	4	12	0	0	6	0	6	0	**9**	**3**	7	19	73
08:00	5	14	0	**7**	26	4	7	0	**5**	16	1	0	**8**	1	10	0	7	1	5	13	65
08:15	**7**	15	2	3	27	1	**12**	0	4	**17**	1	0	6	1	8	0	6	3	7	16	68
Total Volume	20	70	11	17	118	10	33	0	14	57	9	0	22	4	35	0	30	9	32	71	281
% App. Total	16.9	59.3	9.3	14.4		17.5	57.9	0	24.6		25.7	0	62.9	11.4		0	42.3	12.7	45.1		
PHF	.714	.795	.550	.607	.819	.625	.688	.000	.700	.838	.321	.000	.688	.500	.795	.000	.833	.750	.615	.772	.937
Cars	20	46	11	17	94	9	31	0	14	54	8	0	21	4	33	0	29	9	32	70	251
% Cars	100	65.7	100	100	79.7	90.0	93.9	0	100	94.7	88.9	0	95.5	100	94.3	0	96.7	100	100	98.6	89.3
Trucks	0	0	0	0	0	1	2	0	0	3	1	0	1	0	2	0	1	0	0	1	6
% Trucks	0	0	0	0	0	10.0	6.1	0	0	5.3	11.1	0	4.5	0	5.7	0	3.3	0	0	1.4	2.1
Buses	0	24	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
% Buses	0	34.3	0	0	20.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.5

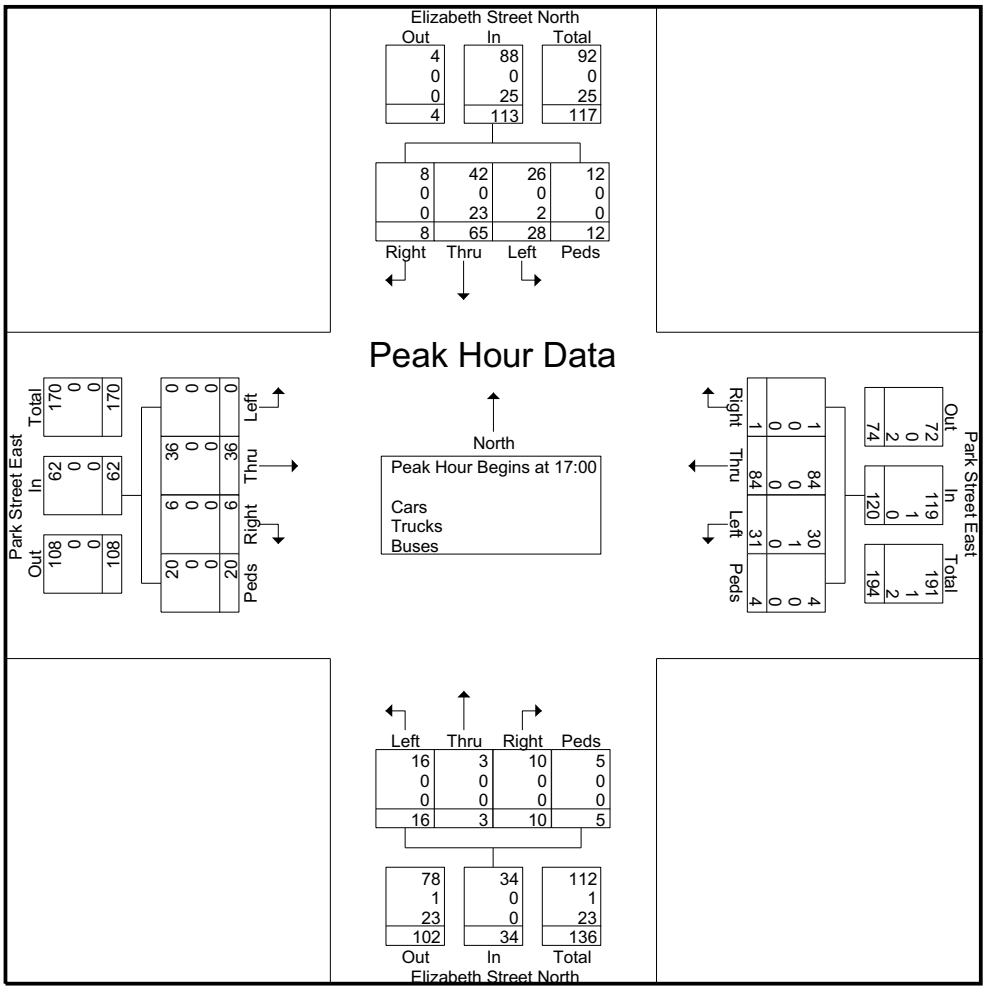


LEA CONSULTING LTD

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

File Name : ElizabethStN&ParkStE-PM
Site Code : 02024806
Start Date : 2019-12-05
Page No : 3

	Elizabeth Street North Southbound					Park Street East Westbound					Elizabeth Street North Northbound					Park Street East 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 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	5	15	2	3	25	7	19	0	0	26	2	**1**	2	1	6	0	10	**2**	**6**	**18**	75
17:15	5	14	0	**5**	24	**12**	**24**	0	1	**37**	4	0	**4**	1	9	0	8	1	6	15	85
17:30	4	8	1	2	15	3	18	**1**	**2**	24	**5**	1	1	**3**	**10**	0	7	1	5	13	62
17:45	**14**	**28**	**5**	2	**49**	9	23	0	1	33	5	1	3	0	9	0	**11**	2	3	16	**107**
Total Volume	28	65	8	12	113	31	84	1	4	120	16	3	10	5	34	0	36	6	20	62	329
% App. Total	24.8	57.5	7.1	10.6		25.8	70	0.8	3.3		47.1	8.8	29.4	14.7		0	58.1	9.7	32.3		
PHF	.500	.580	.400	.600	.577	.646	.875	.250	.500	.811	.800	.750	.625	.417	.850	.000	.818	.750	.833	.861	.769
Cars	26	42	8	12	88	30	84	1	4	119	16	3	10	5	34	0	36	6	20	62	303
% Cars	92.9	64.6	100	100	77.9	96.8	100	100	100	99.2	100	100	100	100	100	0	100	100	100	100	92.1
Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Trucks	0	0	0	0	0	3.2	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0.3
Buses	2	23	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
% Buses	7.1	35.4	0	0	22.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.6



File: CA.13.SIG
Signal Timing Request
RT.07.0704
RT.07.0808

December 2, 2019

LEA Consulting Ltd.
625 Cochrane Drive, 9th floor
Markham, ON L3R 9R9

Dear Timothy Chin:

Re: Traffic Signal Timing

Please find the attached traffic signal timing for the intersections of:

Hurontario Street at Park Street
Lakeshore Road at Elizabeth Street

The side street phases (4, 8) are actuated; meaning a vehicle or pedestrian must be present on the side street before the side street is given a green indication. Vehicle presence on the side street would result in a possible green time of between the minimum and maximum time noted, depending on demand. Similarly, phase (5) is also actuated. Pedestrian "Walk" and flashing "Don't Walk" time on the side street, as noted, would be used in the event that the pedestrian push button is activated. During the side street pedestrian indications, the side street vehicle green is concurrently displayed. Should there be no demand on the actuated phases, the signals would result in a green indication on the major street (2, 6).

Note: All times recorded in seconds, based on full demand.

The time of day plan is used for system control operation. In the event that the coordination pattern has a cycle length, offset and split value identified, the cycle length split and offset values, as noted, would be used. However, when the time of day plan is programed using 'Action' 8, the mode is 'Free', meaning no cycle length, split and offset values are given and the intersection operates using the phase timings provided in the report.

Should you require further information, please contact Ken Moore, at 905-615-3200 ext. 4054.

Sincerely,

Ken Moore
Coordinator, Traffic Systems and ITS
Traffic Signals and Street Lighting
Transportation and Works Department
City of Mississauga
905-615-3200 ext. 4054
ken.moore@mississauga.ca

c: Javed Khan, Manager, Traffic Signals and Street Lighting
Jim Kartsomanis, Supervisor, Traffic Systems and ITS

Signal Timing Report

Runtime: 2019-11-28 13:42:19

Device: 0704

Region: Mississauga **Signal ID:** 0704 **Location:** HURONTARIO STREET N at Park Street

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	9	0	10	0	9	0	10
Ped Clear	Sec	0	17	0	21	0	17	0	21
Min Green	Sec	0	8	0	8	5	8	0	8
Passage	Sec	0.0	3.0	0.0	3.0	2.0	3.0	0.0	3.0
Maximum 1	Sec	0	30	0	30	15	30	0	30
Maximum 2	Sec	0	30	0	30	15	30	0	30
Yellow Change	Sec	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	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	other	redClear	other	phaseNotOn	phaseNotOn	redClear	other	phaseNotOn
[P2] Options	Bit	0	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	0	1	0	1	2	2	0	2
[P2] Concurrency	Phase (,)	()	(5,6)	()	(8)	(2)	(2)	()	(4)

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	105	100	100	140	100	0	0	0
Offset	Sec	2	16	96	97	19	0	0	0
Split	Split	1	2	3	4	5	0	0	0
Sequence	Sequence	1	1	1	1	1	0	0	0

Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	none	none	none	none	phaseOmitted	none	none	none
Split 1 - Time	Sec	0	63	0	42	0	63	0	42
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	none	none	none	none	phaseOmitted	none	none	none
Split 2 - Time	Sec	0	62	0	38	0	62	0	38
Split 2 - Coord	Enum	false	true	false	false	false	true	false	false
Split 3 - Mode	Enum	none	none	none	none	phaseOmitted	none	none	none
Split 3 - Time	Sec	0	57	0	43	0	57	0	43
Split 3 - Coord	Enum	false	true	false	false	false	true	false	false
Split 4 - Mode	Enum	none	none	none	pedRecall	none	none	none	none
Split 4 - Time	Sec	0	91	0	49	25	66	0	49
Split 4 - Coord	Enum	false	true	false	false	false	true	false	false
Split 5 - Mode	Enum	none	none	none	pedRecall	none	none	none	none
Split 5 - Time	Sec	0	60	0	40	23	37	0	40
Split 5 - Coord	Enum	false	true	false	false	false	true	false	false

TB Schedule	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F----------	---A--------	----M-------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	12345678901234567890123456789012345678901	12345678901234567890123456789012345678901	12345678901234567890123456789012345678901	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	7	9	15	16	19	3
Plan 1 Minute	Min	0	0	0	30	0	30	30	0
Plan 1 Action	Number	8	1	4	2	5	3	2	7
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

Signal Timing Report

Runtime: 2019-11-28 13:44:54

Device: 0808

Region: Mississauga **Signal ID:** 0808 **Location:** LAKESHORE ROAD E at Elizabeth Street

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	8	0	8	0	0	0	0
Ped Clear	Sec	0	13	0	13	0	0	0	0
Min Green	Sec	5	8	0	8	0	0	0	0
Passage	Sec	2.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0
Maximum 1	Sec	10	80	0	30	0	0	0	0
Maximum 2	Sec	10	80	0	30	0	0	0	0
Yellow Change	Sec	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	2.0	0.0	2.5	0.0	0.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	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	other	other	other	other
[P2] Options	Bit	Enabled	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Act Rest In Walk	0	Enabled Non Lock Det	0	0	0	0
[P2] Ring	Ring	1	1	0	1	0	0	0	0
[P2] Concurrency	Phase (,)	()	()	()	()	()	()	()	()

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	140	120	120	120	0	0	0	0
Offset	Sec	104	116	47	47	0	0	0	0
Split	Split	1	2	3	4	0	0	0	0
Sequence	Sequence	1	1	1	1	0	0	0	0

Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	maxVehRecall	none	none	none	none	none	none	none
Split 1 - Time	Sec	10	98	0	32	0	0	0	0
Split 1 - Coord	Enum	false	true	false	false	false	false	false	false
Split 2 - Mode	Enum	maxVehRecall	none	none	none	none	none	none	none
Split 2 - Time	Sec	10	80	0	30	0	0	0	0
Split 2 - Coord	Enum	false	true	false	false	false	false	false	false
Split 3 - Mode	Enum	maxVehRecall	none	none	none	none	none	none	none
Split 3 - Time	Sec	10	80	0	30	0	0	0	0
Split 3 - Coord	Enum	false	true	false	false	false	false	false	false
Split 4 - Mode	Enum	none	none	none	pedRecall	none	none	none	none
Split 4 - Time	Sec	0	90	0	30	0	0	0	0
Split 4 - Coord	Enum	false	true	false	false	false	false	false	false

TB Schedule	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F---------	---A-------	----M------	-----J-----
Day of Week	Bit	-MTWTF-	S------	-----S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	12345678901234567890123456789012345678901	12345678901234567890123456789012345678901	12345678901234567890123456789012345678901	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----------	----------	----------	----------	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	16	18	19	3
Plan 1 Minute	Min	0	0	30	0	30	0	30	0
Plan 1 Action	Number	8	1	2	3	4	3	2	7
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 C

Existing Intersection Capacity Analysis

Queues
1: Hurontario St & Park St E

04/18/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	153	43	32	33	11	513	262	472	185
Future Volume (vph)	153	43	32	33	11	513	262	472	185
Lane Group Flow (vph)	166	70	35	298	12	608	285	513	201
Turn Type	Perm	NA	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		8		4		6	5	2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	5	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	38.0	38.0	38.0	38.0	33.0	33.0	15.0	33.0	33.0
Total Split (s)	49.0	49.0	49.0	49.0	66.0	66.0	25.0	91.0	91.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	47.1%	47.1%	17.9%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	7.0
Lead/Lag					Lag	Lag	Lead		
Lead-Lag Optimize?					Yes	Yes	Yes		
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	1.01	0.16	0.11	0.56	0.04	0.41	0.58	0.27	0.23
Control Delay	121.4	28.1	37.1	11.0	23.0	24.6	15.8	12.7	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	121.4	28.1	37.1	11.0	23.0	24.6	15.8	12.7	6.9
Queue Length 50th (m)	44.2	10.5	7.0	7.2	1.8	57.5	33.8	34.4	11.8
Queue Length 95th (m)	#88.6	22.5	15.8	33.6	6.2	79.7	49.1	44.4	24.0
Internal Link Dist (m)		262.7		102.8		93.1		157.1	
Turn Bay Length (m)	45.0		50.0		35.0		20.0		8.0
Base Capacity (vph)	183	489	345	566	323	1494	539	1893	866
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	0.91	0.14	0.10	0.53	0.04	0.41	0.53	0.27	0.23

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 97 (69%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 90
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 St & Park St E

HCM Signalized Intersection Capacity Analysis
1: Hurontario St & Park St E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	43	21	32	33	241	11	513	46	262	472	185
Future Volume (vph)	153	43	21	32	33	241	11	513	46	262	472	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.93		1.00	1.00		1.00	1.00	0.92
Flpb, ped/bikes	0.96	1.00		0.95	1.00		0.97	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.87		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1548	1589		1539	1276		1339	3000		1570	3008	1318
Flt Permitted	0.38	1.00		0.71	1.00		0.46	1.00		0.36	1.00	1.00
Satd. Flow (perm)	613	1589		1152	1276		652	3000		589	3008	1318
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	47	23	35	36	262	12	558	50	285	513	201
RTOR Reduction (vph)	0	13	0	0	191	0	0	4	0	0	0	36
Lane Group Flow (vph)	166	57	0	35	107	0	12	604	0	285	513	165
Confl. Peds. (#/hr)	53		43	43		53	21		15	15		21
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	37.9	37.9		37.9	37.9		69.5	69.5		88.1	88.1	88.1
Effective Green, g (s)	37.9	37.9		37.9	37.9		69.5	69.5		88.1	88.1	88.1
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50		0.63	0.63	0.63
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		2.0	3.0	3.0
Lane Grp Cap (vph)	165	430		311	345		323	1489		479	1892	829
v/s Ratio Prot		0.04			0.08			0.20		c0.07	0.17	
v/s Ratio Perm	c0.27			0.03			0.02			c0.31		0.12
v/c Ratio	1.01	0.13		0.11	0.31		0.04	0.41		0.59	0.27	0.20
Uniform Delay, d1	51.0	38.6		38.4	40.6		18.1	22.2		12.5	11.6	11.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	71.7	0.1		0.2	0.5		0.2	0.8		1.3	0.4	0.5
Delay (s)	122.7	38.8		38.6	41.2		18.3	23.0		13.8	12.0	11.5
Level of Service	F	D		D	D		B	C		B	B	B
Approach Delay (s)		97.8			40.9			23.0			12.4	
Approach LOS		F			D			C			B	

Intersection Summary

HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Elizabeth St N & Lakeshore Rd E

