TRAFFIC IMPACT STUDY

579, 619 LAKESHORE ROAD EAST AND 1022, 1028 CAVEN STREET

CITY OF MISSISSAUGA

PREPARED FOR:

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Rev.0	October 2021	Draft Issued for Review
Rev.1	December 2021	Final Report Issued for Submission
Rev.2	August 2022	Updated Report Issued for Submission
Rev.3	October 2022	Updated Report Issued for Submission

Executive Summary

C.F. Crozier & Associates Inc. (Crozier) was retained by Star Seeker Inc. to undertake a Traffic Impact Study (TIS) in support of the Official Plan Amendment (OPA) and Zoning By-Law Amendment Application (ZPA) for the proposed residential and commercial lands located at 579, 619 Lakeshore Road East and 1022, 1028 Caven Street, in the City of Mississauga.

The project proposal includes four buildings; two of which are mixed-use residential buildings with grade-related, non-residential uses on the ground floor, while the other two buildings will contain only residential uses. Buildings A and B (residential only) are 16-storeys high with 309 and 482 units respectively. Buildings C and D (mixed-use) are 6-storeys high with 110 and 169 units respectively and a total of 3,321 m^2 dedicated to non-residential uses between them. In total, 1070 units are proposed at the development along with 2 levels of parking below grade, as well as additional surface parking. The development is proposed to be served by two separate full-moves accesses via Caven Street and Lagoon Street.

City staff provided counts from 2009, 2012 and 2018 of intersections of Lakeshore Road East at Craven Street and Lakeshore East at Lagoon Street/Hampton Crescent. The volume counts for the intersection of Lakeshore Rd East at Cawthra Road were provided by Spectrum for the year of 2018. Per discussions with the city, the counts were grown with a conservative 2% growth rate to the existing 2021 volumes. Growth rates of 0.5%, 1.5% were provided by the City of Mississauga to be applied to the traffic volumes for the intersections to determine the 2026 future background and total traffic conditions.

Under existing conditions, and 2026 future background conditions, the intersection of Lakeshore Road East at Cawthra Road is expected to operate at Level of Service "F" with the worst v/c ratio being 1.96 for eastbound left-turns during the a.m. peak. The intersection of Lakeshore Road East at Caven Road currently operates at Level of Service "C" or better during the weekday a.m. and p.m. peak periods.

Under 2026 future total conditions, movements at Lakeshore East and Cawthra remain operating at a Level of Service "F," with especially poor delay and insufficient capacity for eastbound left-turns. All other intersections continue to operate under capacity during all peak periods and Level of Service "C" or higher. It is noted, this is generally due to background development volumes. The development is expected to generate 355 (118 inbound and 237 outbound) new external vehicle trips during the weekday a.m. peak hour and 484 (267 inbound and 217 outbound) trips new external vehicle trips during the weekday p.m. peak hour. The proposed site accesses are expected to operate with acceptable levels of service and to meet the relevant Transportation Association of Canada (TAC) guidelines.

The proposed parking supply at the site meets the parking rates in the City's parking By-Law if the parking spaces designated for visitors and non-residential uses are shared. Additionally, some Transportation Demand Management strategies were recommended, such as the provision of bike parking, designated drop-off locations and provision of signage.

In conclusion, the proposed industrial development at 579, 619 Lakeshore Road East and 1022, 1028 Caven Street can be supported from transportation operations, safety, and parking perspectives.

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1.0 Introduction

C. F. Crozier & Associates Inc. (Crozier) was retained by Star Seeker Inc. to undertake a Traffic Impact Study (TIS) to support the Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) application for the site located at 579, 619 Lakeshore Road East and 1022, 1028 Caven Street, in the City of Mississauga. The original TIS was completed in December of 2021 and has been updated herein to account for a change the architectural plans and site statistics.

2.0 Existing Conditions

2.1 Subject Lands

The site covers an area of approximately 2.42 hectares (5.99 acres) and currently consists of a large commercial plaza surrounded by surface parking and a small medical centre with its own surface parking. The site is bound by Lakeshore Road East to the south, residential buildings and Caven Street to the east, mixed-use residential development and Lagoon Street to the west and an apartment complex to the north.

The medical centre site is currently accessed by a full-moves access on Caven Street. The larger commercial plaza is accessed by a full-moves access on Lakeshore Road East and via Lagoon Street. The site is currently zoned "Mainstreet Commercial C4-14" per the City of Mississauga Zoning By-law. The location of the site is reflected on the Site Plan in **Figure 1**.

2.2 Development Proposal

As per the Architectural Drawing Package prepared by Quadrangle Architects Limited dated September 1, 2021, the existing commercial at the site will be demolished and replaced with the proposed development.

A total of 4 buildings are proposed for the site as described below:

- Building 'A' is a podium/towers configuration internal along the northern limit of the site with podium heights of 5-storeys and tower heights of 16-storeys. A total of 309 residential units are proposed within Building 'A'.
- Similarly, Building 'B' has a 5-storey podium but includes two 16-storey towers containing a total of 482 residential units.
- Building 'C' is a 6-storey, mixed-use building with 1,554 square metres of non-residential space and 110 residential units.
- Similarly, Building 'D' is also a 6-storey mixed-use building that will be connected to Building 'C' with 1,767 square metres of non-residential space and 169 residential units.

The non-residential space in Buildings 'C' and 'D' may be used for retail purposes, however, this will be confirmed in the future.

Waste collection loading areas are located off the private roadways in Building's 'A', 'B' and 'D'. Bicycle storage is to be available on the ground floor within Building's 'B', 'C', and 'D' for residents. Drop-off areas for each of the buildings is designated off the private road and is noted on the Site Plan.

Surface parking and two levels of underground parking are provided for a total provision of 1,341 parking spaces. Underground parking is to be accessed at the north-west corner of Building 'B'. Full-moves accesses are proposed from Caven Street and Lagoon Street to access the site.

2.3 Study Road Network

For the analysis contained herein, the boundary road network that was analyzed is summarized in **Table 1**. The intersection of Lakeshore Road East and Cawthra Road is signalized with the south approach as the access to a law office's parking lot. Both the east and west approaches have single-lane auxiliary left-tun lanes, an exclusive through lane and a shared through and right-turn lane. The eastbound left-turn only has an advanced green signal. The north leg of the intersection has an exclusive right-turn lane, a shared through and left-tun lane and an auxiliary left-tun lane. The southbound left-turn movement has an advanced green signal. Pedestrian crossing is not allowed across the east approach.

The Intersection of Caven Road and Lakeshore Road East is a 'T' intersection where Caven Road is the minor, stop controlled approach. The central two-way left-turn lane on Lakeshore Road East provides refuge for eastbound traffic making left-turns. The intersection of Lagoon Street/Hampton Crescent and Lakeshore Road East is signalized. The north and south approach both have auxiliary left-turn lanes while the central two-way left-tun lane on Lakeshore Road East provides space for left-turns, exclusive from the through lane and a shared through and right-turn lane.

The Intersection of the existing site access and Lagoon Street is a 4-leg intersection controlled by an all-way stop with the west leg being the access to the Lakeshore Village subdivision and the east and north legs providing access to the existing development at the site.

The intersection of the site access and Caven Street is a 'T" intersection controlled by stop control on the minor roadway, where the existing site access is the minor roadway.

Table 1: Study Road Network

	Lakeshore Road East	Cawthra Road	Caven Street	Lagoon Street
Orientation	East-West	North-South	North-South	North-South
Classification	Arterial	Regional Arterial	Local	Local
Jurisdiction	City of Mississauga	Region of Peel	City of Mississauga	City of Mississauga
Speed Limit	50 km/h	50 km/h	50 km/h	50 km/h
Number of Lanes	4 (plus, a central two-way left-turn lane)	4	2	2
Posted Restrictions	N/A	N//A	No truck traffic	N/A
Pedestrian Facilities	1.5 metre sidewalk on north and south sides. North side has 1.5 metre concrete buffer	1.5 metre sidewalk on east and west sides. West side has 4 metre grass boulevard	1.5 metre sidewalk on west side with 2 metre grass boulevard	2.5 metre sidewalk on the west side with no buffer

2.4 Public Transit

The City of Mississauga's public transit system (MiWay) operates Local Route 23: Lakeshore Monday to Sunday from the Clarkson GO Station to the Long Branch GO Station, with a loop through the Port Credit GO Station. Within the study area the route has eastbound and westbound stops at Cawthra Road and Hampton Crescent, the latter being at the site of the proposed development. **Table 2** outlines the approximate schedule for the Hampton Crescent transit stop and a map of Route 23 can be referenced in **Appendix B**.

Table 2: Transit Schedule

Transit Stop	Direction	Day	First Departure	Last Departure	Headway (approx.)	Peak Headway (approx.)
Lakeshore Road East @ Hampton Crescent	Eastbound	Mon-Fri	4:52 a.m.	1:55 a.m.	20 min	15 min
		Sat	5:43 a.m.	12:42 a.m.	25 min	20 min
		Sun	8:20 a.m.	10:54 p.m.	25 min	20 min
	Westbound	Mon-Fri	4:55 a.m.	1:34 a.m.	20 min	15 min
		Sat	6:02 a.m.	12:59 a.m.	25 min	20 min
		Sun	7:50 a.m.	10:23 p.m.	25 min	20 min

Port Credit GO Station is the closest train station to the development site, at approximately 2.6 kilometres west. MiWay Route 23 provides connectivity between the two locations. The Port Credit GO Station services trains on the Lakeshore West Line between the Burlington Aldershot GO Station and Union Station in Toronto. Eastbound to Union Station departs approximately every 30 minutes Monday to Friday with the first all stops departure from the Port Credit GO Station at 5:31a.m. and the final departure at 12:01 a.m. Saturday and Sunday, the first departure is at 6:01 a.m. and the final departure at 12:01 a.m. with an approximate one-hour headway between trains. Westbound to Aldershot operates under the same headway with the first weekday departure from the Port Credit GO Station at 6:41 a.m. and the last at 1:11 a.m. Saturday and Sunday the first departure is at 7:11 a.m. and the final departure at 1:11 a.m. The Lakeshore West train schedule can be referenced in **Appendix B**.

The Port Credit GO Station is planned as the most southern point of the Hurontario Light Rail Transit (LRT) project expected to be complete in the Fall of 2024. The line would run between the Brampton Gateway Terminal and the Port Credit GO Station with Intermodal LRT Stops at the Brampton Terminal connecting to the Züm Transitway (City of Brampton rapid transit system), the Milton GO Train Line at Cooksville GO Station and the Mississauga Transitway. The line will service a total of 19 stops including City Centre between Square One Shopping Centre and Highway 403 and will provide connection between various local Mississauga and Brampton bus routes. A map of the proposed Hurontario LRT route can be referenced in **Appendix B**.

The Transportation Tomorrow Survey (TTS) is a comprehensive travel survey conducted in the Greater Golden Horseshoe Area once every five years. TTS compiles data from household surveys on travel behaviours and is a joint undertaking by the Cities of Toronto and Hamilton, the Regional Municipalities of Durham, Halton, Peel and York, GO Transit, the Toronto Transit Commission, and the Ontario Ministry of Transportation. Data is categorized into household, person, and trip tables, while a variety of filters can be applied to identify travel behaviours of households within the survey area.

TTS data showed that for the zones within the study area, more than nine percent of household trips were taken on public transportation, with 23 percent of those trips using both public transportation and GO services.