04/18/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	68	1601	4	1081	12	16	32	3
Future Volume (vph)	68	1601	4	1081	12	16	32	3
Lane Group Flow (vph)	0	1824	0	1190	13	25	35	62
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	1	6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	1	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.5	27.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	10.0	90.0	80.0	80.0	30.0	30.0	30.0	30.0
Total Split (%)	8.3%	75.0%	66.7%	66.7%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.5	6.5	6.5	6.5
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio		0.96		0.52	0.06	0.07	0.20	0.20
Control Delay		30.4		9.4	40.2	30.7	44.1	12.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		30.4		9.4	40.2	30.7	44.1	12.7
Queue Length 50th (m)		185.3		62.1	2.5	3.3	7.0	0.6
Queue Length 95th (m)		#267.8		76.5	8.1	10.9	16.6	12.2
Internal Link Dist (m)		195.2		67.6		55.7		211.0
Turn Bay Length (m)					9.0		9.0	
Base Capacity (vph)		1901		2296	224	339	172	317
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.96		0.52	0.06	0.07	0.20	0.20

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Elizabeth St N & Lakeshore Rd E

HCM Signalized Intersection Capacity Analysis
2: Elizabeth St N & Lakeshore Rd E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	1601	9	4	1081	10	12	16	7	32	3	54
Future Volume (vph)	68	1601	9	4	1081	10	12	16	7	32	3	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.98		1.00	0.97	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.96	1.00	
Frt		1.00			1.00		1.00	0.95		1.00	0.86	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3492			3458		1518	1699		1127	1380	
Flt Permitted		0.78			0.95		0.72	1.00		0.74	1.00	
Satd. Flow (perm)		2716			3278		1145	1699		879	1380	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	1740	10	4	1175	11	13	17	8	35	3	59
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	47	0
Lane Group Flow (vph)	0	1824	0	0	1190	0	13	19	0	35	15	0
Confl. Peds. (#/hr)	29		21	21		29	10		27	27		10
Confl. Bikes (#/hr)			1									4
Heavy Vehicles (%)	3%	3%	0%	25%	4%	10%	17%	0%	14%	53%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		84.0			84.0		23.5	23.5		23.5	23.5	
Effective Green, g (s)		84.0			84.0		23.5	23.5		23.5	23.5	
Actuated g/C Ratio		0.70			0.70		0.20	0.20		0.20	0.20	
Clearance Time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1901			2294		224	332		172	270	
v/s Ratio Prot								0.01			0.01	
v/s Ratio Perm		c0.67			0.36		0.01			c0.04		
v/c Ratio		0.96			0.52		0.06	0.06		0.20	0.05	
Uniform Delay, d1		16.4			8.5		39.2	39.2		40.4	39.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.2			0.8		0.5	0.3		2.7	0.4	
Delay (s)		28.6			9.3		39.7	39.6		43.1	39.6	
Level of Service		C			A		D	D		D	D	
Approach Delay (s)		28.6			9.3			39.6			40.8	
Approach LOS		C			A			D			D	

Intersection Summary

HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	109.8%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	30	9	10	33	0	9	0	22	20	70	11
Future Volume (vph)	0	30	9	10	33	0	9	0	22	20	70	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	33	10	11	36	0	10	0	24	22	76	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	43	47	34	22	88
Volume Left (vph)	0	11	10	22	0
Volume Right (vph)	10	0	24	0	12
Hadj (s)	-0.10	0.16	-0.25	0.50	0.40
Departure Headway (s)	4.2	4.5	4.1	5.2	5.1
Degree Utilization, x	0.05	0.06	0.04	0.03	0.13
Capacity (veh/h)	822	777	849	665	682
Control Delay (s)	7.4	7.7	7.3	7.2	7.7
Approach Delay (s)	7.4	7.7	7.3	7.6	
Approach LOS	A	A	A	A	

Intersection Summary				
Delay	7.5			
Level of Service	A			
Intersection Capacity Utilization	28.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Queues
1: Hurontario St & Park St E

04/18/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	166	37	13	45	15	632	100	606	265
Future Volume (vph)	166	37	13	45	15	632	100	606	265
Lane Group Flow (vph)	180	70	14	278	16	721	109	659	288
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	38.0	38.0	38.0	38.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	43.0	43.0	43.0	43.0	57.0	57.0	57.0	57.0	57.0
Total Split (%)	43.0%	43.0%	43.0%	43.0%	57.0%	57.0%	57.0%	57.0%	57.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.99	0.17	0.05	0.58	0.04	0.37	0.30	0.33	0.33
Control Delay	100.4	16.8	24.1	17.7	11.5	11.8	14.8	11.6	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.4	16.8	24.1	17.7	11.5	11.8	14.8	11.6	7.9
Queue Length 50th (m)	34.7	6.0	2.1	19.7	1.2	34.2	9.4	30.7	13.3
Queue Length 95th (m)	#61.4	14.3	5.9	38.8	5.0	59.3	26.0	53.5	36.1
Internal Link Dist (m)		262.7		102.8		93.1		157.1	
Turn Bay Length (m)	45.0		50.0		35.0		20.0		8.0
Base Capacity (vph)	259	573	414	615	387	1952	363	1974	863
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	0.69	0.12	0.03	0.45	0.04	0.37	0.30	0.33	0.33

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 96 (96%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 75
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 St & Park St E

HCM Signalized Intersection Capacity Analysis
1: Hurontario St & Park St E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	37	28	13	45	211	15	632	31	100	606	265
Future Volume (vph)	166	37	28	13	45	211	15	632	31	100	606	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.96		1.00	1.00		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00		0.97	1.00		0.98	1.00		0.98	1.00	1.00
Frt	1.00	0.94		1.00	0.88		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1588	1540		1538	1434		1573	3209		1596	3249	1342
Flt Permitted	0.43	1.00		0.71	1.00		0.39	1.00		0.36	1.00	1.00
Satd. Flow (perm)	724	1540		1152	1434		639	3209		598	3249	1342
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	180	40	30	14	49	229	16	687	34	109	659	288
RTOR Reduction (vph)	0	22	0	0	116	0	0	3	0	0	0	48
Lane Group Flow (vph)	180	48	0	14	162	0	16	718	0	109	659	240
Confl. Peds. (#/hr)	38		39	39		38	30		27	27		30
Heavy Vehicles (%)	0%	3%	0%	2%	2%	0%	1%	0%	4%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	25.2	25.2		25.2	25.2		60.8	60.8		60.8	60.8	60.8
Effective Green, g (s)	25.2	25.2		25.2	25.2		60.8	60.8		60.8	60.8	60.8
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.61	0.61		0.61	0.61	0.61
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	182	388		290	361		388	1951		363	1975	815
v/s Ratio Prot		0.03			0.11			c0.22			0.20	
v/s Ratio Perm	c0.25			0.01			0.03			0.18		0.18
v/c Ratio	0.99	0.12		0.05	0.45		0.04	0.37		0.30	0.33	0.29
Uniform Delay, d1	37.3	28.9		28.3	31.5		7.9	9.9		9.4	9.6	9.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	62.8	0.1		0.1	0.9		0.2	0.5		2.1	0.5	0.9
Delay (s)	100.1	29.0		28.4	32.4		8.1	10.4		11.5	10.1	10.3
Level of Service	F	C		C	C		A	B		B	B	B
Approach Delay (s)		80.2			32.2			10.4			10.3	
Approach LOS		F			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Elizabeth St N & Lakeshore Rd E

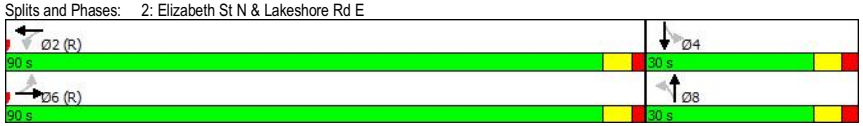
04/18/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	71	1120	17	1311	43	22	41	11
Future Volume (vph)	71	1120	17	1311	43	22	41	11
Lane Group Flow (vph)	0	1314	0	1490	47	57	45	87
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	90.0	90.0	90.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.5	6.5	6.5	6.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio		0.81		0.65	0.20	0.17	0.26	0.28
Control Delay		17.7		11.6	43.0	22.1	45.8	20.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		17.7		11.6	43.0	22.1	45.8	20.7
Queue Length 50th (m)		101.2		91.2	9.4	4.7	9.1	6.5
Queue Length 95th (m)		136.0		111.7	20.4	16.1	20.4	20.7
Internal Link Dist (m)		195.2		67.6		55.7		211.0
Turn Bay Length (m)					9.0		9.0	
Base Capacity (vph)		1619		2281	238	340	170	316
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.81		0.65	0.20	0.17	0.26	0.28

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 47 (39%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 2: Elizabeth St N & Lakeshore Rd E



HCM Signalized Intersection Capacity Analysis
2: Elizabeth St N & Lakeshore Rd E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1120	18	17	1311	43	43	22	30	41	11	69
Future Volume (vph)	71	1120	18	17	1311	43	43	22	30	41	11	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.94		1.00	0.91	
Flpb, ped/bikes		1.00			1.00		0.91	1.00		0.92	1.00	
Frt		1.00			1.00		1.00	0.91		1.00	0.87	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3511			3528		1651	1605		1148	1395	
Flt Permitted		0.66			0.92		0.70	1.00		0.72	1.00	
Satd. Flow (perm)		2313			3258		1218	1605		870	1395	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	1217	20	18	1425	47	47	24	33	45	12	75
RTOR Reduction (vph)	0	1	0	0	2	0	0	27	0	0	43	0
Lane Group Flow (vph)	0	1313	0	0	1488	0	47	30	0	45	44	0
Confl. Peds. (#/hr)	74		91	91		74	56		53	53		56
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	2%	0%	0%	1%	2%	0%	0%	3%	44%	0%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		84.0			84.0		23.5	23.5		23.5	23.5	
Effective Green, g (s)		84.0			84.0		23.5	23.5		23.5	23.5	
Actuated g/C Ratio		0.70			0.70		0.20	0.20		0.20	0.20	
Clearance Time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1619			2280		238	314		170	273	
v/s Ratio Prot								0.02			0.03	
v/s Ratio Perm		c0.57			0.46		0.04			c0.05		
v/c Ratio		0.81			0.65		0.20	0.10		0.26	0.16	
Uniform Delay, d1		12.5			9.9		40.4	39.6		40.9	40.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.5			1.5		1.9	0.6		3.8	1.2	
Delay (s)		17.0			11.4		42.2	40.2		44.7	41.3	
Level of Service		B			B		D	D		D	D	
Approach Delay (s)		17.0			11.4			41.1			42.5	
Approach LOS		B			B			D			D	

Intersection Summary

HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.69				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5		
Intersection Capacity Utilization	104.9%	ICU Level of Service	G		
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	36	6	31	84	0	16	0	10	28	65	8
Future Volume (vph)	0	36	6	31	84	0	16	0	10	28	65	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	39	7	34	91	0	17	0	11	30	71	9

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	46	125	28	30	80
Volume Left (vph)	0	34	17	30	0
Volume Right (vph)	7	0	11	0	9
Hadj (s)	-0.09	0.07	-0.11	0.62	0.45
Departure Headway (s)	4.3	4.4	4.4	5.5	5.4
Degree Utilization, x	0.06	0.15	0.03	0.05	0.12
Capacity (veh/h)	802	796	771	622	645
Control Delay (s)	7.6	8.2	7.6	7.6	7.9
Approach Delay (s)	7.6	8.2	7.6	7.8	
Approach LOS	A	A	A	A	

Intersection Summary				
Delay	7.9			
Level of Service	A			
Intersection Capacity Utilization	28.6%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX D

Future Background Intersection Capacity Analysis

Queues
1: Hurontario St & Park St E

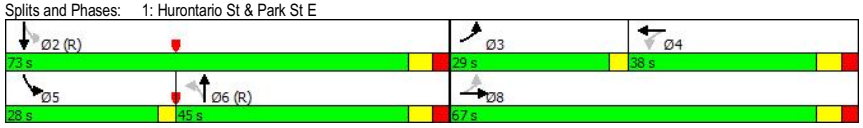
05/01/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	246	43	32	33	17	535	262	513
Future Volume (vph)	246	43	32	33	17	535	262	513
Lane Group Flow (vph)	267	79	35	298	18	632	285	782
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	3	8		4		6	5	2
Permitted Phases	8		4		6		2	
Detector Phase	3	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0
Minimum Split (s)	9.0	38.0	38.0	38.0	33.0	33.0	15.0	33.0
Total Split (s)	29.0	67.0	38.0	38.0	45.0	45.0	28.0	73.0
Total Split (%)	20.7%	47.9%	27.1%	27.1%	32.1%	32.1%	20.0%	52.1%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.82	0.16	0.28	0.84	0.08	0.46	0.61	0.45
Control Delay	56.4	20.2	58.7	33.8	32.1	31.0	20.0	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	20.2	58.7	33.8	32.1	31.0	20.0	16.8
Queue Length 50th (m)	59.7	9.7	9.2	15.5	2.7	60.2	33.5	54.4
Queue Length 95th (m)	72.4	18.5	18.1	46.5	10.8	107.2	66.1	91.4
Internal Link Dist (m)		262.7		102.8		93.1		157.1
Turn Bay Length (m)	45.0		50.0		35.0		60.0	
Base Capacity (vph)	349	686	253	469	231	1376	529	1738
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	0.77	0.12	0.14	0.64	0.08	0.46	0.54	0.45

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 1: Hurontario St & Park St E



HCM Signalized Intersection Capacity Analysis
1: Hurontario St & Park St E

05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	43	29	32	33	241	17	535	46	262	513	206
Future Volume (vph)	246	43	29	32	33	241	17	535	46	262	513	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.93		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.95	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.87		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1599	1561		1540	1276		1350	3002		1571	2862	
Flt Permitted	0.22	1.00		0.71	1.00		0.36	1.00		0.33	1.00	
Satd. Flow (perm)	364	1561		1144	1276		506	3002		547	2862	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	267	47	32	35	36	262	18	582	50	285	558	224
RTOR Reduction (vph)	0	22	0	0	213	0	0	3	0	0	23	0
Lane Group Flow (vph)	267	57	0	35	85	0	18	629	0	285	759	0
Confl. Peds. (#/hr)	53		43	43		53	21		15	15		21
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	42.1	42.1		15.5	15.5		64.0	64.0		83.9	83.9	
Effective Green, g (s)	42.1	42.1		15.5	15.5		64.0	64.0		83.9	83.9	
Actuated g/C Ratio	0.30	0.30		0.11	0.11		0.46	0.46		0.60	0.60	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	317	469		126	141		231	1372		451	1715	
v/s Ratio Prot	c0.14	0.04			0.07			0.21		c0.08	0.27	
v/s Ratio Perm	c0.11			0.03			0.04			c0.30		
v/c Ratio	0.84	0.12		0.28	0.60		0.08	0.46		0.63	0.44	
Uniform Delay, d1	42.0	35.5		57.1	59.3		21.4	26.1		14.8	15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.0	0.1		1.2	6.7		0.7	1.1		2.1	0.8	
Delay (s)	60.0	35.7		58.3	66.0		22.0	27.2		16.9	16.1	
Level of Service	E	D		E	E		C	C		B	B	
Approach Delay (s)		54.4			65.2			27.1			16.3	
Approach LOS		D			E			C			B	

Intersection Summary

HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Elizabeth St N & Lakeshore Rd E

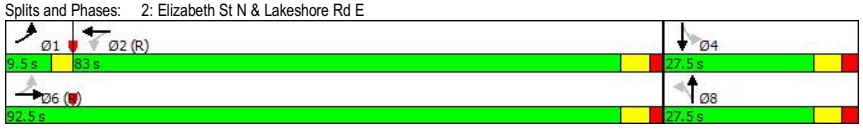
05/01/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	68	1628	4	1188	12	16	35	3
Future Volume (vph)	68	1628	4	1188	12	16	35	3
Lane Group Flow (vph)	0	1854	0	1307	13	25	38	62
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	1	6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	1	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.5	27.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	9.5	92.5	83.0	83.0	27.5	27.5	27.5	27.5
Total Split (%)	7.9%	77.1%	69.2%	69.2%	22.9%	22.9%	22.9%	22.9%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.5	6.5	6.5	6.5
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio		0.97		0.55	0.07	0.08	0.25	0.21
Control Delay		31.7		8.8	42.5	32.4	47.7	13.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		31.7		8.8	42.5	32.4	47.7	13.6
Queue Length 50th (m)		190.0		66.2	2.6	3.4	7.8	0.6
Queue Length 95th (m)		#275.1		81.3	8.4	11.2	18.5	12.5
Internal Link Dist (m)		195.2		67.6		55.7		211.0
Turn Bay Length (m)					9.0		9.0	
Base Capacity (vph)		1905		2365	200	303	153	290
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.97		0.55	0.07	0.08	0.25	0.21

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Elizabeth St N & Lakeshore Rd E



HCM Signalized Intersection Capacity Analysis
2: Elizabeth St N & Lakeshore Rd E

05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	1628	9	4	1188	11	12	16	7	35	3	54
Future Volume (vph)	68	1628	9	4	1188	11	12	16	7	35	3	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.98		1.00	0.97	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.96	1.00	
Frt		1.00			1.00		1.00	0.95		1.00	0.86	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3493			3459		1518	1699		1127	1380	
Flt Permitted		0.76			0.95		0.72	1.00		0.74	1.00	
Satd. Flow (perm)		2644			3280		1145	1699		879	1380	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	1770	10	4	1291	12	13	17	8	38	3	59
RTOR Reduction (vph)	0	0	0	0	0	0	0	7	0	0	49	0
Lane Group Flow (vph)	0	1854	0	0	1307	0	13	18	0	38	13	0
Confl. Peds. (#/hr)	29		21	21		29	10		27	27		10
Confl. Bikes (#/hr)			1									4
Heavy Vehicles (%)	3%	3%	0%	25%	4%	10%	17%	0%	14%	53%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		86.5			86.5		21.0	21.0		21.0	21.0	
Effective Green, g (s)		86.5			86.5		21.0	21.0		21.0	21.0	
Actuated g/C Ratio		0.72			0.72		0.18	0.18		0.18	0.18	
Clearance Time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1905			2364		200	297		153	241	
v/s Ratio Prot								0.01			0.01	
v/s Ratio Perm		c0.70			0.40		0.01			c0.04		
v/c Ratio		0.97			0.55		0.07	0.06		0.25	0.06	
Uniform Delay, d1		15.7			7.8		41.3	41.3		42.7	41.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		14.6			0.9		0.6	0.4		3.8	0.4	
Delay (s)		30.3			8.7		41.9	41.7		46.5	41.7	
Level of Service		C			A		D	D		D	D	
Approach Delay (s)		30.3			8.7			41.8			43.5	
Approach LOS		C			A			D			D	

Intersection Summary

HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	113.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Elizabeth St N & Park St E 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	66	12	10	42	0	10	0	22	20	70	11
Future Volume (vph)	0	66	12	10	42	0	10	0	22	20	70	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	72	13	11	46	0	11	0	24	22	76	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	85	57	35	22	88
Volume Left (vph)	0	11	11	22	0
Volume Right (vph)	13	0	24	0	12
Hadj (s)	-0.05	0.15	-0.23	0.50	0.40
Departure Headway (s)	4.3	4.5	4.2	5.4	5.3
Degree Utilization, x	0.10	0.07	0.04	0.03	0.13
Capacity (veh/h)	809	768	809	645	661
Control Delay (s)	7.8	7.9	7.4	7.3	7.8
Approach Delay (s)	7.8	7.9	7.4	7.7	
Approach LOS	A	A	A	A	

Intersection Summary				
Delay	7.7			
Level of Service	A			
Intersection Capacity Utilization	28.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Queues
1: Hurontario St & Park St E

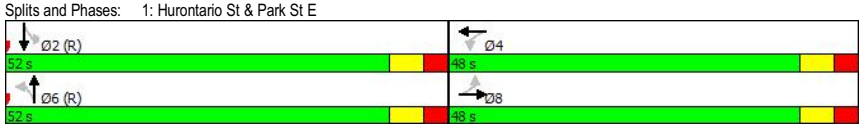
04/18/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	205	37	13	45	23	657	100	657
Future Volume (vph)	205	37	13	45	23	657	100	657
Lane Group Flow (vph)	223	74	14	278	25	748	109	1092
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	38.0	38.0	38.0	38.0	33.0	33.0	33.0	33.0
Total Split (s)	48.0	48.0	48.0	48.0	52.0	52.0	52.0	52.0
Total Split (%)	48.0%	48.0%	48.0%	48.0%	52.0%	52.0%	52.0%	52.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.93	0.15	0.04	0.54	0.14	0.42	0.35	0.63
Control Delay	74.7	13.5	20.4	19.1	16.8	15.1	19.4	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.7	13.5	20.4	19.1	16.8	15.1	19.4	16.9
Queue Length 50th (m)	41.3	5.5	1.9	25.4	2.2	41.7	11.1	64.3
Queue Length 95th (m)	#66.1	13.1	5.4	42.2	8.7	69.3	30.0	107.6
Internal Link Dist (m)		262.7		102.8		93.1		157.1
Turn Bay Length (m)	45.0		50.0		35.0		60.0	
Base Capacity (vph)	326	647	470	655	184	1793	311	1728
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	0.68	0.11	0.03	0.42	0.14	0.42	0.35	0.63

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 96 (96%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 75
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 St & Park St E



HCM Signalized Intersection Capacity Analysis
1: Hurontario St & Park St E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	37	31	13	45	211	23	657	31	100	657	348
Future Volume (vph)	205	37	31	13	45	211	23	657	31	100	657	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.96		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.98	1.00		0.97	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.93		1.00	0.88		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1588	1531		1538	1434		1593	3211		1598	2999	
Flt Permitted	0.48	1.00		0.71	1.00		0.20	1.00		0.33	1.00	
Satd. Flow (perm)	797	1531		1148	1434		331	3211		559	2999	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	40	34	14	49	229	25	714	34	109	714	378
RTOR Reduction (vph)	0	24	0	0	80	0	0	3	0	0	56	0
Lane Group Flow (vph)	223	50	0	14	198	0	25	745	0	109	1036	0
Confl. Peds. (#/hr)	38		39	39		38	30		27	27		30
Heavy Vehicles (%)	0%	3%	0%	2%	2%	0%	1%	0%	4%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	30.2	30.2		30.2	30.2		55.8	55.8		55.8	55.8	
Effective Green, g (s)	30.2	30.2		30.2	30.2		55.8	55.8		55.8	55.8	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.56	0.56		0.56	0.56	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	240	462		346	433		184	1791		311	1673	
v/s Ratio Prot		0.03			0.14			0.23			c0.35	
v/s Ratio Perm	c0.28			0.01			0.08			0.20		
v/c Ratio	0.93	0.11		0.04	0.46		0.14	0.42		0.35	0.62	
Uniform Delay, d1	33.9	25.2		24.7	28.3		10.6	12.7		12.1	14.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	38.7	0.1		0.0	0.8		1.5	0.7		3.1	1.7	
Delay (s)	72.6	25.3		24.7	29.0		12.1	13.4		15.2	16.7	
Level of Service	E	C		C	C		B	B		B	B	
Approach Delay (s)		60.8			28.8			13.4			16.5	
Approach LOS		E			C			B			B	

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Elizabeth St N & Lakeshore Rd E

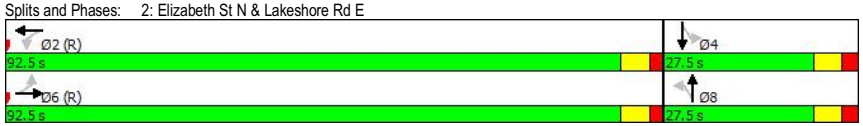
04/18/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	71	1205	17	1354	43	22	42	11
Future Volume (vph)	71	1205	17	1354	43	22	42	11
Lane Group Flow (vph)	0	1407	0	1540	47	57	46	87
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	92.5	92.5	92.5	92.5	27.5	27.5	27.5	27.5
Total Split (%)	77.1%	77.1%	77.1%	77.1%	22.9%	22.9%	22.9%	22.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.5	6.5	6.5	6.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio		0.84		0.66	0.22	0.19	0.30	0.30
Control Delay		17.8		10.5	45.7	23.5	49.4	22.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		17.8		10.5	45.7	23.5	49.4	22.2
Queue Length 50th (m)		108.7		89.0	9.6	4.8	9.6	6.6
Queue Length 95th (m)		147.8		109.3	20.9	16.5	21.2	21.3
Internal Link Dist (m)		195.2		67.6		55.7		211.0
Turn Bay Length (m)					9.0		9.0	
Base Capacity (vph)		1676		2344	213	307	152	288
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.84		0.66	0.22	0.19	0.30	0.30

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 47 (39%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 2: Elizabeth St N & Lakeshore Rd E



HCM Signalized Intersection Capacity Analysis
2: Elizabeth St N & Lakeshore Rd E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1205	18	17	1354	46	43	22	30	42	11	69
Future Volume (vph)	71	1205	18	17	1354	46	43	22	30	42	11	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.94		1.00	0.91	
Flpb, ped/bikes		1.00			1.00		0.91	1.00		0.92	1.00	
Frt		1.00			1.00		1.00	0.91		1.00	0.87	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3513			3527		1651	1605		1148	1395	
Flt Permitted		0.66			0.92		0.70	1.00		0.72	1.00	
Satd. Flow (perm)		2326			3249		1218	1605		870	1395	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	1310	20	18	1472	50	47	24	33	46	12	75
RTOR Reduction (vph)	0	1	0	0	2	0	0	27	0	0	45	0
Lane Group Flow (vph)	0	1406	0	0	1538	0	47	30	0	46	42	0
Confl. Peds. (#/hr)	74		91	91		74	56		53	53		56
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	2%	0%	0%	1%	2%	0%	0%	3%	44%	0%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		86.5			86.5		21.0	21.0		21.0	21.0	
Effective Green, g (s)		86.5			86.5		21.0	21.0		21.0	21.0	
Actuated g/C Ratio		0.72			0.72		0.18	0.18		0.18	0.18	
Clearance Time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1676			2341		213	280		152	244	
v/s Ratio Prot								0.02			0.03	
v/s Ratio Perm		c0.60			0.47		0.04			c0.05		
v/c Ratio		0.84			0.66		0.22	0.11		0.30	0.17	
Uniform Delay, d1		11.8			8.9		42.5	41.6		43.1	42.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.2			1.5		2.4	0.8		5.1	1.5	
Delay (s)		17.1			10.3		44.9	42.4		48.2	43.7	
Level of Service		B			B		D	D		D	D	
Approach Delay (s)		17.1			10.3			43.5			45.2	
Approach LOS		B			B			D			D	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.73				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5		
Intersection Capacity Utilization	108.5%	ICU Level of Service	G		
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	53	7	31	119	0	19	0	10	28	65	8
Future Volume (vph)	0	53	7	31	119	0	19	0	10	28	65	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	58	8	34	129	0	21	0	11	30	71	9

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	66	163	32	30	80
Volume Left (vph)	0	34	21	30	0
Volume Right (vph)	8	0	11	0	9
Hadj (s)	-0.07	0.05	-0.07	0.62	0.45
Departure Headway (s)	4.4	4.4	4.6	5.7	5.5
Degree Utilization, x	0.08	0.20	0.04	0.05	0.12
Capacity (veh/h)	785	782	732	601	623
Control Delay (s)	7.8	8.5	7.8	7.8	8.1
Approach Delay (s)	7.8	8.5	7.8	8.0	
Approach LOS	A	A	A	A	

Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	30.4%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX E

Future Total Intersection Capacity Analysis

Queues
1: Hurontario St & Park St E

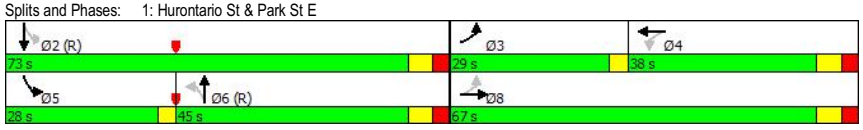
05/01/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	282	43	32	33	17	535	262	513
Future Volume (vph)	282	43	32	33	17	535	262	513
Lane Group Flow (vph)	307	80	35	298	18	632	285	790
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	3	8		4		6	5	2
Permitted Phases	8		4		6		2	
Detector Phase	3	8	4	4	6	6	5	2
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0
Minimum Split (s)	9.0	38.0	38.0	38.0	33.0	33.0	15.0	33.0
Total Split (s)	29.0	67.0	38.0	38.0	45.0	45.0	28.0	73.0
Total Split (%)	20.7%	47.9%	27.1%	27.1%	32.1%	32.1%	20.0%	52.1%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.90	0.16	0.28	0.84	0.08	0.47	0.62	0.46
Control Delay	66.7	19.7	58.7	33.8	32.4	31.7	20.6	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	19.7	58.7	33.8	32.4	31.7	20.6	17.2
Queue Length 50th (m)	70.4	9.6	9.2	15.5	2.7	60.8	34.0	55.6
Queue Length 95th (m)	#96.0	18.6	18.1	46.5	10.8	107.2	66.1	92.5
Internal Link Dist (m)		262.7		102.8		93.1		157.1
Turn Bay Length (m)	45.0		50.0		35.0		60.0	
Base Capacity (vph)	352	686	253	469	224	1345	521	1713
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	0.87	0.12	0.14	0.64	0.08	0.47	0.55	0.46

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 95
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 St & Park St E



HCM Signalized Intersection Capacity Analysis
1: Hurontario St & Park St E

05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	282	43	30	32	33	241	17	535	46	262	513	213
Future Volume (vph)	282	43	30	32	33	241	17	535	46	262	513	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.93		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.95	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.87		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1599	1558		1540	1276		1351	3002		1571	2859	
Flt Permitted	0.22	1.00		0.70	1.00		0.35	1.00		0.33	1.00	
Satd. Flow (perm)	364	1558		1143	1276		502	3002		541	2859	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	307	47	33	35	36	262	18	582	50	285	558	232
RTOR Reduction (vph)	0	22	0	0	213	0	0	3	0	0	25	0
Lane Group Flow (vph)	307	58	0	35	85	0	18	629	0	285	765	0
Confl. Peds. (#/hr)	53		43	43		53	21		15	15		21
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	3	8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	43.3	43.3		15.5	15.5		62.6	62.6		82.7	82.7	
Effective Green, g (s)	43.3	43.3		15.5	15.5		62.6	62.6		82.7	82.7	
Actuated g/C Ratio	0.31	0.31		0.11	0.11		0.45	0.45		0.59	0.59	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	331	481		126	141		224	1342		445	1688	
v/s Ratio Prot	c0.16	0.04			0.07			0.21		c0.08	0.27	
v/s Ratio Perm	c0.12			0.03			0.04			c0.30		
v/c Ratio	0.93	0.12		0.28	0.60		0.08	0.47		0.64	0.45	
Uniform Delay, d1	42.2	34.7		57.1	59.3		22.2	27.1		15.4	16.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	31.1	0.1		1.2	6.7		0.7	1.2		2.4	0.9	
Delay (s)	73.3	34.8		58.3	66.0		22.9	28.2		17.8	16.9	
Level of Service	E	C		E	E		C	C		B	B	
Approach Delay (s)		65.4			65.2			28.1			17.1	
Approach LOS		E			E			C			B	

Intersection Summary

HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Elizabeth St N & Lakeshore Rd E

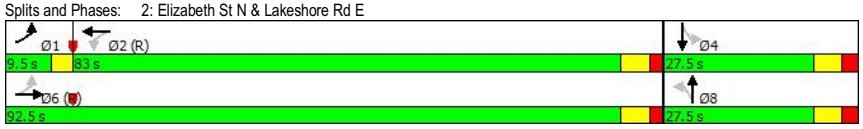
05/01/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	72	1628	4	1188	12	16	42	3
Future Volume (vph)	72	1628	4	1188	12	16	42	3
Lane Group Flow (vph)	0	1858	0	1309	13	25	46	68
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	1	6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	1	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.5	27.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	9.5	92.5	83.0	83.0	27.5	27.5	27.5	27.5
Total Split (%)	7.9%	77.1%	69.2%	69.2%	22.9%	22.9%	22.9%	22.9%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.5	6.5	6.5	6.5
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio		0.99		0.55	0.07	0.08	0.30	0.23
Control Delay		36.6		8.9	42.5	32.4	49.3	13.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		36.6		8.9	42.5	32.4	49.3	13.2
Queue Length 50th (m)		200.3		66.4	2.6	3.4	9.5	0.6
Queue Length 95th (m)		#280.6		81.6	8.4	11.2	21.2	13.0
Internal Link Dist (m)		195.2		67.6		55.7		211.0
Turn Bay Length (m)					9.0		9.0	
Base Capacity (vph)		1870		2362	199	303	153	294
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.99		0.55	0.07	0.08	0.30	0.23

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Elizabeth St N & Lakeshore Rd E



HCM Signalized Intersection Capacity Analysis
2: Elizabeth St N & Lakeshore Rd E

05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	1628	9	4	1188	13	12	16	7	42	3	60
Future Volume (vph)	72	1628	9	4	1188	13	12	16	7	42	3	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.98		1.00	0.97	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.96	1.00	
Frt		1.00			1.00		1.00	0.95		1.00	0.86	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3492			3457		1519	1699		1127	1378	
Flt Permitted		0.74			0.95		0.71	1.00		0.74	1.00	
Satd. Flow (perm)		2594			3278		1139	1699		879	1378	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	1770	10	4	1291	14	13	17	8	46	3	65
RTOR Reduction (vph)	0	0	0	0	1	0	0	7	0	0	54	0
Lane Group Flow (vph)	0	1858	0	0	1308	0	13	18	0	46	14	0
Confl. Peds. (#/hr)	29		21	21		29	10		27	27		10
Confl. Bikes (#/hr)			1									4
Heavy Vehicles (%)	3%	3%	0%	25%	4%	10%	17%	0%	14%	53%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		86.5			86.5		21.0	21.0		21.0	21.0	
Effective Green, g (s)		86.5			86.5		21.0	21.0		21.0	21.0	
Actuated g/C Ratio		0.72			0.72		0.18	0.18		0.18	0.18	
Clearance Time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1869			2362		199	297		153	241	
v/s Ratio Prot								0.01			0.01	
v/s Ratio Perm		c0.72			0.40		0.01			c0.05		
v/c Ratio		0.99			0.55		0.07	0.06		0.30	0.06	
Uniform Delay, d1		16.5			7.8		41.3	41.3		43.1	41.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		19.3			0.9		0.6	0.4		5.0	0.5	
Delay (s)		35.7			8.7		41.9	41.7		48.1	41.7	
Level of Service		D			A		D	D		D	D	
Approach Delay (s)		35.7			8.7			41.8			44.3	
Approach LOS		D			A			D			D	