According to the Lakeshore Road Transportation Master Plan and Implementation Strategy, there is expected to be transit improvements along a 13 km section of the Lakeshore Rd E corridor. The Lakeshore Bus Rapid Transit is planned to be implemented in phases by 2041. More information regarding this is provided in Section 3.2.

2.5 Traffic Data

Historical traffic data was received from the City for the intersections of Lakeshore Road East and Lagoon Street/Hampton Crescent (Tuesday, March 6, 2012) and Lakeshore Road East and Caven Street (Thursday, October 22, 2009). City Staff approved a growth rate of 2% eastbound and 2% westbound during the p.m. peak hour only to grow the volumes to 2021. Signal phasing for the intersections of Lakeshore Road East and Lagoon Street/Hampton Crescent and Lakeshore Road East and Cawthra Road was also acquired from the City at this time.

Historical traffic data for the intersection of Lakeshore Road East and Cawthra Road were obtained from Spectrum Traffic Data Inc. Counts were taken on Thursday, March 1, 2018. The Region provided an expected growth rate of 2% to grow historical data for 2021.

Traffic data has been included in **Appendix C**, signal phasing plans have been included as **Appendix D**, and communications with the City and Region have been included as **Appendix A**.

The Lakeshore Village development to the west of the site is accessed from Lagoon Street at an intersection with the existing retail plaza entrance. Lakeshore Village was completed between 2016 and 2017 and is not included in the traffic counts received from the City. However, this development was counted in the 2018 turning movement counts. No background traffic study was found for the development.

The Institute of Transportation Engineers (ITE) Trip Generation 10th Edition Trip Generation Manual was used to establish a.m. and p.m. peak hour trips from the townhouse development. There are 143 townhouse units expected to generate 15 entering and 52 exiting trips in the a.m. peak hour and 51 entering and 30 existing trips in the p.m. peak hour. These trips were distributed on the road network based on TTS data, included in **Appendix F**.

Note the trips were not distributed to the intersection of Cawthra Road and Lakeshore Road East as they would be included in the existing volumes.

The buildings along Lakeshore Road East have ground level retail with curbside parking available on Lakeshore Road East. As trips generated by the retail portion of the development will not pass through the intersection of Lagoon Street and the plaza entrance, they are assumed to be included in the 2% growth on the road network.

2.6 Traffic Modeling

The analysis conducted herein was completed using Synchro Modeling software (version 11) and has used the assumptions outlined in the City of Mississauga's TIS Guidelines "Appendix A".

The historical data provided by the City of Mississauga form the intersections of Lakeshore Road East and Lagoon Street and Lakeshore Road East and Caven Street did not provide enough information to calculate a peak hour factor (i.e. no 15-minute data). Therefore, a conservative general peak hour factor of 0.92 was used for the analysis with the exception of the intersection of Cawthra Road and Lakeshore Road East, which was calculated to have peak hour factors of 0.95 and 0.96 in the a.m. and p.m. peak hours, respectively.

2.7 Intersection Operations

The 2021 existing conditions are illustrated in **Figure 3**. Levels of service (LOS) based on current operations are outlined in **Table 3**. Capacity analysis worksheets have been included in **Appendix E** and levels of service definitions are included in **Appendix D**.

Table 3: 2021 Existing Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Lakeshore Road East and Lagoon Street/Hampton Crescent	Signalized	A.M.	B	19.2 s	**0.88** (EBT)	25.2 m > 13.0 m (SBL)
		P.M.	C	19.9 s	**1.19** (EBL)	64.0 m > 30.0 m (EBL) 35.3 m > 13.0 m (SBL)
Lakeshore Road East and Caven Road	Stop (minor road)	A.M.	B	12.5 s (SB)	0.61 (EBT)	none
		P.M.	C	19.6 s (EBL)	0.70 (WBT)	none
Lakeshore Road East and Cawthra Road	Signalized	A.M.	F	102.7 s	**1.84** (EBL)	257.7 m > 17.0 m (EBL)
		P.M.	F	115.4	**1.45** (EBL) **1.30 (WBT)**	180.3 m > 17.0 m (EBL)
Lagoon Street and Plaza Entrance	Stop (all-way)	A.M.	A	7.0 s	0.07 (WB)	none
		P.M.	A	8.2 s	0.24 (NBR)	none

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).
Note 2: The critical v/c ratio is the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios greater than 0.85 are outlined and highlighted.

Under existing conditions, the intersection of Lagoon Street and the plaza entrance is operating at a LOS 'A' with the capacity for volume growth.

The intersections of both Lakeshore Road East and Lagoon Street/Hampton Crescent and Lakeshore Road East and Caven Road operate and an LOS 'B' in the a.m. peak hour and LOS 'C' in the p.m. peak hour. The intersection of Lakeshore Road East and Lagoon Street/Hampton Crescent experiences critical volume-to capacity ratios during both peak hours greater than 0.85. Additionally, eastbound left-turns during the p.m. peak hour are over capacity and exceed the provided storage length. However, the queue is expected to be contained within the continuous center left-turn lane and does not conflict with Beechwood Avenue. Lastly, southbound left turn queues are expected to frequently exceed the existing storage length during both the a.m. and p.m. peak hours.

The intersection of Cawthra Road and Lakeshore Road East currently operates at a LOS 'F' during both the a.m. and p.m. peak hours. Additionally, eastbound left-turn movements have volume-to-capacity ratios significantly above 1.0. During both peak hours, the eastbound left volumes exceed their available storage, resulting in queuing that would be expected to spill into the adjacent eastbound through lane.

It is noted that the eastbound left-turn movement exceeding 1.0 in both peak hours is likely due to a combination of the conservative traffic growth rates used to grow the traffic counts to "existing" conditions from the year the counts were taken, as well as the signal timing plans likely changing significantly from the date the traffic counts were taken. This has resulted in an extremely conservative estimate of traffic demand for eastbound left-turns.

3.0 Future Conditions

3.1 Study Horizons

As per the City of Mississauga's TIS Guidelines the five-year horizon (2026) of the date of this report (2021) was used to assess the impact of the proposed development.

3.2 Future Transit

According to the Lakeshore Road Transportation Master Plan and Implementation Strategy, there is expected to be transit improvements along a 13 km section of the Lakeshore Road East corridor.

Specifically, it includes Lakeshore Road between Southdown Road and the east City limit and Royal Windsor Drive between the west City limit and Southdown Road. The stated goals of the project are to provide a more mobile community by providing Bus Rapid Transit (BRT), improving intersections, and exploring feasibility of an additional crossing of Credit River.

There are expected be express bus stops placed along intersections with Lakeshore Road East, the closest stop being located at Cawthra Road, which will be within 150 m of the site. The addition of this bus rapid transit service is expected to allow for continued growth along the corridor by reducing the number of passenger vehicles on the roadway during the peak hours.

The implementation of this project is currently split in phases. In Phase 1, during the years of 2019 to 2025, transit service improvements will be applied. These improvements would include:

- Increasing local bus service by doubling the peak frequency of the local bus
- Upgrading the local bus service from 40 ft to 60 ft buses to further increase capacity
- Introducing express bus service in addition to the local bus service

Phase 2, is also split further into Phase 2A and Phase 2B. Phase 2A would be from 2025 to 2030 and Phase 2B would be from 2031 to 2041. During these phases, there will be multi-modal road work and further transit improvements implemented.

Multi-modal roadwork would include crossings which accommodate pedestrians, cyclists, transit, and automobiles. There will be more frequent express bus service, as well as transit signal priority at intersections. Adding more bike facilities as well as designing safe crossings and accessible sidewalks, greenery and street furniture will also be constructed during Phase 2.

3.3 Background Developments

The City of Mississauga staff have asked for several background developments to be included in the background analysis. Communications with the City and Region have been included in **Appendix A**. Relevant excerpts from background studies have been included in **Appendix G**. If trip distribution was not available, existing splits at the intersection of Cawthra Road and Lakeshore Road East were applied.

Table 4: Background Developments

File Reference	Address	Total A.M. Peak Hour Trips	Total P.M. Peak Hour Trips
OZ 20-5W1	958-960 East Avenue	24	30
OZ 20-9W1	420 Lakeshore Road East	28	39
SP 18-110 W1	857&859 Lakeshore Road East	2	14
SP 19-68 W1	425 Lakeshore Road East	Communications with the City stated no previous traffic studies were conducted for the site. Therefore, not enough information is available to consider this site at the time of writing this report and it was not accounted for in the analysis contained herein. The project is therefore not considered in this report.	
CDM 19-3 W1	1180, 1190 Cawthra Road, 652, 657 and 665 Cricklewood Drive and 1195 & 1205 Gooseberry Lane	11	13

3.4 Growth Rates

The City of Mississauga provided the following growth rates for the 2026 horizon:

Table 5: Compounded Annual Growth from Existing to 2026

Peak Hour	Eastbound	Westbound
A.M.	0.0%	0.0%
P.M.	1.5%	0.5%

The Region of Peel provided the following growth rates for Cawthra Road north of Lakeshore Road East:

Table 6: Cawthra Road Growth Rate Data

2016-2021	2021-2031	2031-2041
2%	0.5%	0.5%

A conservative 2% was used to grow traffic volumes from 2009, 2012 and 2018 to the 2021 existing conditions. The intersections this was applied at was Lakeshore Road East at Hampton Crescent and Lakeshore Road East at Cawthra Road. Communications with the City and Region have been included in **Appendix A.**

3.5 Intersection Operation

The 2026 future Background conditions are illustrated in **Figure 4**. Levels of service (LOS) based on 2026 future background operations are outlined in **Table 7**.

Table 7: 2026 Future Background Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Lakeshore Road East and Lagoon Street/Hampton Crescent	Signalized	A.M.	B	17.2 s	**0.88** (EBT)	25.6m > 13.0m (SBL)
		P.M.	C	28.2 s	**1.55** (EBL)	85.9m > 30.0m (EBL) 36.9m > 13.0m (SBL)
Lakeshore Road East and Caven Road	Stop (minor road)	A.M.	B	12.7 (SB)	0.62 (EBT)	none
		P.M.	C	22.1 (EBL)	0.73 (WB)	none
Lakeshore Road East and Cawthra Road	Signalized	A.M.	F	112.7s	**1.96** (EBL)	276.8m > 17.0m (EBL)
		P.M.	F	130.6 s	**1.51** (EBL) **1.37** (WBT)	189.8m > 17.0m (EBL)
Lagoon Street and Plaza Entrance	Stop (all-way)	A.M.	A	7.0 s	0.07 (WB)	none
		P.M.	A	8.3 s	0.26 (NBR)	none

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios greater than 0.85 are outlined and highlighted.

Under 2026 Future Background conditions, all levels of service at the study intersections remain the same, while volume-to-capacity ratios and queuing lengths have increased due to additional traffic volumes from the background developments as well as the 2% growth rate applied to the existing traffic.

The major intersection of concern is Lakeshore Road East and Cawthra Road, which continues to operate at LOS F with overcapacity eastbound left turn movements in both peak hours and overcapacity westbound through movements in the p.m. peak hour. The signalized intersection has critical movements in the a.m. and p.m. in the A.M, the critical movement is Eastbound left-turn, and during the p.m. it is Eastbound left-turn as well as Westbound through. The Eastbound left-turn is the critical v/c ratio[2] for Lakeshore Road East at Cawthra Rd, and this is due to the traffic from background developments and the add in the existing data. The Eastbound left-turn is heavily used due to Cawthra Road providing access to the QEW and the queues are expected to frequently spill back and block adjacent intersections to the west. It is again noted that the background growth rates used to forecast traffic were conservative and are likely overestimating demand for the critical movements.