Intersection Summary

HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	113.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Elizabeth St N & Park St E

05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	66	12	23	42	0	10	0	28	20	70	11
Future Volume (vph)	0	66	12	23	42	0	10	0	28	20	70	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	72	13	25	46	0	11	0	30	22	76	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	85	71	41	22	88
Volume Left (vph)	0	25	11	22	0
Volume Right (vph)	13	0	30	0	12
Hadj (s)	-0.05	0.20	-0.27	0.50	0.40
Departure Headway (s)	4.3	4.6	4.2	5.4	5.3
Degree Utilization, x	0.10	0.09	0.05	0.03	0.13
Capacity (veh/h)	802	748	807	639	654
Control Delay (s)	7.8	8.0	7.5	7.4	7.9
Approach Delay (s)	7.8	8.0	7.5	7.8	
Approach LOS	A	A	A	A	

Intersection Summary				
Delay	7.8			
Level of Service	A			
Intersection Capacity Utilization	29.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Park St E & Site Access

05/01/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	108	52	7	37	13
Future Volume (Veh/h)	6	108	52	7	37	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	117	57	8	40	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			287			
pX, platoon unblocked						
vC, conflicting volume	65				192	61
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	65				192	61
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	99
cM capacity (veh/h)	1537				793	1004

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	124	65	54
Volume Left	7	0	40
Volume Right	0	8	14
cSH	1537	1700	839
Volume to Capacity	0.00	0.04	0.06
Queue Length 95th (m)	0.1	0.0	1.6
Control Delay (s)	0.4	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.6
Approach LOS			A

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
1: Hurontario St & Park St E

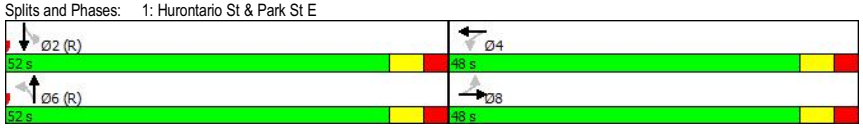
04/18/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	231	37	13	45	25	657	100	657
Future Volume (vph)	231	37	13	45	25	657	100	657
Lane Group Flow (vph)	251	74	14	278	27	748	109	1123
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	38.0	38.0	38.0	38.0	33.0	33.0	33.0	33.0
Total Split (s)	48.0	48.0	48.0	48.0	52.0	52.0	52.0	52.0
Total Split (%)	48.0%	48.0%	48.0%	48.0%	52.0%	52.0%	52.0%	52.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.94	0.14	0.04	0.51	0.17	0.44	0.37	0.68
Control Delay	73.1	12.8	19.4	17.6	18.8	16.5	21.2	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	12.8	19.4	17.6	18.8	16.5	21.2	18.6
Queue Length 50th (m)	45.7	5.2	1.8	24.0	2.6	45.2	12.1	71.6
Queue Length 95th (m)	#80.0	13.1	5.4	42.2	9.4	69.3	30.4	111.1
Internal Link Dist (m)		262.7		102.8		93.1		157.1
Turn Bay Length (m)	45.0		50.0		35.0		60.0	
Base Capacity (vph)	337	647	470	655	160	1716	293	1662
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	0.74	0.11	0.03	0.42	0.17	0.44	0.37	0.68

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 96 (96%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 75
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 St & Park St E



HCM Signalized Intersection Capacity Analysis
1: Hurontario St & Park St E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	37	31	13	45	211	25	657	31	100	657	376
Future Volume (vph)	231	37	31	13	45	211	25	657	31	100	657	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.96		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.98	1.00		0.97	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.93		1.00	0.88		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1587	1531		1538	1434		1595	3211		1598	2986	
Flt Permitted	0.49	1.00		0.71	1.00		0.18	1.00		0.33	1.00	
Satd. Flow (perm)	824	1531		1148	1434		300	3211		549	2986	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	251	40	34	14	49	229	27	714	34	109	714	409
RTOR Reduction (vph)	0	23	0	0	77	0	0	3	0	0	69	0
Lane Group Flow (vph)	251	51	0	14	201	0	27	745	0	109	1054	0
Confl. Peds. (#/hr)	38		39	39		38	30		27	27		30
Heavy Vehicles (%)	0%	3%	0%	2%	2%	0%	1%	0%	4%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	32.6	32.6		32.6	32.6		53.4	53.4		53.4	53.4	
Effective Green, g (s)	32.6	32.6		32.6	32.6		53.4	53.4		53.4	53.4	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	268	499		374	467		160	1714		293	1594	
v/s Ratio Prot		0.03			0.14			0.23			c0.35	
v/s Ratio Perm	c0.30			0.01			0.09			0.20		
v/c Ratio	0.94	0.10		0.04	0.43		0.17	0.43		0.37	0.66	
Uniform Delay, d1	32.7	23.5		23.0	26.4		11.9	14.1		13.5	16.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	37.9	0.1		0.0	0.6		2.3	0.8		3.6	2.2	
Delay (s)	70.6	23.6		23.0	27.1		14.2	14.9		17.1	19.0	
Level of Service	E	C		C	C		B	B		B	B	
Approach Delay (s)		59.9			26.9			14.9			18.8	
Approach LOS		E			C			B			B	

Intersection Summary

HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	102.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Elizabeth St N & Lakeshore Rd E

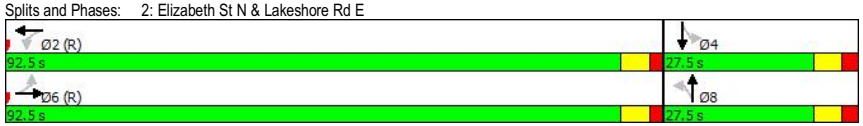
04/18/2020

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	79	1205	17	1354	43	22	42	11
Future Volume (vph)	79	1205	17	1354	43	22	42	11
Lane Group Flow (vph)	0	1416	0	1548	47	57	46	89
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0	27.5	27.5	27.5	27.5
Total Split (s)	92.5	92.5	92.5	92.5	27.5	27.5	27.5	27.5
Total Split (%)	77.1%	77.1%	77.1%	77.1%	22.9%	22.9%	22.9%	22.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.5	6.5	6.5	6.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio		0.88		0.66	0.22	0.19	0.30	0.31
Control Delay		21.3		10.6	45.7	23.5	49.4	22.8
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		21.3		10.6	45.7	23.5	49.4	22.8
Queue Length 50th (m)		119.0		90.2	9.6	4.8	9.6	7.1
Queue Length 95th (m)		166.5		110.3	20.9	16.5	21.2	22.0
Internal Link Dist (m)		195.2		67.6		55.7		211.0
Turn Bay Length (m)					9.0		9.0	
Base Capacity (vph)		1603		2337	212	307	152	288
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.88		0.66	0.22	0.19	0.30	0.31

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 47 (39%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 2: Elizabeth St N & Lakeshore Rd E



HCM Signalized Intersection Capacity Analysis
2: Elizabeth St N & Lakeshore Rd E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	1205	18	17	1354	53	43	22	30	42	11	71
Future Volume (vph)	79	1205	18	17	1354	53	43	22	30	42	11	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.94		1.00	0.91	
Flpb, ped/bikes		1.00			1.00		0.92	1.00		0.92	1.00	
Frt		1.00			0.99		1.00	0.91		1.00	0.87	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3513			3520		1652	1605		1148	1393	
Flt Permitted		0.63			0.92		0.70	1.00		0.72	1.00	
Satd. Flow (perm)		2223			3242		1216	1605		870	1393	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	1310	20	18	1472	58	47	24	33	46	12	77
RTOR Reduction (vph)	0	1	0	0	2	0	0	27	0	0	45	0
Lane Group Flow (vph)	0	1415	0	0	1546	0	47	30	0	46	44	0
Confl. Peds. (#/hr)	74		91	91		74	56		53	53		56
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	2%	0%	0%	1%	2%	0%	0%	3%	44%	0%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		86.5			86.5		21.0	21.0		21.0	21.0	
Effective Green, g (s)		86.5			86.5		21.0	21.0		21.0	21.0	
Actuated g/C Ratio		0.72			0.72		0.18	0.18		0.18	0.18	
Clearance Time (s)		6.0			6.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1602			2336		212	280		152	243	
v/s Ratio Prot								0.02			0.03	
v/s Ratio Perm		c0.64			0.48		0.04			c0.05		
v/c Ratio		0.88			0.66		0.22	0.11		0.30	0.18	
Uniform Delay, d1		12.9			8.9		42.5	41.6		43.1	42.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.5			1.5		2.4	0.8		5.1	1.7	
Delay (s)		20.3			10.4		44.9	42.4		48.2	43.8	
Level of Service		C			B		D	D		D	D	
Approach Delay (s)		20.3			10.4			43.5			45.3	
Approach LOS		C			B			D			D	

Intersection Summary

HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.77				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5		
Intersection Capacity Utilization	109.0%	ICU Level of Service	G		
Analysis Period (min)	15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Elizabeth St N & Park St E

04/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	53	7	33	119	0	19	0	25	28	65	8
Future Volume (vph)	0	53	7	33	119	0	19	0	25	28	65	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	58	8	36	129	0	21	0	27	30	71	9

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	66	165	48	30	80
Volume Left (vph)	0	36	21	30	0
Volume Right (vph)	8	0	27	0	9
Hadj (s)	-0.07	0.05	-0.25	0.62	0.45
Departure Headway (s)	4.4	4.4	4.4	5.7	5.5
Degree Utilization, x	0.08	0.20	0.06	0.05	0.12
Capacity (veh/h)	775	773	759	598	620
Control Delay (s)	7.8	8.6	7.7	7.8	8.1
Approach Delay (s)	7.8	8.6	7.7	8.0	
Approach LOS	A	A	A	A	

Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	31.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Park St E & Site Access

04/18/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	91	150	30	26	2
Future Volume (Veh/h)	15	91	150	30	26	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	99	163	33	28	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			287			
pX, platoon unblocked						
vC, conflicting volume	196				310	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	196				310	180
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	100
cM capacity (veh/h)	1377				674	863

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	115	196	30
Volume Left	16	0	28
Volume Right	0	33	2
cSH	1377	1700	684
Volume to Capacity	0.01	0.12	0.04
Queue Length 95th (m)	0.3	0.0	1.0
Control Delay (s)	1.1	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	1.1	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX F

Terms of Reference for Parking Survey (22-28 Ann Street & 78 Park Street East site)

LEA Consulting Ltd.
425 University Avenue, Suite 400
Toronto, ON, M5G 1T6 Canada
T | 905 470 0015 F | 905 470 0030
WWW.LEA.CA

September 24th, 2019 **Reference Number:** 19244.210

Taral Shukla
Planning Associate, City Planning Strategies
City of Mississauga
Via Email: taral.shukla@mississauga.ca

Dear Ms. Shukla,

RE: Terms of Reference – Parking Justification Study
22-28 Ann Street & 78 Park Street East, Port Credit, City of Mississauga

LEA Consulting Ltd. has been retained by Edenshaw Ann Developments Limited to provide transportation consulting services in support of the proposed development at 22-28 Ann Street and 78 Park Street East in the City of Mississauga, Ontario. **Figure 1** illustrates the proposed site location.

Figure 1: Subject Site

A transportation impact study (TIS) was prepared and submitted in April 2019 to the City of Mississauga. Comments received on August 13th indicate that City staff are requesting justification for the proposed reduction in parking supply relative to the zoning by-law requirements. The deficiency is detailed below in **Table 1**.

Table 1: Parking Comparison

Land Use	Existing By-Law Rates	TMP Rates	Proposed Parking
1 Bedroom	1.25	0.80	0.67
2 Bedroom	1.40	0.90	
3 Bedroom	1.75	1.00	
Visitor	0.20	0.15	0.05
Overall Rate	**1.58**	**1.03**	**0.72**

The following outlines the proposed Terms of Reference for a Parking Justification Study in support of the proposed parking supply; we would like to receive comments/confirmation before we proceed.

WORK PLAN

The following work plan is proposed for the Parking Justification Survey:

Data Collection

- Residential Parking Demand: Conduct four (4) parking surveys, conducted on concurrent weekday evening periods on two separate weeks, between 6:00 PM – 11:00 PM. Surveys will be conducted at the following locations:
    - 12 Park Street East (60 Units, 59 Residential Parking Spaces)
    - 26 Park Street East (84 Units, 82 Residential Parking Spaces)
    - 7 Helen Street North (39 Units, 42 Residential Parking Spaces)

  The location of the residential proxy sites is provided in **Figure 2**.

- Visitor Parking Demand: Conduct four (4) parking surveys, conducted on concurrent weekend evening periods on two separate weeks, between 6:00 PM – 11:00 PM. Surveys will be conducted at the following locations:
    - 26 Park Street East (84 Units, 8 Visitor Parking Spaces)
    - 28 Elizabeth Street North (102 Units, 17 Visitor Parking Spaces)
    - 49 Queen Street East (48 Units, 14 Visitor Parking Spaces)
    - On-Street Parking (within 3 blocks of the subject site) – Ann Street, Helen Street North, Elizabeth Street North, Park Street East, High Street East

  The location of the visitor proxy sites is provided in **Figure 3**.

Figure 2: Residential Parking Survey Locations

Figure 3: Visitor Parking Survey Locations

Parking Demand Analysis

- Conduct an analysis of residential and visitor parking demand in accordance with the *City of Mississauga Parking Utilization Study* guidelines.
- Conduct an existing conditions review detailing current and future transportation facilities available in the study area (transit, active transportation, municipal parking).
- Perform a policy/precedent review detailing approving parking rates in comparable jurisdictions.
- Summarize TDM measures that will be implemented on-site to encourage a reduced auto ownership rate.
- Prepare a report detailing the study findings for submission to the City.

We trust that these Terms of Reference outlines the requirements necessary for evaluation of the proposed parking supply. Should you have any questions or comments regarding this proposed Terms of Reference, please contact the undersigned at 905-470-0015 ext. 274 or rkeel@lea.ca.

Sincerely,

LEA CONSULTING LTD.

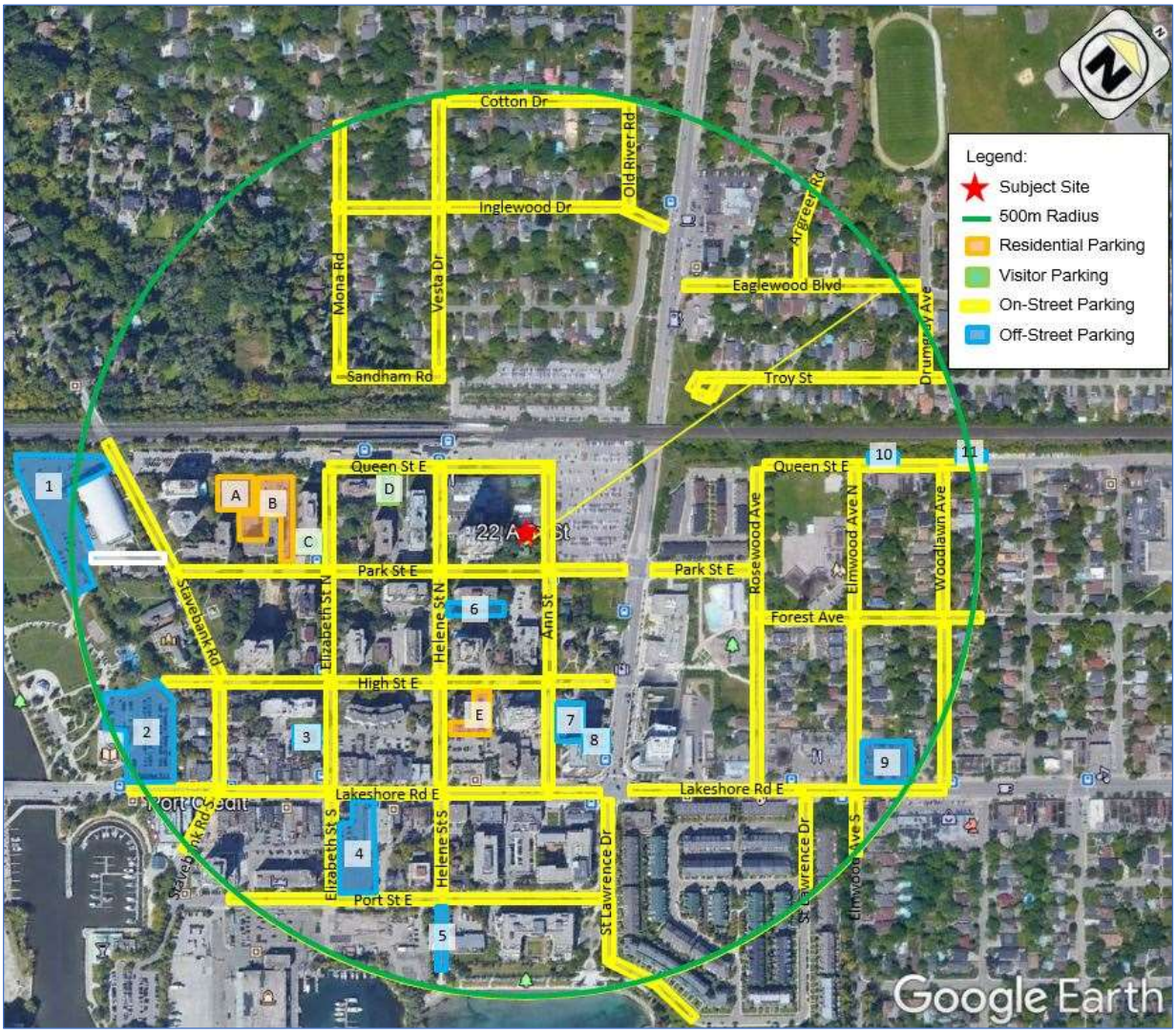
ROBERT KEEL
TRANSPORTATION PLANNER

cc: Kenneth Chan, LEA Consulting Ltd.