The only other critical movement identified was the Eastbound left-turn at the intersection of Lakeshore Road East at Lagoon Street/ Hampton Crescent in the p.m. peak hour. The movement is expected to operate significantly over capacity and the 95th percentile queue is expected to be approximately 85 meters in the p.m. peak hour. However, the queues are not likely to block adjacent through lanes on Lakeshore Road East because traffic is expected to queue within the two-way left-turn lane. The v/c ratio is critical here due to existing traffic on the Lakeshore Road East. Capacity analysis worksheets have been included in **Appendix E** and levels of service definitions are included in **Appendix D**.

4.0 Trip Generation

4.1 Site Generated Traffic

The Institute of Transportation Engineers (ITE) Trip Generation 10th Edition Trip Generation Manual was used to establish a.m. and p.m. peak hour trips from the development. Land use code (LUC) 221: Multifamily Housing (Mid-Rise) was used for the 6-storey apartment buildings, LUC 222: Multifamily Housing (High-Rise) was used for the 16-storey buildings and LUC 820: Shopping Centre was used to establish trips for the ground level retail area in the two buildings fronting Lakeshore Road East. Relevant ITE excepts can be referenced in **Appendix J**. The results are shown in **Table 8** below.

Table 8: ITE Trip Generation

	Parameter	AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
Residential Mid-Rise (Multifamily Housing) (221) 279 Units	Gross Trips	26	85	111	67	42	109
	Equation/Rate (Trips/Units)	T = 0.44 X - 11.61			T = 0.39 X + 0.34		
Residential High-Rise (Multifamily Housing) (222) 791 Units	Gross Trips	73	141	214	142	111	253
	Rate (Trips/Units)	0.27			0.32		
Retail (Shopping Center 820) 3,321m^2 (35,747 ft^2)	Gross Trips	19	11	30	58	64	122
	Rate (Trips/1000 SF)	0.84			3.40		
Total	Total Residential Trips	99	226	325	209	153	362
	Total Trips	**118**	**237**	**355**	**267**	**217**	**484**

The resulting total trip generation for the site is estimate at 355 (118 inbound and 237 outbound) and 484 (267 inbound and 217 outbound) trips in the a.m. and p.m. peak hours, respectively.

4.2 Residential Modal Split Reduction

As previously mentioned, there are several existing and proposed transit options available that will reduce the number of auto trips on the boundary road network. TTS data in the area estimated that household mode split is 9.6% Transit, 0.7% Walking and 1.7% Cycling. The modal split was applied to the residential trips only and resulted in the following net residential auto trips shown in **Table 9**.

Table 9: Residential Auto Trips

Land Use	Peak Hour	Entering	Exiting
Total Residential Trips	a.m.	99	226
	p.m.	209	153
Modal Split Reduction	a.m.	12	27
	p.m.	25	18
Net Residential Auto Trips	**a.m.**	**87**	**199**
	p.m.	**184**	**135**

Note that a multi-modal trip reduction was not performed for the retail trips to provide a conservative estimate of auto trip generation. TTS data has been included as **Appendix F**.

4.3 Internal Reduction

It is expected that residents of the development will frequent the retail available as well as visitors to the residents. An internal reduction of trips was applied, and the results are outlined in **Table 10.**

Table 10: Internal Reduction of Trips

	Peak Hour	Residential		Shopping Centre	
		Entering	Exiting	Entering	Exiting
Total Net Auto Trips	a.m.	87	199	19	11
	p.m.	184	135	58	64
Internal Auto Trips	a.m.	2	2	2	2
	p.m.	17	6	6	17
Net External Auto Trips	**a.m.**	**85**	**197**	**17**	**9**
	p.m.	**167**	**129**	**52**	**47**

Internal trip reduction has been included in **Appendix K.**

4.4 Pass-By Trips

The ITE 3rd Generation Handbook allocates a percentage of trip on the road network that will stop at a retail location as they pass by. LUC 820: Shopping Centre has a pass-by percentage of 33% for the p.m. peak hour. **Table 11** outlines the primary and pass-by trips on the road network for the development. Relevant ITE excepts can be referenced in **Appendix J**.

Table 11: Pass-By Trips

	Peak Hour	Residential		Shopping Centre	
		Entering	Exiting	Entering	Exiting
Net External Auto Trips	a.m.	85	182	17	9
	p.m.	182	129	52	47
Pass-by Reduction	a.m.	0	0	0	0
	p.m.	0	0	18	18
Net New External Auto Trips	**a.m.**	**85**	**197**	**17**	**9**
	p.m.	**167**	**129**	**34**	**29**

For residential use, the net new external auto trips remain the same, as the pass-by reduction was only applied to retail trips. Therefore, the residential portion of the development is expected to generate 85 inbound and 197 outbound during the a.m. peak hour, and 162 inbound and 127 outbound trips during the p.m. peak hour.

For retail use, the development would generate 17 inbound and 9 outbound trips during the a.m. peak hour, as well as 34 inbound and 29 outbound trips during the p.m. peak hour.

4.5 Trip Distribution and Assignment

Trips were distributed to the study road network based on the site layout and existing 2016 TTS data in the area. **Table 12** provides the trip distribution results and **Appendix F** includes the TTS excerpts.

Table 12: Trip Distributions

	AM		PM	
Distribution	**Inbound**	**Outbound**	**Inbound**	**Outbound**
East	0%	21%	25%	11%
West	3%	16%	20%	46%
North	97%	63%	55%	43%
South	0%	0%	0%	0%

5.0 Total Traffic Conditions

5.1 Removal of Existing Commercial Trips

The existing commercial plaza is being demolished and all existing trip to and from the plaza were removed from the boundary road network. At the intersections of Lagoon Street and the site access, and Lakeshore Road East and Lagoon Street, the removal of commercial plaza trips leaves only the western townhouse development trips previously added.

Commercial plaza trips were removed from the though volumes at the intersection of Caven Street and Lakeshore Road East as it is reasonable to assume residents would walk to the plaza. The removal of trips at the intersection of Cawthra Road and Lakeshore Road East applied the existing percentage of volumes in each direction to the plaza generated volumes.

5.2 Intersection Operations

The 2026 future total conditions are illustrated in **Figure 5**. Levels of service (LOS) based on future total operations are outlined in **Table 13.**

Table 13: 2026 Future Total Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Lakeshore Road East and Lagoon Street/Hampton Crescent	Signalized	A.M.	B	17.3 s	**0.88** (EBT)	27.4 m > 13.0m (SBL)
		P.M.	B	17.5 s	**0.88** (WBT)	33 m > 30.0m (EBL) 27.1 m > 13.0m (SBL)
Lakeshore Road East and Caven Road	Stop (minor road)	A.M.	B	12.5 s	0.11 (SBL)	None
		P.M.	C	17.0 s	0.72 (WBT)	None
Lakeshore Road East and Cawthra Road	Signalized	A.M.	F	122.4 s	**2.04** (EBL)	289 m > 17.0m (EBL)
		P.M.	F	128.1 s	**1.51** (EBL) **1.35** (WBT)	190 > 17.0m (EBL)
Site Access at Lagoon Street	Stop (access)	A.M.	A	7.8 s	None	None
		P.M.	A	8.1 s	None	None
Site Access at Caven Road	Stop (access)	A.M.	A	8.4 s	None	None
		P.M.	A	8.6 s	None	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios greater than 0.85 are outlined and highlighted.

Under future total conditions, the control delay and v/c ratio have increased for most intersections. The signalized Lakeshore Road East at Cawthra in the a.m. peak hour, increased average vehicle delay by approximately 13 seconds. The Level of Service also remains at F; however, the control delay and the v/c ratio continue to increase for the eastbound left-turn movement. Queues are expected to continue to increase for the movement as well and will continue to block adjacent intersections to the west.

The remaining intersections continue operate at Level of Service C or higher, with no additional critical movements identified compared to future background conditions. Operations at the intersection of Lakeshore Road East and Lagoon Street/ Hampton Crescent have improved due to the removal of the commercial trips as described above. The eastbound left-turn is expected to operate only just above capacity in the p.m. peak hour and the queue length has decreased to only 10 metres longer than the existing storage length, which can be extended into the TWLTL.

Therefore, the development is not expected to have a significant impact on traffic operations and improves operations at the intersection of Lakeshore Road East and Lagoon Street.

6.0 Site Access Review

The location of the site access at Lagoon Street is to remain where the plaza entrance was, also retaining the existing four way stop control. It is noted that an existing plaza entrance operating as a full move access on Lakeshore Road East that will be removed as part of the development.

For the proposed site access to Caven Street, vehicles traveling Northbound will have just turned off Lakeshore Road East and are not expected to have reached full speed before reaching the site entrance.

Site Access Point 1, and 2 at Lagoon and Caven Street.

The available sightlines at the proposed streets were measured and compared to the standard set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR). Sight distance was measured from the proposed site access using the following assumptions:

- A standard drive eye height of 1.08 metres for a passenger car.
- There are no cars parked illegally that will hinder the views from the access points.

Intersection sight distance is calculated using equation from the GDGCR as outlined below:

ISD = 0.278 * V major * tg

Where;

ISD = Intersection Sight Distance
V major = design speed of roadway (km/h)
tg = assumed time gap for vehicles to turn from stop onto roadway (s)

The design speed of a roadway in an urban environment is typically 10 km/h greater than the posted speed limit. The posted speed limit on Lagoon Street at the site frontage is 50 km/h.

Therefore, a design speed of 60 km/h was conservatively assumed for the sight distance analysis.

Table 14: Sight Distance Analysis

Parameter	Beachcomber & Lagoon St. Access Point	Site Access Point on Caven Street
Access Type	Full moves	
Intersection Control	All-Way Stop	Stop Control
Posted Speed Limit	50 km/h (assumed)	50 km/h
Assumed Design Speed	60 km/h	60 km/h
Base Time Gap	Left Turn: 7.5 s Right Turn: 6.5 s (Personal Car)	Left Turn: 7.5 s Right Turn: 6.5 s (Personal Car)
Additional Time Gap	None	
Grade of Roadway	Less than 3%	
Horizontal Alignment of Roadway	Straight	
Intersection Sight Distance Required (TAC GDGCR Eqn. 9.9.1)	Left: 160 m Right: 110 m	Left: 130 m Right: 110 m
Sight Distance Measured	Left: 120 m + Right: 110 m +	Left: 170 m + Right: 170 m +
Minimum Sight Distance Satisfied	Yes	Yes

As outlined in **Table 14,** the minimum sight distance requirements are satisfied at the proposed site accesses along Site Access Point on Caven Street and right turn on Lagoon Street.

The left-turn of access point on Lagoon Street doesn't have the sight distance above 110 m due to the existence of a wall dividing the mall parking lot. It is safe to assume that there will not be any vehicles driving around the walled corner at 60 km/h. This would satisfy the sight distance of 50 km/h. The road network is straight, with minimal grade changes, and no visual obstructions are noted.

All relevant TAC excerpts are included in **Appendix I**.

7.0 Parking Review

This section includes a parking review of the proposed parking supply at the site following the City of Mississauga's Parking Zoning By-Law requirements. The Parking Zoning By-Law was revised and passed in June 2022.

The By-Law has mixed-use and shared visitor/non-residential provisions. Due to this, three cases have been reviewed. The first case excludes the mixed-use and shared-use provisions. The second case only considers the mixed-use provisions, and the third case includes the mixed-use and shared-use provisions.