APPENDIX G

Parking Survey Summaries

Parking Survey Map (22-28 Ann Street & 78 Park Street East)



22-28 Ann Street & 78 Park Street East - 500m Radius Parking Utilization Survey

Project No.: 19244.210
Survey Date: Friday January 10, 2020
Surveyor(s): Mile Mothibe, Jerry Cheng, Michael Loo, Ken Lo, Tevin Luu
Weather: Cloudy, Light Rain

	Street Name	From	To	Side of Street	Supply	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	Notes:
	Cotton Dr	Vesta Dr	Old River Rd	N	20	0	0	0	0	0	0	0	0	0	0	0	
				S	21	0	0	0	0	0	0	0	0	0	0	0	
	Inglewood Dr	Mona Rd	Vesta Dr	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	7	0	0	0	0	0	0	0	0	0	0	0	
		Vesta Dr	Old River Rd	N	13	0	0	0	0	0	0	0	0	0	0	0	
				S	10	0	0	0	0	0	0	0	0	0	0	0	
		Old River Rd	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Sandham Rd	Mona Rd	Vesta Dr	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Eaglewood Blvd	Hurontario St	Argreen Rd	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	10	0	0	0	0	0	0	0	0	0	0	0	
		Argreen Rd	Drumgray Ave	N	12	0	0	0	0	1	2	2	1	1	1	1	
				S	13	0	0	0	0	0	0	0	0	0	0	0	
	Troy St	Cul-de-sac	Drumgray Ave	N	21	0	0	0	0	2	2	2	2	1	1	0	
				S	20	3	3	3	3	2	2	2	2	2	2	2	
	Queen St E	Elizabeth St N	Helene St N	N	-	1	0	0	0	0	0	1	0	0	0	0	No Parking
				S	9	5	4	3	4	2	3	3	3	4	4	4	
		Helene St N	Ann St	N	-	8	0	0	0	0	0	0	0	0	0	0	No Parking
				S	18	8	0	1	0	0	0	0	0	0	0	0	
		Rosewood Ave	Elmwood Ave N	N	16	0	0	0	0	0	0	0	0	0	0	0	
				S	16	0	0	0	0	0	0	0	0	0	0	0	
		Elmwood Ave N	Woodlawn Ave	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Rosewood Ave	Utility pole w/ Speed Sign	N	1	0	0	0	0	0	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Stavebank Rd	Elizabeth St N	N	0	0	0	0	0	0	0	0	0	0	0	0	14 spaces blocked by construction
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking

East to West	Park St E	Elizabeth St N	Helene St N	N	7	1	1	2	0	0	0	1	2	3	3	3	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Helene St N	Ann St	N	-	0	1	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	1	1	1	0	0	0	0	No Parking
		Ann St	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Hurontario St	Rosewood Ave	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Library	Stavebank Rd	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	5	5	5	5	5	6	6	5	5	5	5	6	
		Stavebank Rd	Elizabeth St N	N	-	1	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Elizabeth St N	Helene St N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	11	2	2	3	4	5	3	3	6	3	5	7	
		Helene St N	Ann St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	5	0	0	0	0	0	0	0	0	0	0	0	
		Ann St	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Forest Ave	Rosewood Ave	Elmwood Ave N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	13	2	0	0	0	0	0	0	1	0	0	0	
		Elmwood Ave N	Woodlawn Ave	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	12	0	1	1	1	1	1	1	1	1	0	0	
		Woodlawn Ave	Utility pole w/ Speed Sign	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	4	0	0	0	0	0	0	0	0	0	0	0	
	Lakeshore Rd E	Library Access	Stavebank Rd	N	3	2	3	3	2	2	3	3	3	3	3	3	
				S	3	2	3	3	2	2	2	2	3	3	3	2	
		Stavebank Rd	Elizabeth St N/S	N	12	11	11	11	9	11	12	12	12	12	12	12	
				S	12	12	11	11	11	12	12	12	12	10	10	9	
		Elizabeth St N/S	Helene St N/S	N	10	9	7	8	10	10	10	10	8	9	9	9	
				S	6	5	4	4	5	6	6	4	4	5	7	6	
		Helene St N/S	Ann St	N	7	6	5	6	7	7	5	5	5	4	4	4	
				S	5	3	4	4	4	5	4	3	3	5	5	6	
		Ann St	Hurontario St / St Lawrence Dr	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking

		Hurontario St	Rosewood Ave	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	15	6	3	6	6	6	6	6	4	3	0	0	
		Rosewood Ave	St Lawrence Dr - E	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	1	0	0	0	0	0	0	0	0	0	0	0	
		St Lawrence Dr - E	Elmwood Ave N/S	N	6	0	0	0	0	0	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Elmwood Ave N/S	Woodlawn Ave	N	7	0	1	1	0	2	2	1	0	0	0	0	
				S	9	2	1	0	0	1	1	0	0	0	0	0	
	Port St E	Ports Hotel Access	Elizabeth St S	N	7	0	0	4	4	4	4	4	4	4	5	6	
				S	15	0	0	4	4	4	7	7	7	6	6	6	
		Elizabeth St S	Helene St S	N	7	0	0	0	0	0	0	0	0	0	0	0	
				S	7	0	2	0	1	2	4	4	4	3	5	6	
		Helene St S	St Lawrence Dr	N	5	2	2	2	0	2	2	2	2	1	0	0	
				S	10	1	0	0	0	0	0	0	0	0	0	0	
	Mona Rd	1235 Mona Rd	Inglewood Dr	E	8	0	0	0	0	0	0	0	0	0	0	0	
				W	5	0	0	0	0	0	0	0	0	0	0	0	
		Inglewood Dr	Sandham Rd	E	18	0	0	0	0	0	0	0	0	0	0	0	
				W	15	0	0	0	0	1	0	0	0	0	0	0	
	Vesta Dr	Cotton Dr	Inglewood Dr	E	11	1	1	1	1	0	0	0	0	0	0	0	
				W	12	0	0	0	0	0	0	0	0	0	0	0	
		Inglewood Dr	Sandham Rd	E	20	0	0	0	0	0	0	0	0	0	0	0	
				W	17	0	0	0	0	1	1	0	0	0	0	0	
	Old River Rd	Cotton Dr	Inglewood Dr	E	7	0	0	0	0	0	0	0	0	0	0	0	
				W	10	0	0	0	0	0	0	0	0	0	0	0	
	Argreen Rd	Speed bump	Eaglewood Blvd	E	10	2	2	2	2	1	1	1	1	2	1	1	
				W	10	0	0	0	0	0	0	0	0	0	0	0	
	Drumgray Ave	Eaglewood Blvd	Troy St	E	10	0	0	0	0	0	0	0	0	0	0	0	
				W	18	0	0	0	0	0	0	0	2	2	2	2	
	Stavebank Rd	Railroad	Park St E	E	6	1	2	1	1	2	5	3	3	2	2	2	
				W	6	4	3	3	3	3	3	3	3	2	1	0	
		Park St E	High St E	E	14	11	13	13	14	14	14	14	13	13	14	14	
				W	14	8	9	10	12	11	12	11	11	12	10	10	
		High St E	Lakeshore Rd E	E	5	2	4	6	4	4	4	6	6	5	6	6	
				W	9	7	5	7	6	8	8	7	6	6	6	6	

North to South

Stavebank Rd S	Lakeshore Rd E	laneway	E	3	3	3	3	3	3	3	3	3	3	3	3	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
Elizabeth St N	Queen St E	Park St E	E	4	1	2	1	1	1	1	1	1	1	1	1	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	12	4	5	6	5	7	8	8	9	9	9	9	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	5	4	4	5	5	4	4	5	5	6	5	5	
			W	8	8	6	8	6	7	8	9	10	10	10	9	
Elizabeth St S	Lakeshore Rd E	Port St E	E	6	2	3	6	7	7	7	7	8	8	8	8	
			W	7	6	6	7	7	7	7	7	7	7	7	7	
Helene St N	Queen St E	Park St E	E	14	7	3	6	6	8	5	6	7	8	8	8	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	14	3	2	3	4	3	4	2	2	4	3	4	
			W	-	0	0	0	1	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	16	0	1	3	3	5	0	4	2	1	1	1	
			W	13	2	4	9	7	8	2	2	5	4	3	3	
Helene St S	Lakeshore Rd E	Port St E	E	4	3	1	1	3	3	2	2	3	3	2	2	
			W	12	6	6	5	5	4	6	5	5	3	5	6	
Ann St	Queen St E	Park St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	5	3	0	2	3	4	5	4	3	3	4	5	
			W	6	2	3	2	3	4	4	4	3	2	2	2	
St Lawrence Dr - W	Lakeshore Rd E	Port St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Port St E	80 St Lawrence Dr	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	12	5	5	4	5	5	5	3	3	3	0	0	
Rosewood Ave	Queen St E	Park St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	12	1	1	0	0	1	1	1	1	1	1	1	
	Park St E	Forest Ave	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking

		Forest Ave	Lakeshore Rd E	E	-	0	0	0	0	0	0	0	0	0	0	0	0	No Parking
				W	7	1	1	0	0	0	0	0	2	0	0	0		
	St Lawrence Dr - E	Lakeshore Rd E	Waterside Dr	E	10	5	4	2	0	0	0	0	0	0	0	0		
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking	
	Elmwood Ave N	Queen St E	Forest Ave	E	11	0	0	0	0	0	0	0	0	0	0	0		
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking	
		Forest Ave	Lakeshore Rd E	E	-	0	0	0	0	1	1	0	0	0	0	0	No Parking	
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking	
		Lakeshore Rd E	11 Elmwood Ave S	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking	
				W	7	1	0	2	3	5	4	3	5	4	4	3		
	Woodlawn Ave	Queen St E	Forest Ave	E	13	1	1	1	1	2	1	1	1	1	1	1		
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking	
		Forest Ave	Lakeshore Rd E	E	12	2	2	3	3	3	2	1	2	2	2	2		
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking	
Total On-Street					**873**	203	176	207	206	233	228	219	226	215	211	213		

22-28 Ann Street & 78 Park Street East - 500m Radius Parking Utilization Survey

Project No.: 19244.210

Survey Date: Friday January 10, 2020

Surveyor(s): Mile Mothibe, Jerry Cheng, Michael Loo, Ken Lo, Tevin Luu

Weather: Cloudy, Light Rain

Address	Type	Map Reference	Type	Supply	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00
12 Park St E	Surface	Lot A	Resident	55	34	35	35	33	33	34	34	36	36	37	37
26 Park St E	Surface	Lot B	Resident	82	48	52	53	56	57	63	64	65	66	66	67
			Visitor	8	4	3	5	7	6	5	6	6	6	6	5
28 Elizabeth St N	Surface	Lot C	Visitor	15	1	1	1	1	1	1	1	1	1	1	1
49 Queen St E	Surface	Lot D	Visitor	17	1	1	1	2	2	3	3	3	3	3	3
7 Helene St N	Surface	Lot E	Resident	42	16	22	22	22	22	23	23	23	23	22	22
Port Credit Arena	Surface	Lot 1	Public	184	79	87	74	70	77	80	73	67	61	59	53
Port Credit Library	Surface	Lot 2	Public	158	119	128	141	153	155	152	155	156	144	138	135
112 Elizabeth St	Surface	Lot 3	Public	9	5	3	6	6	3	1	2	2	2	2	2
Elizabeth St & Port St E	Surface	Lot 4	Public	90	20	20	37	54	61	62	57	53	49	44	43
St. Lawrence Park	Surface	Lot 5	Public	10	1	2	2	2	3	3	3	1	1	0	0
65 Park St E	Surface	Lot 6	Public	7	2	2	2	3	3	2	2	2	2	3	4
Ann St & High St E	Garage	Lot 7	Public	31	9	10	10	11	10	12	12	12	12	12	13
Hurontario St & Lakeshore Rd E	Surface	Lot 8	Public	17	16	10	9	9	8	7	7	6	6	5	4
Elmwood Ave N & Lakeshore Rd E	Surface	Lot 9	Public	61	27	32	28	25	27	27	26	26	25	25	26
Elmwood Ave N & Queen St E	Surface	Lot 10	Public	13	5	4	4	5	5	5	2	1	1	0	0
Woodlawn Ave & Queen St E	Surface	Lot 11	Public	54	16	14	11	10	10	10	8	9	9	9	9
			Resident	**179**	98	109	110	111	112	120	121	124	125	125	126
		Total	Visitor	**40**	6	5	7	10	9	9	10	10	10	10	9
			Public	**634**	299	312	324	348	362	361	347	335	312	297	289

22-28 Ann Street & 78 Park Street East - 500m Radius Parking Utilization Survey

Project No.: 19244.210

Survey Date: Saturday January 11, 2020

Surveyor(s): Ibrahim Hashmi, Jerry Cheng, Michael Loo, Ken Lo, Tevin Luu

Weather: Heavy Rain

	Street Name	From	To	Side of Street	Supply	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	Notes:
	Cotton Dr	Vesta Dr	Old River Rd	N	20	0	0	0	0	0	0	0	0	0	0	0	
				S	21	0	1	1	0	0	0	0	0	0	0	0	
	Inglewood Dr	Mona Rd	Vesta Dr	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	7	0	0	0	0	0	0	0	0	0	0	0	
		Vesta Dr	Old River Rd	N	13	0	0	0	0	0	0	0	0	0	0	0	
				S	10	0	1	1	2	1	1	1	1	1	1	1	
		Old River Rd	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Sandham Rd	Mona Rd	Vesta Dr	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Eaglewood Blvd	Hurontario St	Argreen Rd	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	10	0	1	1	2	2	2	1	1	1	0	0	
		Argreen Rd	Drumgray Ave	N	12	2	2	2	2	2	2	2	2	2	2	2	
				S	13	1	0	0	0	0	0	0	0	0	0	0	
	Troy St	Cul-de-sac	Drumgray Ave	N	21	0	0	0	0	1	1	1	1	1	1	1	
				S	20	2	1	1	1	1	1	1	1	1	1	1	
	Queen St E	Elizabeth St N	Helene St N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	9	2	3	3	3	3	4	4	5	5	5	5	
		Helene St N	Ann St	N	-	0	0	0	0	0	0	0	0	4	0	0	No Parking
				S	18	0	0	0	0	0	0	0	0	0	0	0	
		Rosewood Ave	Elmwood Ave N	N	16	0	0	0	0	0	0	0	0	0	0	0	
				S	16	0	0	0	0	0	0	0	0	0	0	0	
		Elmwood Ave N	Woodlawn Ave	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Rosewood Ave	Utility pole w/ Speed Sign	N	1	0	0	0	0	0	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Stavebank Rd	Elizabeth St N	N	0	0	0	0	0	0	0	0	0	0	0	0	14 spaces blocked by construction
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking

East to West	Park St E	Elizabeth St N	Helene St N	N	7	0	1	3	3	4	3	2	3	3	3	2	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Helene St N	Ann St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Ann St	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Hurontario St	Rosewood Ave	N	-	0	0	1	0	0	0	0	0	0	0	0	No Parking
				S	-	0	1	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Library	Stavebank Rd	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	5	5	5	5	5	6	6	5	6	6	6	6	
		Stavebank Rd	Elizabeth St N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Elizabeth St N	Helene St N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	11	1	0	0	0	0	0	0	0	0	2	5	
		Helene St N	Ann St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	5	0	0	0	0	0	0	0	1	0	0	0	
		Ann St	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Forest Ave	Rosewood Ave	Elmwood Ave N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	13	0	0	0	0	0	0	0	0	0	0	0	
		Elmwood Ave N	Woodlawn Ave	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	12	0	0	0	0	0	0	0	0	0	0	0	
		Woodlawn Ave	Utility pole w/ Speed Sign	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	4	0	1	1	1	1	1	1	2	1	1	1	
	Lakeshore Rd E	Library Access	Stavebank Rd	N	3	2	2	3	3	3	3	3	3	3	3	3	
				S	3	2	2	3	3	3	3	3	3	3	3	3	
		Stavebank Rd	Elizabeth St N/S	N	12	11	10	11	11	11	12	12	12	12	11	10	
				S	12	10	10	12	12	12	12	11	12	12	11	11	
		Elizabeth St N/S	Helene St N/S	N	10	8	7	8	8	10	10	10	10	10	8	6	
				S	6	5	5	5	5	6	6	6	5	5	5	5	
		Helene St N/S	Ann St	N	7	6	5	6	5	6	7	8	8	6	6	6	
				S	5	2	1	2	4	3	4	3	3	5	4	4	
		Ann St	Hurontario St / St Lawrence Dr	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking

		Hurontario St	Rosewood Ave	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	15	1	0	0	1	0	0	0	0	0	0	0	
		Rosewood Ave	St Lawrence Dr - E	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	1	1	0	0	0	1	0	0	0	0	0	0	
		St Lawrence Dr - E	Elmwood Ave N/S	N	6	0	0	0	0	0	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Elmwood Ave N/S	Woodlawn Ave	N	7	1	1	1	2	0	2	2	2	1	1	1	
				S	9	0	0	0	0	0	0	0	0	0	0	0	
	Port St E	Ports Hotel Access	Elizabeth St S	N	7	0	0	4	3	3	5	5	4	4	4	2	
				S	15	0	0	0	0	0	0	0	0	1	3	5	
		Elizabeth St S	Helene St S	N	7	0	0	0	0	0	0	0	0	0	0	2	
				S	7	0	0	0	0	0	1	1	1	1	2	2	
		Helene St S	St Lawrence Dr	N	5	1	1	4	4	3	4	5	5	5	3	4	
				S	10	1	1	5	5	3	5	7	7	7	3	2	
	Mona Rd	1235 Mona Rd	Inglewood Dr	E	8	0	0	0	0	0	0	0	0	0	0	0	
				W	5	0	0	0	0	0	0	0	0	0	0	0	
		Inglewood Dr	Sandham Rd	E	18	0	2	2	2	2	2	2	2	2	2	2	
				W	15	0	0	0	0	0	0	0	0	0	0	0	
	Vesta Dr	Cotton Dr	Inglewood Dr	E	11	0	0	0	0	0	0	0	0	0	0	0	
				W	12	0	0	0	0	0	0	0	0	0	0	0	
		Inglewood Dr	Sandham Rd	E	20	0	0	0	0	0	0	0	0	0	0	0	
				W	17	0	0	0	0	0	0	0	0	0	0	0	
	Old River Rd	Cotton Dr	Inglewood Dr	E	7	0	0	0	0	0	0	0	0	0	0	0	
				W	10	0	0	0	0	0	0	0	0	0	0	0	
	Argreen Rd	Speed bump	Eaglewood Blvd	E	10	3	3	4	4	4	4	4	4	4	4	4	
				W	10	0	0	0	0	0	0	0	0	0	0	0	
	Drumgray Ave	Eaglewood Blvd	Troy St	E	10	0	0	0	0	0	0	0	0	0	0	0	
				W	18	1	2	2	2	0	0	1	1	1	1	1	
	Stavebank Rd	Railroad	Park St E	E	6	1	1	1	3	4	4	2	1	1	1	1	
				W	6	3	3	3	4	4	4	4	4	4	4	3	
		Park St E	High St E	E	14	13	15	15	15	15	15	16	14	13	14	14	
				W	14	9	10	10	11	10	11	10	8	8	9	10	
		High St E	Lakeshore Rd E	E	5	4	4	5	6	3	2	4	6	6	6	7	
				W	9	5	6	7	8	7	6	6	6	6	7	7	

North to South

Stavebank Rd S	Lakeshore Rd E	laneway	E	3	0	0	3	3	3	3	3	3	3	3	3	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
Elizabeth St N	Queen St E	Park St E	E	4	2	2	2	4	4	4	3	3	3	4	4	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	12	8	8	8	10	10	11	10	10	11	10	10	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	5	4	5	4	6	7	7	6	5	5	5	5	
			W	8	9	8	8	9	9	9	9	9	9	9	9	
Elizabeth St S	Lakeshore Rd E	Port St E	E	6	1	6	6	6	7	7	7	8	7	7	7	
			W	7	8	6	7	6	7	7	7	8	6	6	7	
Helene St N	Queen St E	Park St E	E	14	2	2	3	4	6	5	4	4	4	4	4	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	14	0	0	0	0	0	0	1	1	1	1	2	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	16	0	0	1	1	0	1	0	0	0	0	0	
			W	13	0	1	1	0	0	1	1	2	2	3	3	
Helene St S	Lakeshore Rd E	Port St E	E	4	2	2	1	1	2	2	2	2	2	1	1	
			W	12	7	7	5	4	7	7	7	8	10	8	8	
Ann St	Queen St E	Park St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	5	4	3	2	4	5	4	4	4	3	2	1	
			W	6	1	2	3	3	4	5	5	4	4	5	5	
St Lawrence Dr - W	Lakeshore Rd E	Port St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Port St E	80 St Lawrence Dr	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	12	0	0	2	3	4	4	4	4	6	4	2	
Rosewood Ave	Queen St E	Park St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	12	3	3	3	3	3	3	3	3	2	2	2	
	Park St E	Forest Ave	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking

		Forest Ave	Lakeshore Rd E	E	-	0	0	0	0	0	0	0	0	0	0	0	0	No Parking
				W	7	0	0	0	0	0	0	0	0	0	0	0	0	
	St Lawrence Dr - E	Lakeshore Rd E	Waterside Dr	E	10	3	2	0	0	0	0	0	0	0	0	0	0	
				W	-	0	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Elmwood Ave N	Queen St E	Forest Ave	E	11	2	2	0	0	0	0	0	0	0	0	0	0	
				W	-	0	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Forest Ave	Lakeshore Rd E	E	-	0	0	0	0	0	1	1	1	0	0	0	0	No Parking
				W	-	0	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Lakeshore Rd E	11 Elmwood Ave S	E	-	0	0	0	0	0	0	0	0	0	0	0	0	No Parking
				W	7	1	1	1	1	1	1	2	2	2	2	3		
	Woodlawn Ave	Queen St E	Forest Ave	E	13	3	3	3	3	3	3	2	2	1	1	1		
				W	-	0	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Forest Ave	Lakeshore Rd E	E	12	1	1	1	2	1	1	1	1	1	1	0		
				W	-	0	0	0	0	0	0	0	0	0	0	0	0	No Parking
Total On-Street					**873**	164	172	196	213	217	229	225	228	227	215	216		

22-28 Ann Street & 78 Park Street East - 500m Radius Parking Utilization Survey

Project No.: 19244.210

Survey Date: Saturday January 11, 2020

Surveyor(s): Ibrahim Hashmi, Jerry Cheng, Michael Loo, Ken Lo, Tevin Luu

Weather: Heavy Rain

Address	Type	Map Reference	Type	Supply	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00
12 Park St E	Surface	Lot A	Resident	55	35	34	35	35	35	36	36	36	36	36	37
26 Park St E	Surface	Lot B	Resident	82	57	55	56	56	57	56	59	59	58	59	62
			Visitor	8	6	7	4	2	2	2	3	4	4	4	5
28 Elizabeth St N	Surface	Lot C	Visitor	15	0	0	0	0	0	0	0	0	0	0	0
49 Queen St E	Surface	Lot D	Visitor	17	2	2	3	4	5	5	5	5	5	4	3
7 Helene St N	Surface	Lot E	Resident	42	19	19	18	19	20	21	21	21	21	21	21
Port Credit Arena	Surface	Lot 1	Public	184	141	121	104	82	87	103	91	90	87	35	18
Port Credit Library	Surface	Lot 2	Public	158	105	104	109	113	121	128	130	131	137	123	117
112 Elizabeth St	Surface	Lot 3	Public	9	5	3	0	0	0	1	0	1	2	2	3
Elizabeth St & Port St E	Surface	Lot 4	Public	90	30	40	53	57	59	61	60	56	47	39	35
St. Lawrence Park	Surface	Lot 5	Public	10	2	2	2	2	2	0	0	0	0	0	0
65 Park St E	Surface	Lot 6	Public	7	5	5	5	5	5	5	5	4	4	4	4
Ann St & High St E	Garage	Lot 7	Public	31	10	11	12	12	13	15	16	14	13	11	10
Hurontario St & Lakeshore Rd E	Surface	Lot 8	Public	17	6	6	7	7	7	6	6	5	5	4	4
Elmwood Ave N & Lakeshore Rd E	Surface	Lot 9	Public	61	35	33	32	27	27	29	27	25	24	22	24
Elmwood Ave N & Queen St E	Surface	Lot 10	Public	13	1	0	0	0	0	0	1	1	1	1	1
Woodlawn Ave & Queen St E	Surface	Lot 11	Public	54	9	9	10	10	10	10	10	11	11	11	11
			Resident	**179**	111	108	109	110	112	113	116	116	115	116	120
		Total	Visitor	**40**	8	9	7	6	7	7	8	9	9	8	8
			Public	**634**	349	334	334	315	331	358	346	338	331	252	227

22-28 Ann Street & 78 Park Street East - 500m Radius Parking Utilization Survey

Project No.: 19244.210

Survey Date: Friday January 17, 2020

Surveyor(s): Mile Mothibe, Justin Miu, Michael Loo, Ibrahim Hashmi

Weather: Cloudy

	Street Name	From	To	Side of Street	Supply	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	Notes:
	Cotton Dr	Vesta Dr	Old River Rd	N	20	0	0	0	0	0	0	0	0	0	0	0	
				S	21	0	0	0	0	0	0	0	0	0	0	0	
	Inglewood Dr	Mona Rd	Vesta Dr	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	7	0	0	0	0	0	0	0	0	0	0	0	
		Vesta Dr	Old River Rd	N	13	0	0	0	0	0	0	0	0	0	0	0	
				S	10	1	1	1	1	1	1	1	1	1	1	1	
		Old River Rd	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Sandham Rd	Mona Rd	Vesta Dr	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	1	0	0	0	0	0	0	0	0	0	0	No Parking
	Eaglewood Blvd	Hurontario St	Argreen Rd	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	10	0	0	0	0	0	0	0	0	0	0	0	
		Argreen Rd	Drumgray Ave	N	12	1	1	1	1	1	1	1	1	1	1	1	
				S	13	0	0	0	0	0	0	0	0	0	0	0	
	Troy St	Cul-de-sac	Drumgray Ave	N	21	0	0	0	0	0	1	2	1	1	1	1	
				S	20	2	1	1	1	1	0	0	1	1	1	1	
	Queen St E	Elizabeth St N	Helene St N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	9	6	4	3	4	5	4	6	7	7	7	7	
		Helene St N	Ann St	N	-	3	3	4	4	4	2	2	2	3	4	3	No Parking
				S	18	0	0	1	0	0	0	0	0	0	0	0	
		Rosewood Ave	Elmwood Ave N	N	16	0	0	0	0	0	0	0	0	0	0	0	
				S	16	0	0	0	0	0	0	0	0	0	0	0	
		Elmwood Ave N	Woodlawn Ave	N	8	0	0	0	0	0	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Rosewood Ave	Utility pole w/ Speed Sign	N	1	0	0	0	0	0	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Stavebank Rd	Elizabeth St N	N	14	1	1	2	2	3	3	2	1	0	0	0	
				S	-	0	0	2	2	2	2	2	0	0	0	0	No Parking

East to West	Park St E	Elizabeth St N	Helene St N	N	7	0	0	1	2	2	2	3	3	3	3	3	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Helene St N	Ann St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Ann St	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Hurontario St	Rosewood Ave	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Library	Stavebank Rd	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	5	7	7	7	7	7	5	5	5	5	5	5	
		Stavebank Rd	Elizabeth St N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Elizabeth St N	Helene St N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	11	3	5	5	4	7	7	6	6	6	7	3	
		Helene St N	Ann St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	5	0	0	0	0	0	0	0	0	0	0	0	
		Ann St	Hurontario St	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Forest Ave	Rosewood Ave	Elmwood Ave N	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	13	0	0	0	1	1	1	1	1	1	1	1	
		Elmwood Ave N	Woodlawn Ave	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	12	0	0	0	0	0	0	0	0	0	0	0	
		Woodlawn Ave	Utility pole w/ Speed Sign	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	4	1	1	1	1	1	1	0	0	0	0	0	
	Lakeshore Rd E	Library Access	Stavebank Rd	N	3	3	3	3	3	3	3	3	3	2	1	1	
				S	3	1	3	3	3	3	3	1	1	3	3	3	
		Stavebank Rd	Elizabeth St N/S	N	12	8	11	12	12	12	13	12	12	11	11	11	
				S	12	8	10	11	11	12	11	11	11	11	10	11	
		Elizabeth St N/S	Helene St N/S	N	10	8	10	8	10	6	9	10	10	10	10	9	
				S	6	3	4	4	5	5	5	6	6	7	6	5	
		Helene St N/S	Ann St	N	7	7	7	6	6	7	8	5	6	5	5	7	
				S	5	4	3	4	6	6	6	5	4	5	5	6	
		Ann St	Hurontario St / St Lawrence Dr	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking

		Hurontario St	Rosewood Ave	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	15	2	4	3	1	0	1	2	4	1	1	3	
		Rosewood Ave	St Lawrence Dr - E	N	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				S	1	0	0	0	0	0	0	0	0	0	0	0	
		St Lawrence Dr - E	Elmwood Ave N/S	N	6	1	1	1	0	2	0	0	0	0	0	0	
				S	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Elmwood Ave N/S	Woodlawn Ave	N	7	0	2	2	1	2	1	0	0	0	0	0	
				S	9	0	0	0	0	0	0	0	0	0	0	0	
	Port St E	Ports Hotel Access	Elizabeth St S	N	7	0	0	0	1	3	4	6	7	5	3	2	
				S	15	0	0	0	0	1	1	2	1	0	0	0	
		Elizabeth St S	Helene St S	N	7	0	0	0	0	0	0	0	0	0	0	0	
				S	7	0	0	0	0	1	1	2	4	5	4	2	
		Helene St S	St Lawrence Dr	N	5	1	1	1	2	3	3	4	4	4	4	2	
				S	10	3	0	0	0	0	0	1	3	4	3	3	
	Mona Rd	1235 Mona Rd	Inglewood Dr	E	8	0	0	0	0	0	0	0	0	0	0	0	
				W	5	0	0	0	0	0	0	0	0	0	0	0	
		Inglewood Dr	Sandham Rd	E	18	1	1	1	1	1	1	1	1	1	1	1	
				W	15	0	0	0	0	0	0	0	0	0	0	0	
	Vesta Dr	Cotton Dr	Inglewood Dr	E	11	0	0	0	0	0	0	0	0	0	0	0	
				W	12	0	0	0	0	0	0	0	0	0	0	0	
		Inglewood Dr	Sandham Rd	E	20	0	0	0	0	0	0	0	0	0	0	0	
				W	17	0	0	0	0	1	1	1	0	0	0	0	
	Old River Rd	Cotton Dr	Inglewood Dr	E	7	0	0	0	0	0	0	0	0	0	0	0	
				W	10	0	0	0	0	0	0	0	0	0	0	0	
	Argreen Rd	Speed bump	Eaglewood Blvd	E	10	2	3	3	3	3	3	3	3	3	3	3	
				W	10	0	0	0	0	0	0	0	0	0	0	0	
	Drumgray Ave	Eaglewood Blvd	Troy St	E	10	0	0	0	0	0	0	0	0	0	0	0	
				W	18	0	1	1	1	1	1	0	0	0	0	0	
	Stavebank Rd	Railroad	Park St E	E	6	2	2	4	4	4	3	2	0	0	0	1	
				W	6	4	4	4	4	4	4	3	2	1	1	2	
		Park St E	High St E	E	14	14	15	15	15	15	16	16	16	15	12	15	
				W	14	13	13	13	13	13	13	13	15	14	10	11	
		High St E	Lakeshore Rd E	E	5	2	2	3	4	5	5	5	6	2	0	1	
				W	9	7	7	8	8	8	8	7	6	6	6	6	