The proposed development is in Precinct 3 of the parking rates provided by the City of Mississauga Parking Zoning By-Law. Applying these rates to the proposed redevelopment gives a deficit of 64

parking spaces when not considering any reductions for shared uses between the visitor and non-residential uses proposed at the site as shown in **Table 15**.

The table below summarizes the parking rates without the application of mixed-use or shared parking rates. There would be 94 spaces in deficit.

Table 15: City of Mississauga Zoning By-law Minimum Parking Requirements

Land Use	Type	Units / GFA	Parking Rate	Parking Requirements
Residential (Buildings A and B)	Residential	309	1.00	309
		482	1.00	482
	Visitor	791	0.20	159
	Total Residential Required			**950**
Mixed Use (Buildings C and D)	Non-Residential	3321 m^2	4/100m^2	120
	Residential	110	1.00	110
		169	1.00	169
	Visitor	279	0.20	56
	Total Mixed-Use Required			**485**
Total Required				**1435**
Total Proposed				**1341**
Total Surplus/Deficiency				**-94**

According to Section 3.1.2.4 of the Parking Zoning By-Law, a shared parking formula may be used for the calculation of required parking for a mixed-use development. The parking requirement for each use is multiplied by each of the percentages provided for the peak periods. Each column is then summed up and the highest number is chosen to be the required number for parking spaces. In this case, 455 was found to be the highest number, therefore, selected as the required number of spaces for the mixed-use development. As this proposed development fits in one of the categories which includes "non-residential uses in an apartment," the formula was applied, as summarized in the **Table 16**.

Table 16: City of Mississauga Mixed-Use Parking Formula

Type of Use	Parking Spaces with Percentages Applied in Each Peak Period (Weekday)			
	Morning	Noon	Afternoon	Evening
Retail	107 (80%)	120 (90%)	120 (90%)	120 (90%)
Residential (Resident)	252 (90%)	182 (65%)	252 (90%)	279 (100%)
Residential (Visitor)	12 (20%)	12 (20%)	34 (60%)	56 (100%)
SUM	**371**	**314**	**406**	**455**

Table 17: City of Mississauga Zoning By-law Minimum Parking Requirements with Mixed-Use Parking Formula

Land Use	Type	Units / GFA	Parking Rate	Parking Requirements
Residential (Buildings A and B)	Resident	309	1.00	309
		482	1.00	482
	Visitor	791	0.20	159
	Total Residential Required			**950**
Mixed Use (Buildings C and D)	Non-Residential	3321 m^2	Mixed-Use Parking Formula Applied (See Table 15)	120
	Resident	110		110
		169		169
	Visitor	279		56
	Total Mixed-Use Required			**455**
Total Required				**1405**
Total Proposed				**1341**
Total Surplus/Deficiency				**-64**

The requirements in **Table 15** and **Table 17** are considered a conservative assessment of the parking requirements for the site under the By-law, as these two cases do not include the shared-use parking rates.

In contrast, the shared-use rates were applied for a "best-case" scenario where all the commercial uses would qualify to be used in the shared use parking calculations. In this case, the visitor and non-residential parking spaces would be shared throughout the site. The highest requirement between the visitor and non-residential uses was used in this case, which results in a parking surplus of 55 parking spaces per **Table 18**.

Table 18: Shared Visitor/Non-Residential Parking from City of Mississauga Zoning By-law Minimum Parking Requirements

Land Use	Type	Units / GFA	Parking Rate	Parking Requirements
Residential (Buildings A and B)	Resident	309	1.00	309
		482	1.00	482
	Visitor	791	0.20	160
Mixed Use (Buildings C and D)	Non-Residential	3,321 m^2	Mixed-use Parking Formula Applied (See Table 15)	120
	Resident	110		110
		169		169
	Visitor	279		56
Total Resident Required				**1070**
Total Shared Non-Residential/Visitor[1]				**216**
Total Required				**1286**
Total Proposed				**1341**
Total Surplus/Deficiency				**+55**

1 Note that the new draft parking rates within the City of Mississauga By-law allow for a shared provision for most non-residential uses and visitor parking uses. The shared use calculation is determined by the larger of the visitor requirement and the sum of other non-residential use requirements.

Considering that the exact uses for the non-residential spaces proposed on the site are currently unknown, a more accurate assessment of the supply compared to the parking By-Law cannot be conducted at this time.

However, it is known that the based on the By-law parking requirements, that site will fall within the range provided in **Tables 15, 17** and **18** of 1286-1435 spaces. Therefore, it is expected that the proposed parking supply of 1341 spaces will likely be sufficient to meet the City of Mississauga Parking Requirements unless nearly all the non-commercial spaces do not qualify for inclusion in the shared visitor/non-residential use calculations. As further details become available, the parking requirements can be refined as part of future applications.

8.0 Transportation Demand Management

Transportation Demand Management (TDM) is a variety of strategies used to reduce traffic congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system.

As stated in **Section 3.4** there are a variety of existing transit options providing connectivity across the GTA. The completion of the Hurontario LRT is the first stage of the City of Mississauga's plan to improve transit to the communities along Lakeshore Road East.

The Lakeshore Connecting Communities Transportation Master Plan (May 2019) recommends the interim solution of rapid transit system along Lakeshore Road East between Mississauga Road and the Long Branch GO Station and the long-term implementation (beyond 2041) of extending the Toronto Transit Commission (TTC) streetcar serves along Lakeshore Road East to Mississauga Road.

The Lakeshore Connecting Communities Transportation Master Plan additionally provides a conceptual plan for the design of the Lakeshore Corridor, including transit shelters and protected bike lanes. The feasibility and timelines of such updates is not fully discussed in the report.

Excerpts from the Master Plan can be referenced in **Appendix B**.

The implementation of these improvements would aide in this development meeting the 2041 mode share targets set by the Region of Peel for the City of Mississauga (Sustainable Transportation Strategy, February 2018). These targets include a mode share of 9.8% walking, 2.4% cycling and 21.9% using transit. Relevant excerpts from the report can be found in **Appendix B.**

Given the above, the location of the development has the advantage of being transit commuter friendly. Therefore, transit user should be supported at the site by providing physical maps and schedules, as well as online resources for transit system updates that should be made available to all residents and visitors.

Enclosed and secure bicycle storage is to be available on the ground floor within Building's 'A", 'B', 'C', and 'D' for residents. It is recommended that details on location and use be available to all residents to ensure maximum use. Providing additional exterior bicycle storage at the entrances to the retail units provides a secure location and encourages active transportation for customers.

Drop-off areas for each of the buildings are designated adjacent to the private road. These are locations for those who use taxis, carpooling or transportation network companies for pick-up and drop-off. Providing visual designation of these areas will support these modes of transportation over personal auto trips. The visual designation should include signage, pavement markings and/or varying surface colour, pattern, or material.

9.0 Conclusion

The findings and conclusions of our analysis are represented as follows:

Under existing conditions, and 2026 future background conditions, the intersection of Lakeshore Road East at Cawthra Road operate at Level of Service "F" with ratios ranging between 1.30 to 1.96 v/c ratios for the a.m. and p.m peak hours. However, the intersections (Lakeshore Road East at Caven Road currently operate at Level of Service "C" or better during the weekday a.m. and p.m. peak periods.

The development is expected to generate 355 (118 inbound and 237 outbound) new external vehicle trips during the weekday a.m. peak hour and 484 (267 inbound and 217 outbound) new external vehicle trips during the weekday p.m. peak hour.

Under 2026 future total conditions, movements at Lakeshore East and Cawthra remain operating at a Level of Service "F," with especially poor delay and insufficient capacity for eastbound left-turns similar to existing conditions. All other intersections continue to operate under capacity during all peak periods and Level of Service "C" or higher. It is noted, this is generally due to background development volumes as well as the conservative background growth rates of 0.5% and 1.5% applied to the traffic volumes.

The proposed parking supply at the site meets the parking rates in the City's Parking By-Law if the parking spaces designated for visitors and non-residential uses are designated to be shared assuming the majority of the non-residential space qualifies to be included in the shared-use calculation. Therefore, the proposed parking supply at the site is considered adequate.

For Transportation Demand Management, some strategies were recommended, such as the accessibility of bike storages, transit information provided on-site, designated drop-off locations and provision of signage.

In conclusion, the proposed industrial development at 579, 619 Lakeshore Road East and 1022, 1028 Caven Street can be supported from transportation operations, safety, and parking perspectives. We trust that this review satisfies any transportation concerns associated with the Site Plan for this development. Please feel free to contact the undersigned for any further information required.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.

Hiba Naqvi, B. Eng.
Transportation Intern

C.F. CROZIER & ASSOCIATES INC.

Ian Lindley, MASc., P.Eng,
Project Engineer

IL/hn/la

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APPENDIX A

Correspondence

From: Kate Vassilyev <Kate.Vassilyev@mississauga.ca>
Sent: Friday, February 26, 2021 2:03 PM
To: Kavleen Sachdeva <ksachdeva@cfcrozier.ca>
Cc: Ryan Au <Ryan.Au@mississauga.ca>
Subject: RE: City File: DARC 20/200 W1 - 579-603 Lakeshore Transportation ToR

Hi Kavleen,

Thank you for providing the Terms of Reference for 579-603 Lakeshore Rd E. Staff have reviewed it and provided the following comments in blue:

- Developments that should be included in the analysis as part of the background developments.
  - OZ 20-5 W1 958-960 East Avenue
  - OZ 20-9 W1 420 Lakeshore Road East
  - SP 18-110 W1 857 & 859 Lakeshore Road East
  - SP 19-68 W1 425 Lakeshore Road E
  - CDM19-3 W1 1180, 1190 Cawthra Road, 652, 657 and 665 Cricklewood Drive and 1195 & 1205 Gooseberry Lane
- Details of any planned roadway/transit improvement in the study area within the horizon years. Please refer to LAKESHORE CONNECTING COMMUNITIES at http://www.mississauga.ca/portal/residents/lakeshore-connecting-communities and Miway website for the planned roadway and transit improvements.
- The latest signal timing plans for the intersections. Please contact Jim Kartsomanis from Traffic Signal Section (Jim.Kartsomanis@mississauga.ca) for the current signal timing plans.
- Historical counts and growth rates for the study intersections. Please confirm and validate growth rates and historical counts with Tyler Xuereb (tyler.xuereb@mississauga.ca) from Transportation Planning Section.
- Please include all applicable Synchro reports in the Appendix.

Please feel free to contact me if you have any questions.
Regards,

Kate (Jekaterina) Vassilyev
Traffic Planning Technologist
T 905-615-3200 ext.8171
kate.vassilyev@mississauga.ca

City of Mississauga | Corporate Services Department,
Business Services Division

From: Kavleen Sachdeva [mailto:ksachdeva@cfcrozier.ca]
Sent: Wednesday, February 24, 2021 9:53 AM
To: Ryan Au <Ryan.Au@mississauga.ca>
Cc: Ben Paric <bparic@cfcrozier.ca>
Subject: 579-603 Lakeshore Transportation ToR

Hello Ryan,

I hope you're doing well.

We have been retained to prepare a Transportation Impact Study (TIS), Parking Utilization Study, Transportation Demand Management (TDM) Study, Truck Turning and Waste Collection Plan, and Pedestrian and Bicycle Circulation Plan for the site located at 579-603 Lakeshore Road East in Mississauga. The elements envisioned for this development include replacing the existing commercial building with two 4-storey mixed-use buildings and two podium/towers configurations internal to the site with podium heights of 4-storeys and tower heights of 16-storeys. The development will consist of 748 residential units, 3,485 m^2 of retail space, and 906 parking spaces (surface parking and two levels of underground parking).