North to South

Stavebank Rd S	Lakeshore Rd E	laneway	E	3	2	2	2	2	2	2	4	4	3	3	3	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
Elizabeth St N	Queen St E	Park St E	E	4	2	2	3	4	4	4	3	3	3	3	3	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	12	8	8	9	9	9	11	10	10	11	11	11	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	5	6	6	8	6	6	6	6	6	6	7	7	
			W	8	6	7	9	9	9	8	8	8	9	9	9	
Elizabeth St S	Lakeshore Rd E	Port St E	E	6	1	4	4	4	7	7	8	9	6	5	7	
			W	7	1	4	5	5	6	7	7	8	7	7	4	
Helene St N	Queen St E	Park St E	E	14	5	5	6	3	4	5	6	6	5	5	5	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	14	1	2	2	2	3	3	4	3	3	3	5	
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	16	4	3	2	2	3	4	3	2	0	0	2	
			W	13	6	6	7	5	6	5	7	5	5	2	3	
Helene St S	Lakeshore Rd E	Port St E	E	4	0	0	0	1	2	2	1	0	1	1	1	
			W	12	5	5	5	6	8	8	8	7	7	7	6	
Ann St	Queen St E	Park St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Park St E	High St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	High St E	Lakeshore Rd E	E	5	0	2	4	3	3	4	3	3	2	2	3	
			W	6	0	0	1	1	1	1	1	1	1	2	1	
St Lawrence Dr - W	Lakeshore Rd E	Port St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Port St E	80 St Lawrence Dr	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	12	0	1	1	3	2	2	2	1	1	0	0	
Rosewood Ave	Queen St E	Park St E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	12	2	2	2	2	2	1	1	1	1	1	1	
	Park St E	Forest Ave	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
			W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking

		Forest Ave	Lakeshore Rd E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				W	7	0	0	0	0	1	1	0	0	0	0	0	
	St Lawrence Dr - E	Lakeshore Rd E	Waterside Dr	E	10	7	6	4	3	3	3	3	3	2	2	2	
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
	Elmwood Ave N	Queen St E	Forest Ave	E	11	0	0	0	0	0	0	0	0	0	0	0	
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Forest Ave	Lakeshore Rd E	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				W	-	1	1	1	1	1	1	0	0	0	0	0	No Parking
		Lakeshore Rd E	11 Elmwood Ave S	E	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
				W	7	4	5	5	4	4	6	7	5	5	5	5	
	Woodlawn Ave	Queen St E	Forest Ave	E	13	1	1	1	1	1	1	0	0	0	0	0	
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
		Forest Ave	Lakeshore Rd E	E	12	0	0	0	0	0	0	0	0	0	0	0	
				W	-	0	0	0	0	0	0	0	0	0	0	0	No Parking
Total On-Street					**887**	182	203	220	220	243	246	244	239	222	205	209	

22-28 Ann Street & 78 Park Street East - 500m Radius Parking Utilization Survey

Project No.: 19244.210

Survey Date: Friday January 17, 2020

Surveyor(s): Mile Mothibe, Justin Miu, Michael Loo, Ibrahim Hashmi

Weather: Cloudy

Address	Type	Map Reference	Type	Supply	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00
12 Park St E	Surface	Lot A	Resident	55	33	33	32	32	32	32	32	33	33	33	33
26 Park St E	Surface	Lot B	Resident	82	50	50	50	53	55	54	57	60	61	62	62
			Visitor	8	2	2	4	4	5	5	6	6	5	3	3
28 Elizabeth St N	Surface	Lot C	Visitor	15	1	1	1	2	2	2	2	2	1	1	1
49 Queen St E	Surface	Lot D	Visitor	17	3	3	3	4	4	4	3	3	4	4	4
7 Helene St N	Surface	Lot E	Resident	42	18	19	19	18	18	18	20	20	21	21	21
Port Credit Arena	Surface	Lot 1	Public	184	101	100	98	81	66	57	59	57	59	58	55
Port Credit Library	Surface	Lot 2	Public	158	142	152	155	155	155	149	145	141	128	111	107
112 Elizabeth St	Surface	Lot 3	Public	9	4	4	4	2	0	1	2	2	2	3	2
Elizabeth St & Port St E	Surface	Lot 4	Public	90	17	22	33	42	51	46	49	50	47	41	29
St. Lawrence Park	Surface	Lot 5	Public	10	3	3	4	5	5	5	4	3	3	1	0
65 Park St E	Surface	Lot 6	Public	7	1	1	0	0	1	2	2	3	0	1	2
Ann St & High St E	Garage	Lot 7	Public	31	16	16	15	14	14	14	15	15	16	16	14
Hurontario St & Lakeshore Rd E	Surface	Lot 8	Public	17	13	12	10	8	9	5	4	5	5	5	5
Elmwood Ave N & Lakeshore Rd E	Surface	Lot 9	Public	61	24	29	26	27	24	25	27	24	23	23	25
Elmwood Ave N & Queen St E	Surface	Lot 10	Public	13	3	4	4	4	2	0	0	0	0	0	0
Woodlawn Ave & Queen St E	Surface	Lot 11	Public	54	13	14	14	12	11	11	10	10	10	10	10
			Resident	**179**	101	102	101	103	105	104	109	113	115	116	116
		Total	Visitor	**40**	6	6	8	10	11	11	11	11	10	8	8
			Public	**634**	337	357	363	350	338	315	317	310	293	269	249

APPENDIX H

Vehicle Swept Path Diagrams

EXISTING 13 STOREY
RESIDENTIAL BUILDING

ELIZABETH STREET

30810

9000

13500

16515

9220

7000

10.2

FIRE ROUTE ACCESS REQUIRES 3.0m – 15.0m DISTANCE FROM THE MAIN ENTRANCE OF THE BUILDING AS PER ONTARIO BUILDING CODE. HENCE, FIRE ROUTE IS NOT REQUIRED FOR THIS SITE. FIRE TRUCKS MAY STOP ALONG PARK STREET.

EXISTING 6 STOREY
RESIDENTIAL BUILDING

PARK STREET

PARK STREET EAST

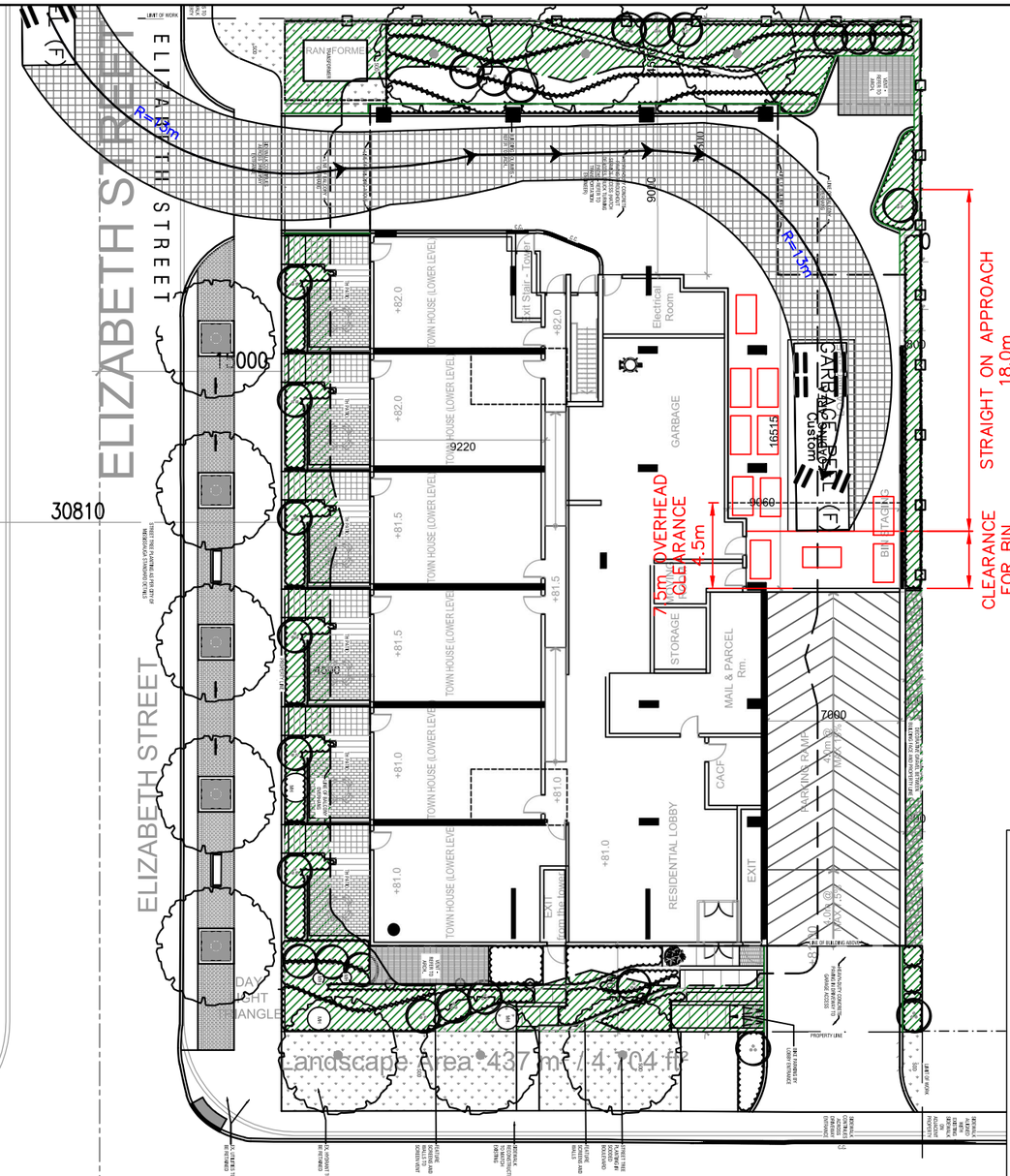
PLOT DATE: May 05, 2020

DRAWN BY: D.C.

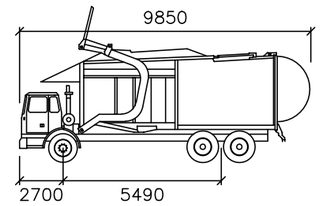
LEA Consulting Ltd. Consulting Engineers and Planners **www.LEA.ca**	N	Project No. 20248 Date MAY. 04, 2020		23 ELIZABETH STREET MISSISSAUGA ONTARIO 3 0 3 6 9m 1:300	GROUND FLOOR – FIRE ROUTE REVIEW	Drawing No. 001

DRAWING NAME: C:\Users\DTat\appdata\local\temp\AcPublish_18772\20248WF008.dwg

EXISTING 13 STOREY
RESIDENTIAL BUILDING



EXISTING 6 STOREY
RESIDENTIAL BUILDING



GARBAGE PEEL (F)

	mm
Width	: 2770
Track	: 2770
Lock to Lock Time	: 6.0
Steering Angle	: 25.0

NOTE:

AS PER PEEL REGION WASTE GUIDELINE,

1. COLLECTION POINT MUST HAVE 7.5m OVERHEAD CLEARANCE FROM ALL OBSTRUCTIONS
2. COLLECTION VEHICLE MUST NOT REVERSE MORE THAN 15m
3. COLLECTION VEHICLE MUST HAVE A 18m STRAIGHT ON APPROACH
4. MINIMUM WIDTH OF COLLECTION POINT MUST BE 3m WIDE FOR EACH FRONT END BIN
5. MINIMUM DEPTH OF COLLECTION POINT MUST BE 1.5m FOR 3 CUBIC YARD BIN AND 3m FOR 4 & 6 CUBIC YARD BINS
6. 10m² TO BE PROVIDED FOR THE STORAGE OF BULKY ITEMS IN THE WASTE ROOM

DRAWN BY: D.C. PLOT DATE: May 05, 2020

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Project No. 20248

Date MAY. 04, 2020

23 ELIZABETH STREET
MISSISSAUGA ONTARIO

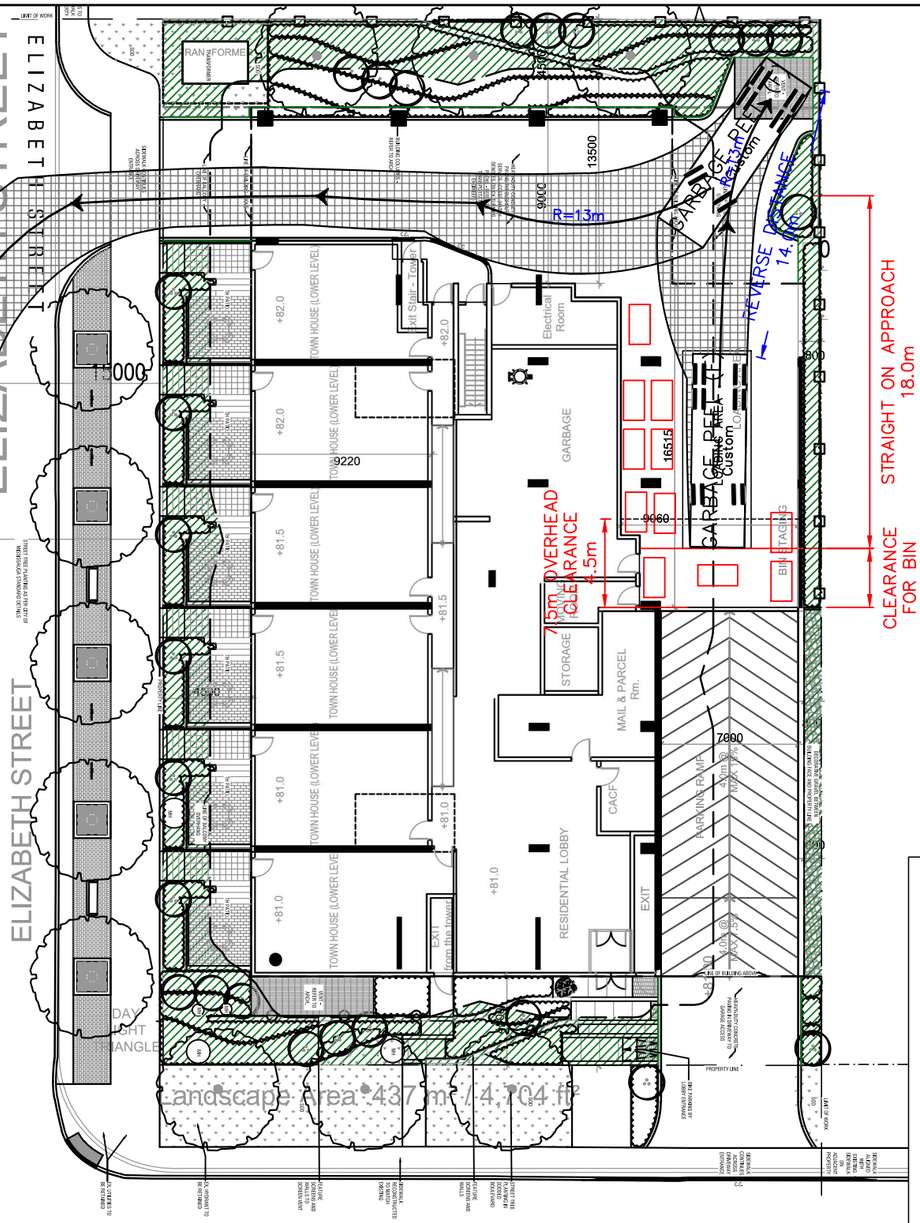
3 0 3 6 9m
1:300

GROUND FLOOR – LOADING REVIEW
CITY GARBAGE TRUCK
ENTRY PATH

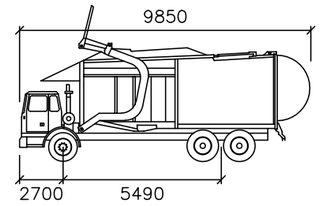
Drawing No. 002

DRAWING NAME: C:\Users\DTat\appdata\local\temp\AcPublish_18772\20248WF008.dwg

EXISTING 13 STOREY
RESIDENTIAL BUILDING



EXISTING 6 STOREY
RESIDENTIAL BUILDING



GARBAGE PEEL (F)

	mm
Width	: 2770
Track	: 2770
Lock to Lock Time	: 6.0
Steering Angle	: 25.0

NOTE:

AS PER PEEL REGION WASTE GUIDELINE,

1. COLLECTION POINT MUST HAVE 7.5m OVERHEAD CLEARANCE FROM ALL OBSTRUCTIONS
2. COLLECTION VEHICLE MUST NOT REVERSE MORE THAN 15m
3. COLLECTION VEHICLE MUST HAVE A 18m STRAIGHT ON APPROACH
4. MINIMUM WIDTH OF COLLECTION POINT MUST BE 3m WIDE FOR EACH FRONT END BIN
5. MINIMUM DEPTH OF COLLECTION POINT MUST BE 1.5m FOR 3 CUBIC YARD BIN AND 3m FOR 4 & 6 CUBIC YARD BINS
6. 10m² TO BE PROVIDED FOR THE STORAGE OF BULKY ITEMS IN THE WASTE ROOM