We kindly request that you let us know if the Terms of Reference (ToR) outlined below will be acceptable. If you are not the correct person for correspondence, I'd appreciate it if you direct me to the correct contact.

Study Methodology for the Transportation Impact Study

Study Area and Intersections to Assess

The following intersections will be analyzed:

- Lakeshore Road East and Cawthra Road
- Lakeshore Road East and Caven Street
- Lakeshore Road East and Lagoon Street/ Hampton Crescent
- Proposed Site Access at Lakeshore Road East
- Proposed Site Access at Cawthra Road
- Proposed Site Access at Lagoon Street

We have counts available for Given the ongoing pandemic, we kindly request any available historical counts for the above intersections, along with the relevant growth rate that should be applied to reflect 2021 volumes. Grown volumes will be circulated before submission for confirmation.

Analysis Periods and Scenarios

The weekday AM and PM peak hours for 2021 existing conditions, along with a five-year horizon year (2026) will be considered for background and total traffic conditions.

Background Developments

Kindly provide any developments that should be included in the analysis as part of the background developments.

Trip Generation

Trip generation for the proposed development will be based on Trip Generation Manual, 10th Edition prepared by the Institute of Transportation Engineers (ITE) for the following land uses:

- Residential Multifamily Housing High-Rise (LUC 222) for the 16-Storey Towers; and
- Residential Multifamily Housing Mid-Rise (LUC 221) for the 4-Storey Mixed-Use Buildings; and
- Shopping Center (LUC 820) for the retail areas of the development

Internal capture and pass-by will be applied per ITE. Trip distribution and modal splits will be based on a combination of existing traffic and the Transportation Tomorrow Survey.

Roadway/Transit Improvements

Please provide details of any planned roadway/transit improvement in the study area.

Analysis Procedures

Weekday AM and PM peak hours will be analyzed using the Synchro 10.0 analysis package and Highway Capacity Manual (HCM) procedures.

Could you please provide any comments you may have for the listed ToR and the following information for inclusion in the study:

Details of any planned roadway/transit improvement in the study area within the horizon years.

- The latest signal timing plans for the intersections Jim
- Any further background developments and the associated traffic impact studies that are to be included in the analysis website
- Historical counts and growth rates for the study intersections Tyler

Study Methodology for the Parking Utilization Study

The key tasks involved in this study are:

- Calculate the parking supply required by the City of Mississauga Zoning By-Law
- Calculate the peak parking demand per the Institute of Transportation Engineers Parking Generation 5th Edition.
- Use parking utilization surveys of two surrogate sites that have similar characteristics to the project site between the weekday a.m. and p.m. peak hours
- Compare the parking space demand with the parking spaces provided and determine whether the parking supply is sufficient to meet the calculated demand

Could you please provide any comments you may have on the above ToR and provide the following information for inclusion in the study:

I hope the above is acceptable. Should you have any questions or concerns, please feel free to contact me.

Regards,
Kavleen

Kavleen Sachdeva | Engineering Intern
2800 High Point Drive, Suite 100 | Milton, ON L9T 6P4
T: 905.875.0026

CROZIER
CONSULTING ENGINEERS

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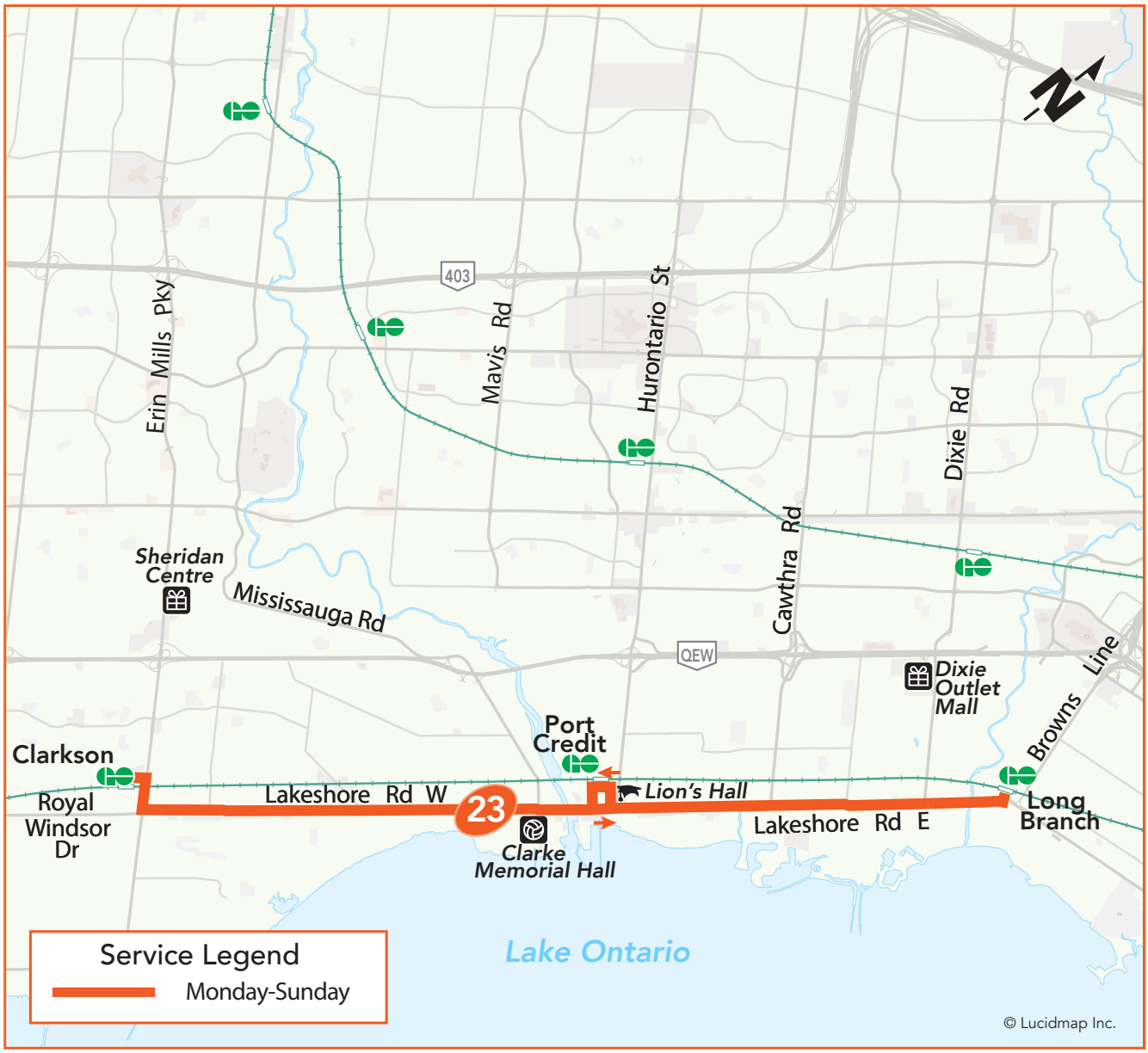
APPENDIX B

Transit Information

23 Lakeshore

Local Route
Monday to Sunday

Eastbound to Long Branch GO Station
Westbound to Clarkson GO Station



Legend

- Terminal
- Transitway Station
- High School, University or College
- TTC Subway Station
- GO Train Station
- Hospital
- Library
- Community Centre
- Shopping Centre

Effective: January 28, 2013

MiWAY MISSISSAUGA

Lakeshore Bus Rapid Transit (BRT) study

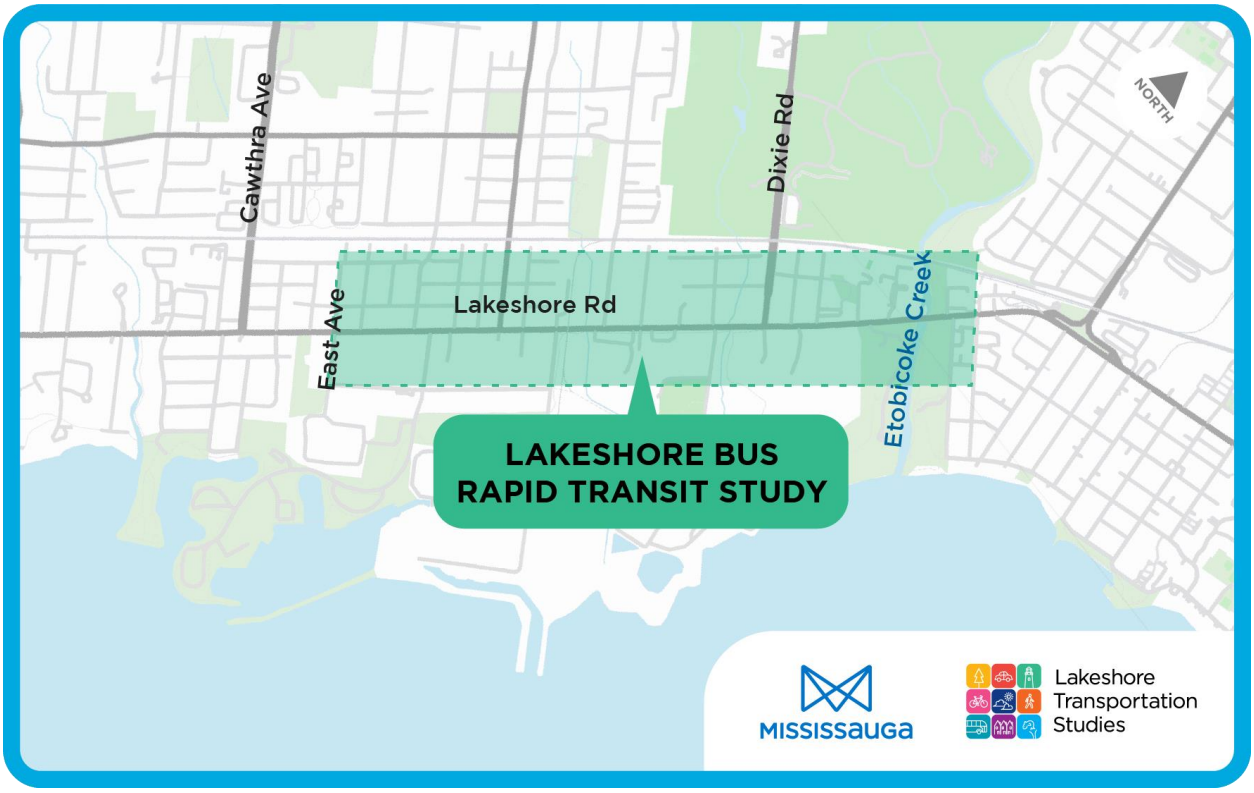
The City of Mississauga is undertaking the Transit Project Assessment Process (TPAP) and preliminary design for the Lakeshore Bus Rapid Transit Project (BRT).

About

As part of the Lakeshore Transportation Studies, the City of Mississauga is developing the preliminary design and completing the Transit Project Assessment Process (TPAP) for the Lakeshore Bus Rapid Transit Project (BRT). A TPAP is an expedited Environmental Assessment process in which the environmental effects of the project are analyzed.

The Lakeshore BRT is planned to extend for two kilometres along Lakeshore Road from the Etobicoke Creek to East Avenue. This project has received funding through the Investing in Canada Infrastructure Program (ICIP) and will have an expedited timeline for development. Learn more about the ICIP funding granted to the City of Mississauga.

For this project, the TPAP Notice of Commencement will be scheduled for later in 2021 and the study is anticipated to be completed in mid-2022.



Area map of Lakeshore Road between East Avenue and Etobicoke Creek for the Lakeshore Bus Rapid Transit (BRT) study.