DRAWN BY: D.C. PLOT DATE: May 05, 2020

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N

Project No. 20248

Date MAY. 04, 2020

23 ELIZABETH STREET
MISSISSAUGA ONTARIO

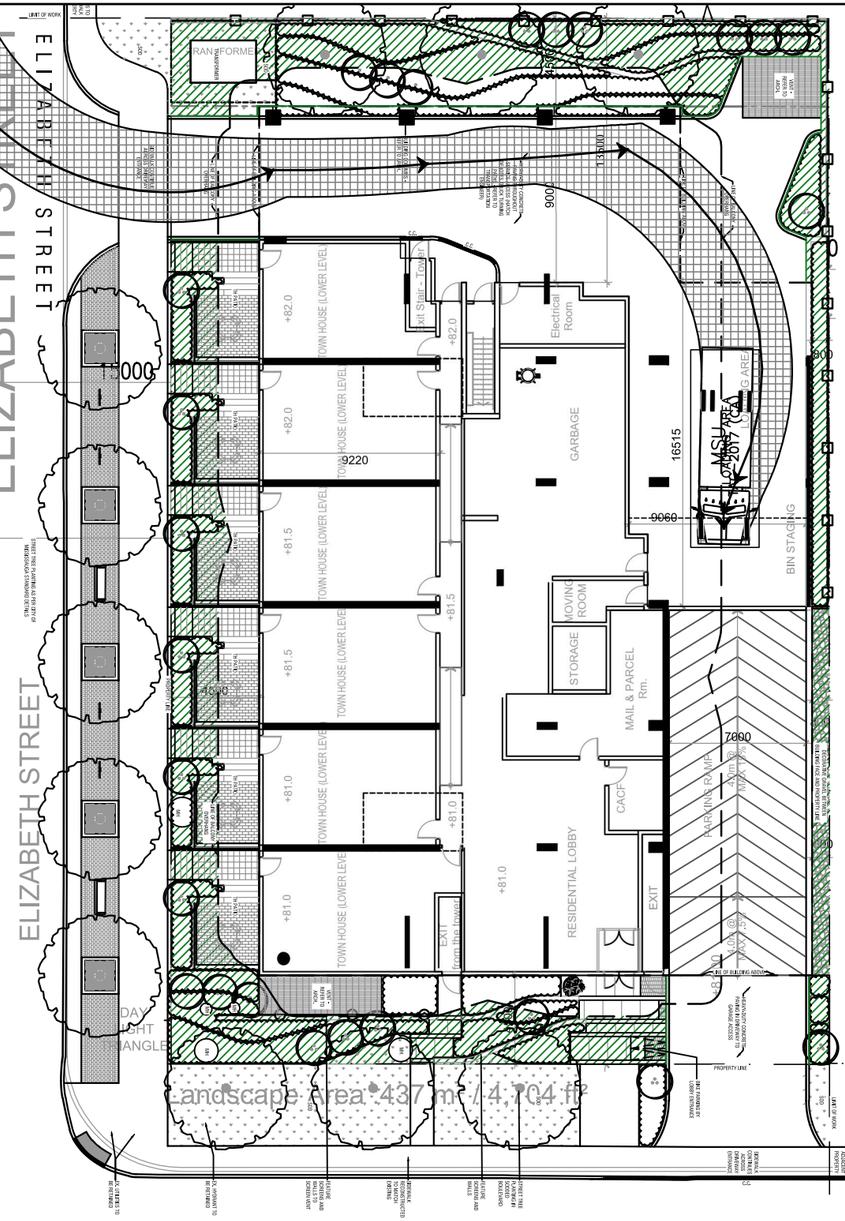
3 0 3 6 9m
1:300

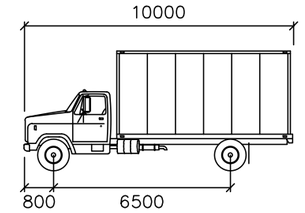
GROUND FLOOR – LOADING REVIEW
CITY GARBAGE TRUCK
EXIT PATH

Drawing No. 003

DRAWING NAME: C:\Users\DTat\appdata\local\temp\AcPublish_18772\20248WF008.dwg

EXISTING 13 STOREY
RESIDENTIAL BUILDING





MSU

	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	: 6.0
Steering Angle	: 40.2

EXISTING 6 STOREY
RESIDENTIAL BUILDING

PARK STREET

DRAWN BY: D.C. PLOT DATE: May 05, 2020

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Date MAY. 04, 2020

23 ELIZABETH STREET
MISSISSAUGA ONTARIO

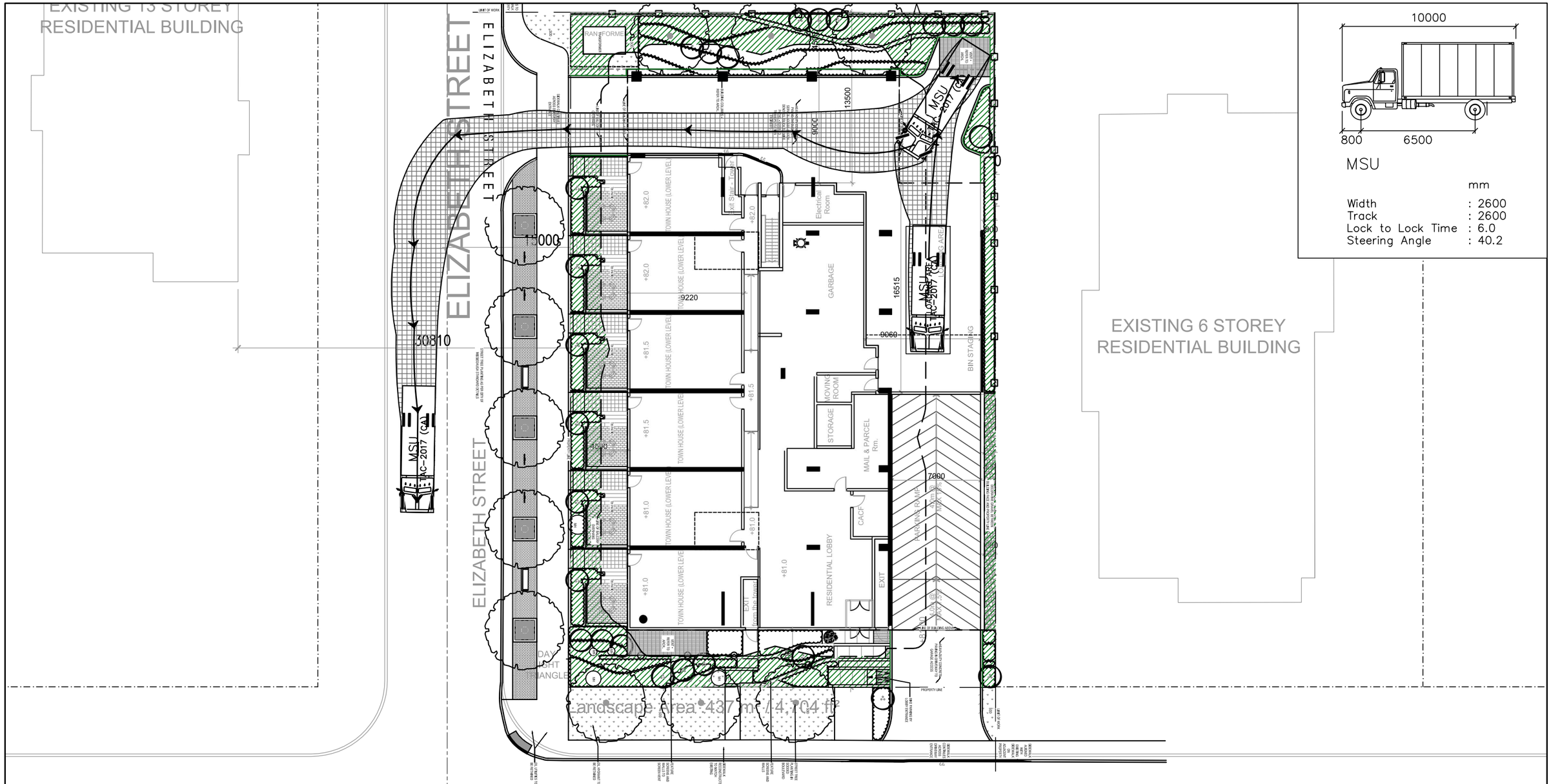
3 0 3 6 9m
1:300

GROUND FLOOR – LOADING REVIEW
DELIVERY TRUCK
ENTRY PATH

Drawing No. 004

DRAWING NAME: C:\Users\DTat\appdata\local\temp\AcPublish_18772\20248WF008.dwg

EXISTING 13 STOREY
RESIDENTIAL BUILDING



EXISTING 6 STOREY
RESIDENTIAL BUILDING

PARK STREET

MSU

	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	: 6.0
Steering Angle	: 40.2

DRAWN BY: D.C. PLOT DATE: May 05, 2020

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N

Project No. 20248

Date MAY. 04, 2020

23 ELIZABETH STREET
MISSISSAUGA ONTARIO

3 0 3 6 9m
1:300

GROUND FLOOR – LOADING REVIEW
DELIVERY TRUCK
EXIT PATH

Drawing No. 005

DRAWING NAME: C:\Users\DTat\appdata\local\temp\AcPublish_18772\20248WF008.dwg

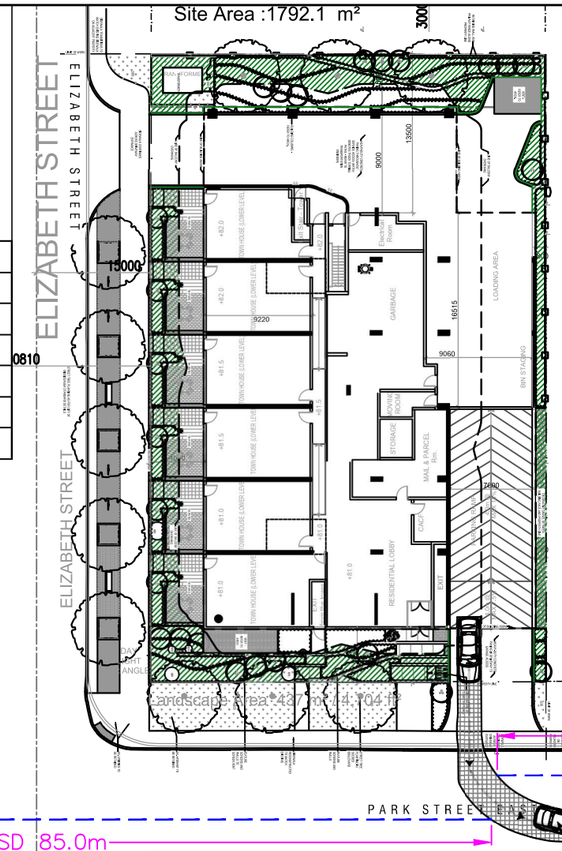
APPENDIX I

Sightline Review

NOTE:

VEHICLES TURNING FROM ELIZABETH STREET N & HELEN STREET N WILL DECELERATE WHEN TURNING ONTO PARK STREET, AT WHICH POINT THE VEHICLE IS TRAVELING AT A LOWER SPEED TOWARDS THE DECISION POINT. WE BELIEVE THE STOPPING SIGHT DISTANCE CAN BE REDUCED WITH THE EXPECTED LOWER TRAVELING SPEED AND WILL BE ACCEPTABLE

STOPPING SIGHT DISTANCES	
SIGHTLINES PER "TAC" TABLE 9.9.4 AND TABLE 9.9.6	
DESIGN SPEED	60Km/h
STOPPING SIGHT DISTANCES	
REQUIRED SSD	85
AVAILABLE SSD	>85
REQUIRED SSD SATISFIED	YES



DRAWN BY: D.T. PLOT DATE: May 04, 2020

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Project No. 20248

Date MAY. 04, 2020

23 ELIZABETH STREET
MISSISSAUGA ONTARIO

5 0 5 10 15m
1:500

SIGHTLINE ANALYSIS
SSD – STOPPING SIGHT DISTANCE

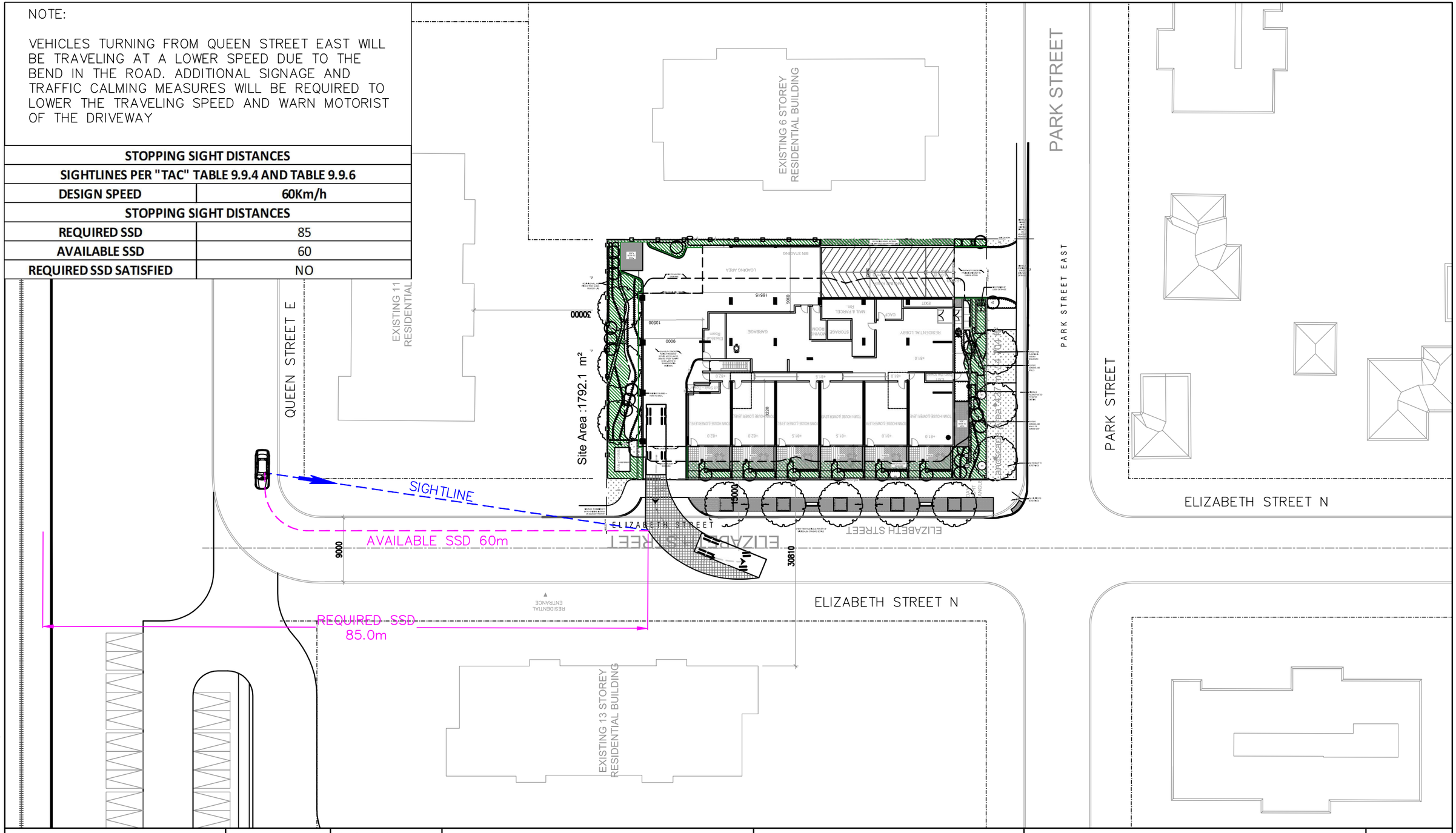
Drawing No. 001

DRAWING NAME: C:\Users\DTat\OneDrive – LEA Consulting Ltd\Project Files\20248\Drafting\20248WF006B – Sightline.dwg

NOTE:

VEHICLES TURNING FROM QUEEN STREET EAST WILL BE TRAVELING AT A LOWER SPEED DUE TO THE BEND IN THE ROAD. ADDITIONAL SIGNAGE AND TRAFFIC CALMING MEASURES WILL BE REQUIRED TO LOWER THE TRAVELING SPEED AND WARN MOTORIST OF THE DRIVEWAY

STOPPING SIGHT DISTANCES	
SIGHTLINES PER "TAC" TABLE 9.9.4 AND TABLE 9.9.6	
DESIGN SPEED	60Km/h
STOPPING SIGHT DISTANCES	
REQUIRED SSD	85
AVAILABLE SSD	60
REQUIRED SSD SATISFIED	NO



DRAWN BY: D.T. PLOT DATE: May 04, 2020

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Date MAY. 04, 2020

23 ELIZABETH STREET
MISSISSAUGA ONTARIO

5 0 5 10 15m
1:500

SIGHTLINE ANALYSIS
SSD – STOPPING SIGHT DISTANCE

Drawing No. 002

DRAWING NAME: C:\Users\DTat\OneDrive – LEA Consulting Ltd\Project Files\20248\Drafting\20248WF006B – Sightline.dwg