APPENDIX C

Traffic Data

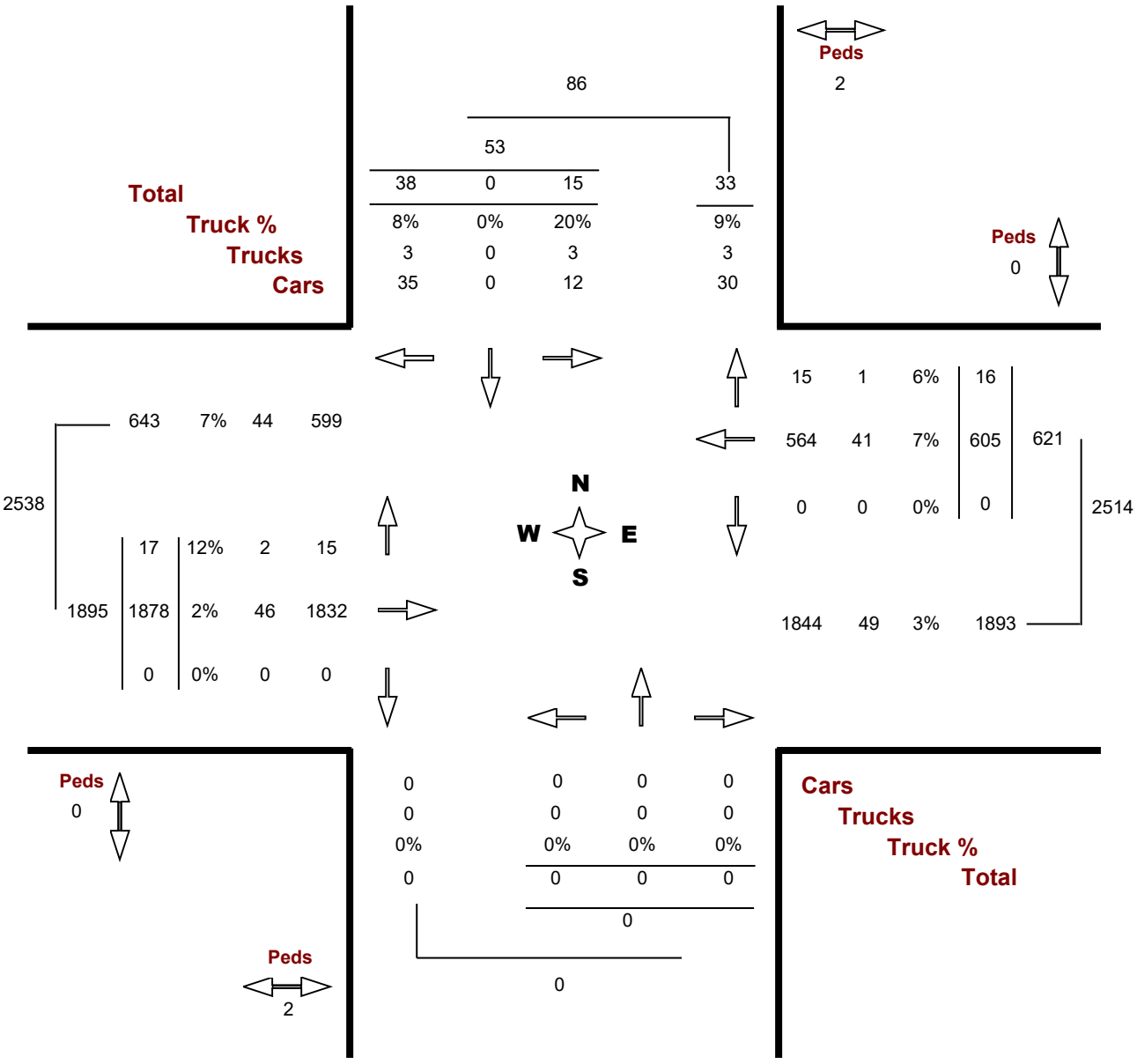
Turning Movements Report - AM Period

Location..... CAVEN ST @ LAKESHORE RD E

Municipality..... Mississauga **GeoID.....** 351579

Count Date..... Thursday, 22 October, 2009 **Peak Hour.....** 07:30 AM — 08:30 AM

Road 1 CAVEN ST **Road 2** LAKESHORE RD E



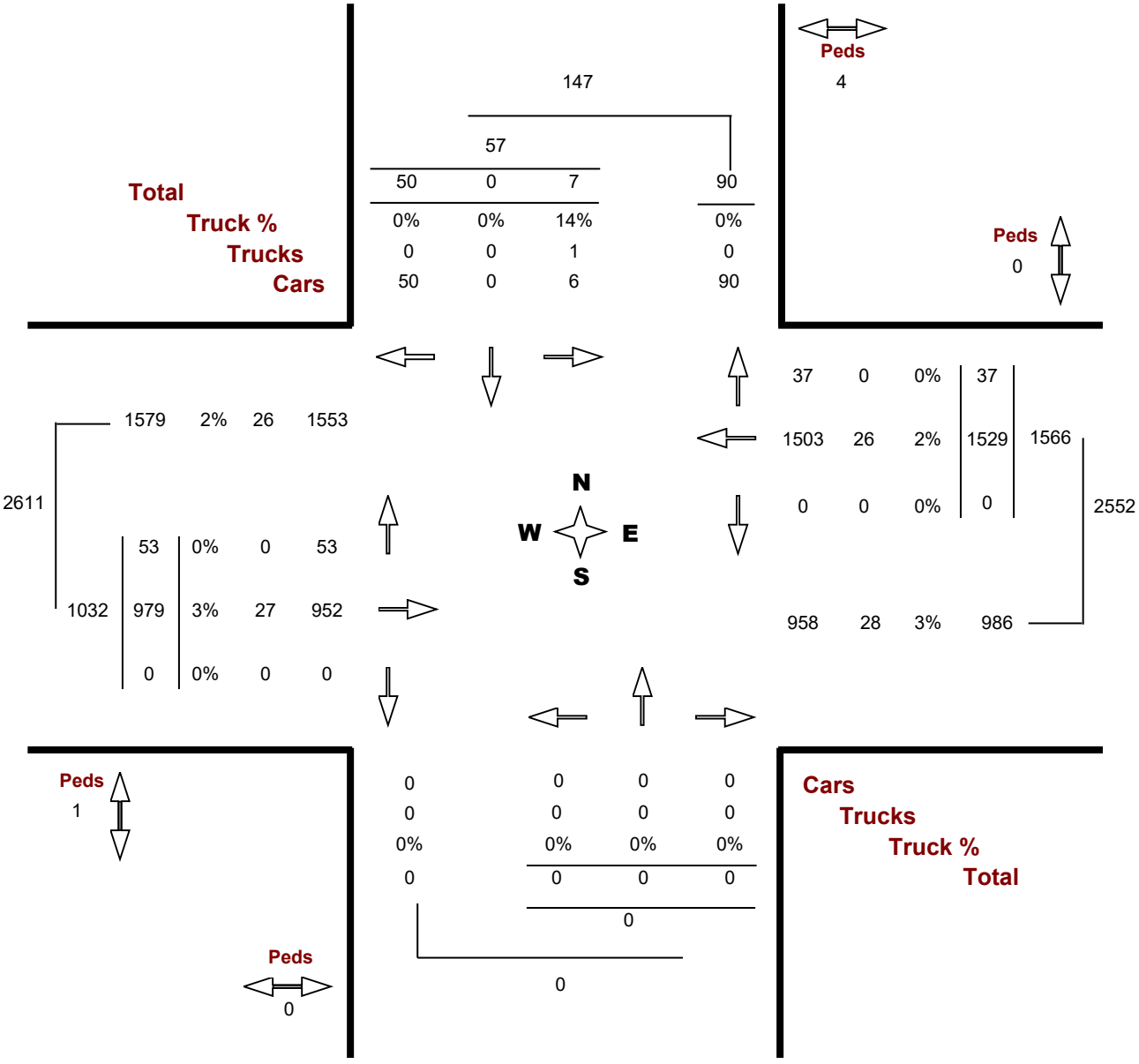
Turning Movements Report - PM Period

Location..... CAVEN ST @ LAKESHORE RD E

Municipality..... Mississauga **GeoID.....** 351579

Count Date..... Thursday, 22 October, 2009 **Peak Hour.....** 04:45 PM — 05:45 PM

Road 1 CAVEN ST **Road 2** LAKESHORE RD E



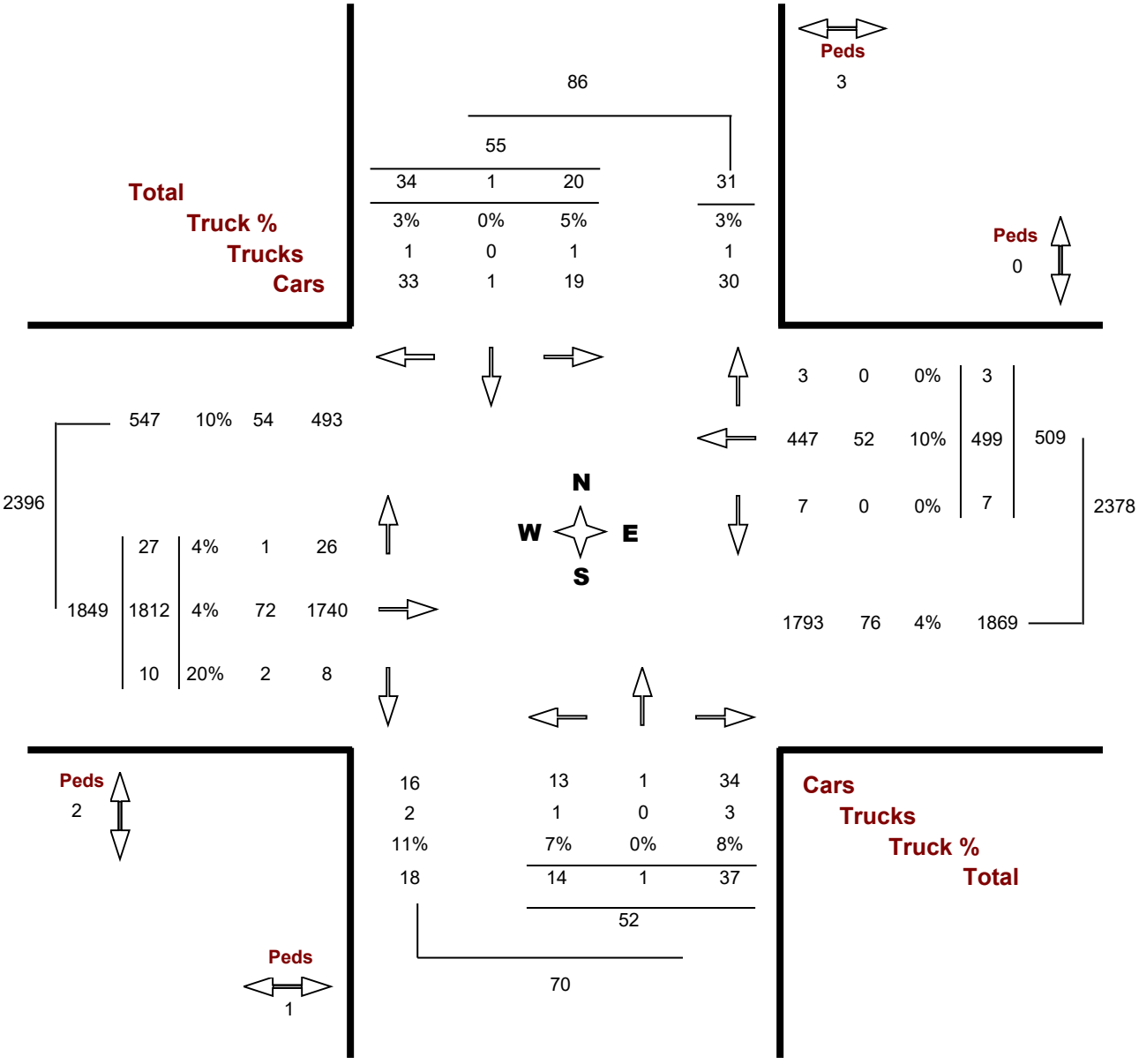
Turning Movements Report - AM Period

Location..... HAMPTON CRES / LAGOON ST @ LAKESHORE RD E

Municipality..... Mississauga **GeoID.....** 351553

Count Date..... Tuesday, 06 March, 2012 **Peak Hour.....** 07:30 AM — 08:30 AM

Road 1 LAKESHORE RD E **Road 2** HAMPTON CRES / LAGOON ST



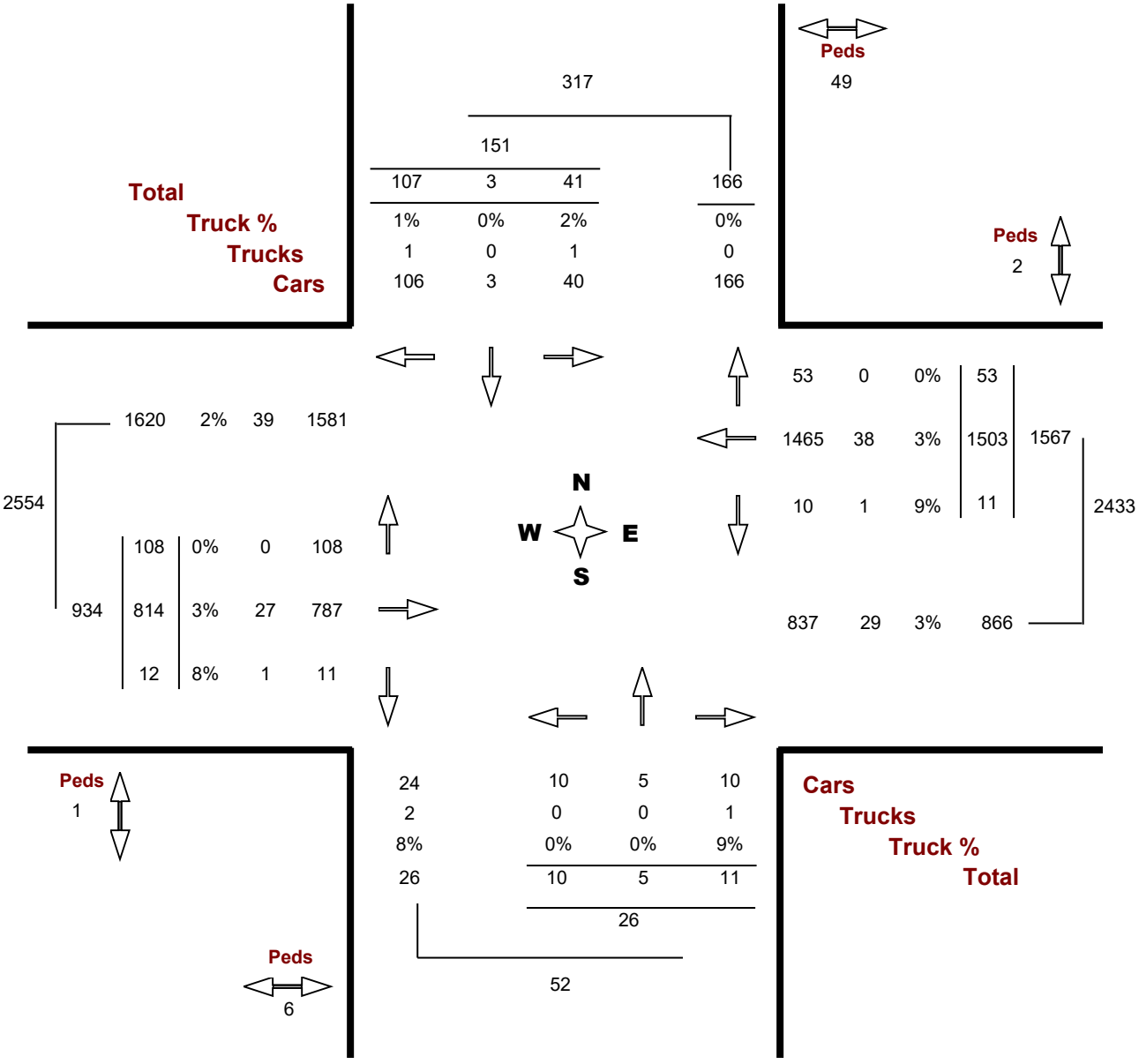
Turning Movements Report - PM Period

Location..... HAMPTON CRES / LAGOON ST @ LAKESHORE RD E

Municipality..... Mississauga **GeoID.....** 351553

Count Date..... Tuesday, 06 March, 2012 **Peak Hour.....** 04:45 PM — 05:45 PM

Road 1 LAKESHORE RD E **Road 2** HAMPTON CRES / LAGOON ST



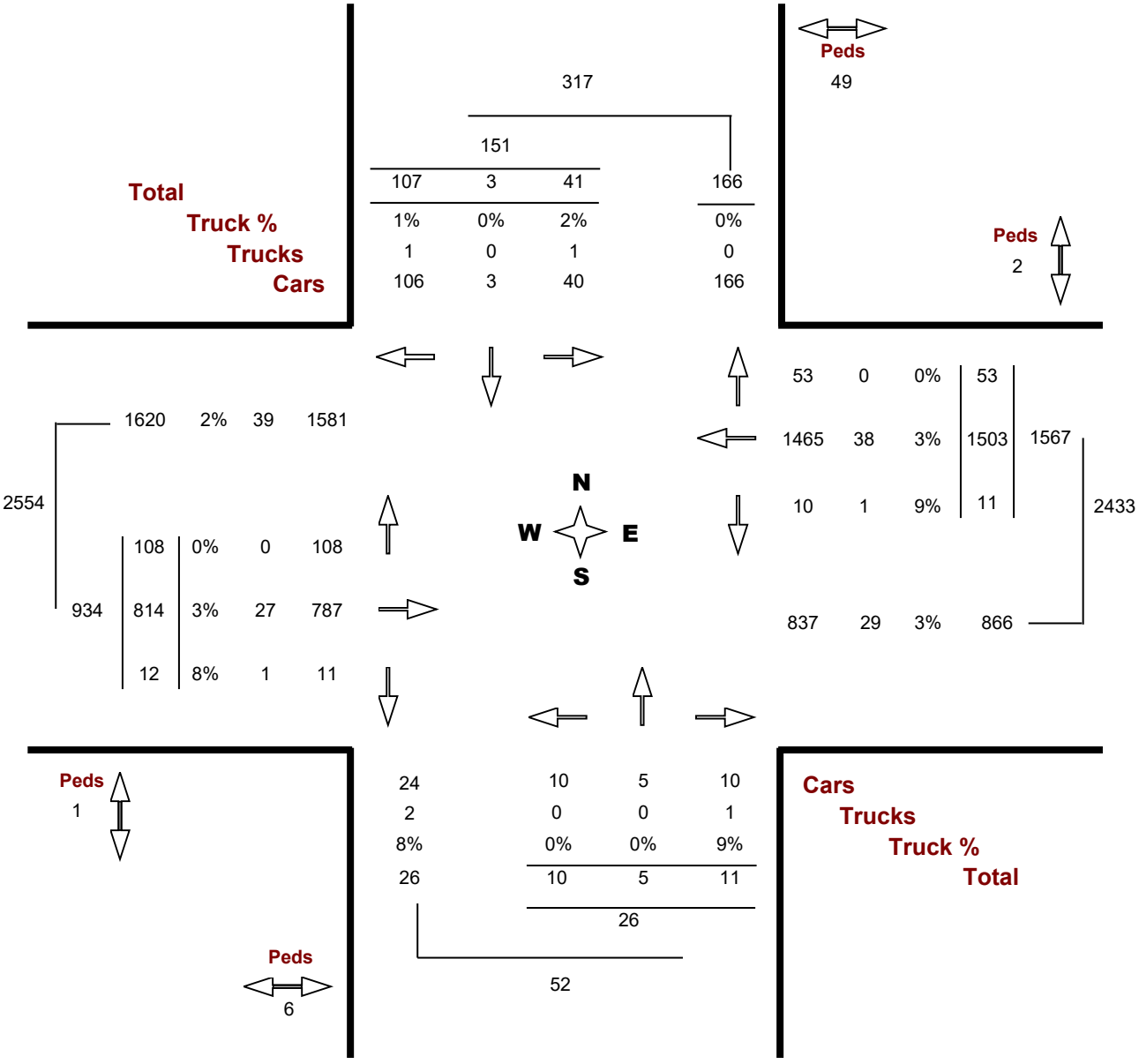
Turning Movements Report - PM Period

Location..... HAMPTON CRES / LAGOON ST @ LAKESHORE RD E

Municipality..... Mississauga **GeoID.....** 351553

Count Date..... Tuesday, 06 March, 2012 **Peak Hour.....** 04:45 PM — 05:45 PM

Road 1 LAKESHORE RD E **Road 2** HAMPTON CRES / LAGOON ST



Spectrum

Turning Movement Count
Location Name: CAWTHRA RD & LAKESHORE RD
Date: Thu, Mar 01, 2018 Deployment Lead: Theo Daglis

Turning Movement Count (27 . CAWTHRA RD & LAKESHORE RD) CustID: 01700000 MioID: 499842

Start Time	N Approach CAWTHRA RD						E Approach LAKESHORE RD						S Approach CAWTHRA RD						W Approach LAKESHORE RD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	U-Turn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	U-Turn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	U-Turn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	U-Turn W:W	Peds W:	Approach Total		
07:00:00	40	0	35	0	1	75	0	40	16	0	0	56	0	0	0	0	5	0	115	147	0	0	5	262	393	
07:15:00	41	0	49	0	0	90	0	70	32	0	0	102	0	0	0	0	1	0	144	218	0	0	2	362	554	
07:30:00	65	0	48	0	5	113	0	62	30	0	0	92	0	0	0	0	1	0	130	238	0	0	2	368	573	
07:45:00	49	0	77	0	5	126	0	102	44	0	0	146	0	0	0	0	1	0	128	273	0	0	2	401	673	2193
08:00:00	56	0	110	0	5	166	0	99	40	0	0	139	0	0	0	0	0	0	131	238	0	0	9	369	674	2474
08:15:00	63	1	150	0	1	214	1	129	32	0	0	162	0	0	0	0	1	0	119	229	0	0	2	348	724	2644
08:30:00	67	1	138	0	4	206	0	113	34	0	0	147	0	0	0	0	1	0	133	185	0	0	4	318	671	2742
08:45:00	53	3	81	0	5	137	0	116	38	0	0	154	0	0	0	0	2	0	135	215	0	0	2	350	641	2710
BREAK																										
11:00:00	28	0	85	0	5	113	0	97	36	0	0	133	0	0	2	0	3	2	85	86	0	0	5	171	419	
11:15:00	40	0	81	0	7	121	0	92	41	0	0	133	0	0	0	0	0	0	89	83	0	0	2	172	426	
11:30:00	38	0	91	0	8	129	1	119	46	0	0	166	0	0	2	0	2	2	76	109	0	0	3	185	482	
11:45:00	50	0	105	1	3	156	0	101	52	0	0	153	1	1	0	0	5	2	79	107	1	0	1	187	498	1825
12:00:00	48	0	88	0	2	136	0	135	41	0	2	176	0	0	0	0	8	0	94	118	0	0	7	212	524	1930
12:15:00	50	0	82	0	6	132	0	113	43	0	0	156	0	0	1	0	2	1	87	110	1	0	6	198	487	1991
12:30:00	34	0	78	0	4	112	0	97	43	0	0	140	0	2	1	0	3	3	88	107	0	0	2	195	450	1959
12:45:00	42	0	94	0	4	136	0	108	55	0	0	163	0	0	0	0	7	0	79	117	0	0	6	196	495	1956
13:00:00	40	0	61	0	7	101	0	103	33	0	0	136	0	2	2	0	4	4	85	146	0	0	1	231	472	1904
13:15:00	28	0	83	0	4	111	0	124	55	0	0	179	0	0	1	0	3	1	73	103	2	0	4	178	469	1886
13:30:00	26	0	90	0	4	116	0	132	48	0	0	180	1	0	0	0	3	1	78	94	1	0	4	173	470	1906
13:45:00	36	0	85	1	6	122	0	113	48	0	0	161	1	0	1	0	6	2	87	106	1	0	1	194	479	1890
BREAK																										
15:00:00	48	0	129	0	5	177	0	175	68	0	0	243	0	0	0	0	9	0	87	104	0	0	5	191	611	
15:15:00	58	0	140	0	28	198	0	164	56	0	0	220	0	0	1	0	4	1	100	121	0	0	11	221	640	
15:30:00	42	0	121	0	11	163	0	178	91	0	0	269	0	0	0	0	3	0	95	183	0	0	7	278	710	
15:45:00	35	2	132	1	11	170	1	167	66	0	0	234	0	1	1	0	4	2	86	114	0	0	3	200	606	2567
16:00:00	35	0	108	0	2	143	0	183	67	0	0	250	0	0	2	0	7	2	85	128	0	0	6	213	608	2564
16:15:00	46	0	123	0	1	169	0	214	66	0	0	280	0	0	0	0	2	0	80	120	0	0	4	200	649	2573
16:30:00	33	0	106	0	6	139	0	211	58	0	0	269	0	0	0	0	5	0	93	137	0	0	3	230	638	2501
16:45:00	53	0	132	0	3	185	0	218	59	0	0	277	0	2	0	0	4	2	90	141	0	0	1	231	695	2590
17:00:00	24	0	144	0	8	168	0	261	63	0	0	324	0	0	0	0	1	0	96	154	0	0	5	250	742	2724
17:15:00	39	0	143	1	7	183	1	233	48	0	0	282	1	0	0	0	4	1	86	154	0	0	5	240	706	2781
17:30:00	52	0	114	0	2	166	0	250	41	0	0	291	0	0	2	0	3	2	87	155	0	0	2	242	701	2844
17:45:00	40	0	97	0	8	137	0	218	55	0	0	273	0	0	0	0	12	0	74	180	0	0	5	254	664	2813
Grand Total	1399	7	3200	4	178	4610	4	4537	1545	0	2	6086	4	8	16	0	116	28	3094	4720	6	0	127	7820	**18544**	-
Approach%	30.3%	0.2%	69.4%	0.1%		-	0.1%	74.5%	25.4%	0%		-	14.3%	28.6%	57.1%	0%		-	39.6%	60.4%	0.1%	0%		-	-	-
Totals %	7.5%	0%	17.3%	0%		24.9%	0%	24.5%	8.3%	0%		32.8%	0%	0%	0.1%	0%		0.2%	16.7%	25.5%	0%	0%		42.2%	-	-
Heavy	128	0	63	0		-	0	128	136	0		-	0	0	0	0		-	97	117	0	0		-	-	-
Heavy %	9.1%	0%	2%	0%		-	0%	2.8%	8.8%	0%		-	0%	0%	0%	0%		-	3.1%	2.5%	0%	0%		-	-	-
Bicycles	0	0	0	0		-	0	7	0	0		-	0	0	0	0		-	0	11	0	0		-	-	-
Bicycle %	0%	0%	0%	0%		-	0%	0.2%	0%	0%		-	0%	0%	0%	0%		-	0%	0.2%	0%	0%		-	-	-

Spectrum

Turning Movement Count
Location Name: CAWTHRA RD & LAKESHORE RD
Date: Thu, Mar 01, 2018 Deployment Lead: Theo Daglis

Peak Hour: 07:45 AM - 08:45 AM Weather: Partly Cloudy (-0.8 °C)

Start Time	N Approach CAWTHRA RD						E Approach LAKESHORE RD						S Approach CAWTHRA RD						W Approach LAKESHORE RD						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
07:45:00	49	0	77	0	5	126	0	102	44	0	0	146	0	0	0	0	1	0	128	273	0	0	2	401	673
08:00:00	56	0	110	0	5	166	0	99	40	0	0	139	0	0	0	0	0	0	131	238	0	0	9	369	674
08:15:00	63	1	150	0	1	214	1	129	32	0	0	162	0	0	0	0	1	0	119	229	0	0	2	348	724
08:30:00	67	1	138	0	4	206	0	113	34	0	0	147	0	0	0	0	1	0	133	185	0	0	4	318	671
Grand Total	235	2	475	0	15	712	1	443	150	0	0	594	0	0	0	0	3	0	511	925	0	0	17	1436	**2742**
Approach%	33%	0.3%	66.7%	0%		-	0.2%	74.6%	25.3%	0%		-	0%	0%	0%	0%		-	35.6%	64.4%	0%	0%		-	**-**
Totals %	8.6%	0.1%	17.3%	0%		26%	0%	16.2%	5.5%	0%		21.7%	0%	0%	0%	0%		0%	18.6%	33.7%	0%	0%		52.4%	**-**
PHF	0.88	0.5	0.79	0		0.83	0.25	0.86	0.85	0		0.92	0	0	0	0		0	0.96	0.85	0	0		0.9	**-**
Heavy	14	0	11	0		25	0	19	20	0		39	0	0	0	0		0	15	23	0	0		38	**-**
Heavy %	6%	0%	2.3%	0%		3.5%	0%	4.3%	13.3%	0%		6.6%	0%	0%	0%	0%		0%	2.9%	2.5%	0%	0%		2.6%	**-**
Lights	221	2	464	0		687	1	424	130	0		555	0	0	0	0		0	496	902	0	0		1398	**-**
Lights %	94%	100%	97.7%	0%		96.5%	100%	95.7%	86.7%	0%		93.4%	0%	0%	0%	0%		0%	97.1%	97.5%	0%	0%		97.4%	**-**
Single-Unit Trucks	10	0	1	0		11	0	7	15	0		22	0	0	0	0		0	6	8	0	0		14	**-**
Single-Unit Trucks %	4.3%	0%	0.2%	0%		1.5%	0%	1.6%	10%	0%		3.7%	0%	0%	0%	0%		0%	1.2%	0.9%	0%	0%		1%	**-**
Buses	4	0	10	0		14	0	9	4	0		13	0	0	0	0		0	7	10	0	0		17	**-**
Buses %	1.7%	0%	2.1%	0%		2%	0%	2%	2.7%	0%		2.2%	0%	0%	0%	0%		0%	1.4%	1.1%	0%	0%		1.2%	**-**
Articulated Trucks	0	0	0	0		0	0	3	1	0		4	0	0	0	0		0	2	5	0	0		7	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.7%	0.7%	0%		0.7%	0%	0%	0%	0%		0%	0.4%	0.5%	0%	0%		0.5%	**-**
Pedestrians	-	-	-	-	15	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	16	-	**-**
Pedestrians%	-	-	-	-	42.9%		-	-	-	-	0%		-	-	-	-	8.6%		-	-	-	-	45.7%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	2.9%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: CAWTHRA RD & LAKESHORE RD
Date: Thu, Mar 01, 2018 Deployment Lead: Theo Daglis

Peak Hour: 11:30 AM - 12:30 PM Weather: Overcast (3.5 °C)

Start Time	N Approach CAWTHRA RD						E Approach LAKESHORE RD						S Approach CAWTHRA RD						W Approach LAKESHORE RD						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
11:30:00	38	0	91	0	8	129	1	119	46	0	0	166	0	0	2	0	2	2	76	109	0	0	3	185	482
11:45:00	50	0	105	1	3	156	0	101	52	0	0	153	1	1	0	0	5	2	79	107	1	0	1	187	498
12:00:00	48	0	88	0	2	136	0	135	41	0	2	176	0	0	0	0	8	0	94	118	0	0	7	212	524
12:15:00	50	0	82	0	6	132	0	113	43	0	0	156	0	0	1	0	2	1	87	110	1	0	6	198	487
Grand Total	186	0	366	1	19	553	1	468	182	0	2	651	1	1	3	0	17	5	336	444	2	0	17	782	**1991**
Approach%	33.6%	0%	66.2%	0.2%		-	0.2%	71.9%	28%	0%		-	20%	20%	60%	0%		-	43%	56.8%	0.3%	0%		-	**-**
Totals %	9.3%	0%	18.4%	0.1%		27.8%	0.1%	23.5%	9.1%	0%		32.7%	0.1%	0.1%	0.2%	0%		0.3%	16.9%	22.3%	0.1%	0%		39.3%	**-**
PHF	0.93	0	0.87	0.25		0.89	0.25	0.87	0.88	0		0.92	0.25	0.25	0.38	0		0.63	0.89	0.94	0.5	0		0.92	**-**
Heavy	33	0	8	0		41	0	18	25	0		43	0	0	0	0		0	9	14	0	0		23	**-**
Heavy %	17.7%	0%	2.2%	0%		7.4%	0%	3.8%	13.7%	0%		6.6%	0%	0%	0%	0%		0%	2.7%	3.2%	0%	0%		2.9%	**-**
Lights	153	0	358	1		512	1	450	157	0		608	1	1	3	0		5	327	430	2	0		759	**-**
Lights %	82.3%	0%	97.8%	100%		92.6%	100%	96.2%	86.3%	0%		93.4%	100%	100%	100%	0%		100%	97.3%	96.8%	100%	0%		97.1%	**-**
Single-Unit Trucks	26	0	8	0		34	0	14	23	0		37	0	0	0	0		0	9	9	0	0		18	**-**
Single-Unit Trucks %	14%	0%	2.2%	0%		6.1%	0%	3%	12.6%	0%		5.7%	0%	0%	0%	0%		0%	2.7%	2%	0%	0%		2.3%	**-**
Buses	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	4	0	0		4	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.5%	**-**
Articulated Trucks	7	0	0	0		7	0	0	2	0		2	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	3.8%	0%	0%	0%		1.3%	0%	0%	1.1%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.1%	**-**
Pedestrians	-	-	-	-	19	-	-	-	-	-	2	-	-	-	-	-	17	-	-	-	-	-	15	-	**-**
Pedestrians%	-	-	-	-	34.5%		-	-	-	-	3.6%		-	-	-	-	30.9%		-	-	-	-	27.3%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	3.6%		**-**
Bicycles on Road	0	0	0	0	0	-	0	1	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: CAWTHRA RD & LAKESHORE RD
Date: Thu, Mar 01, 2018 Deployment Lead: Theo Daglis

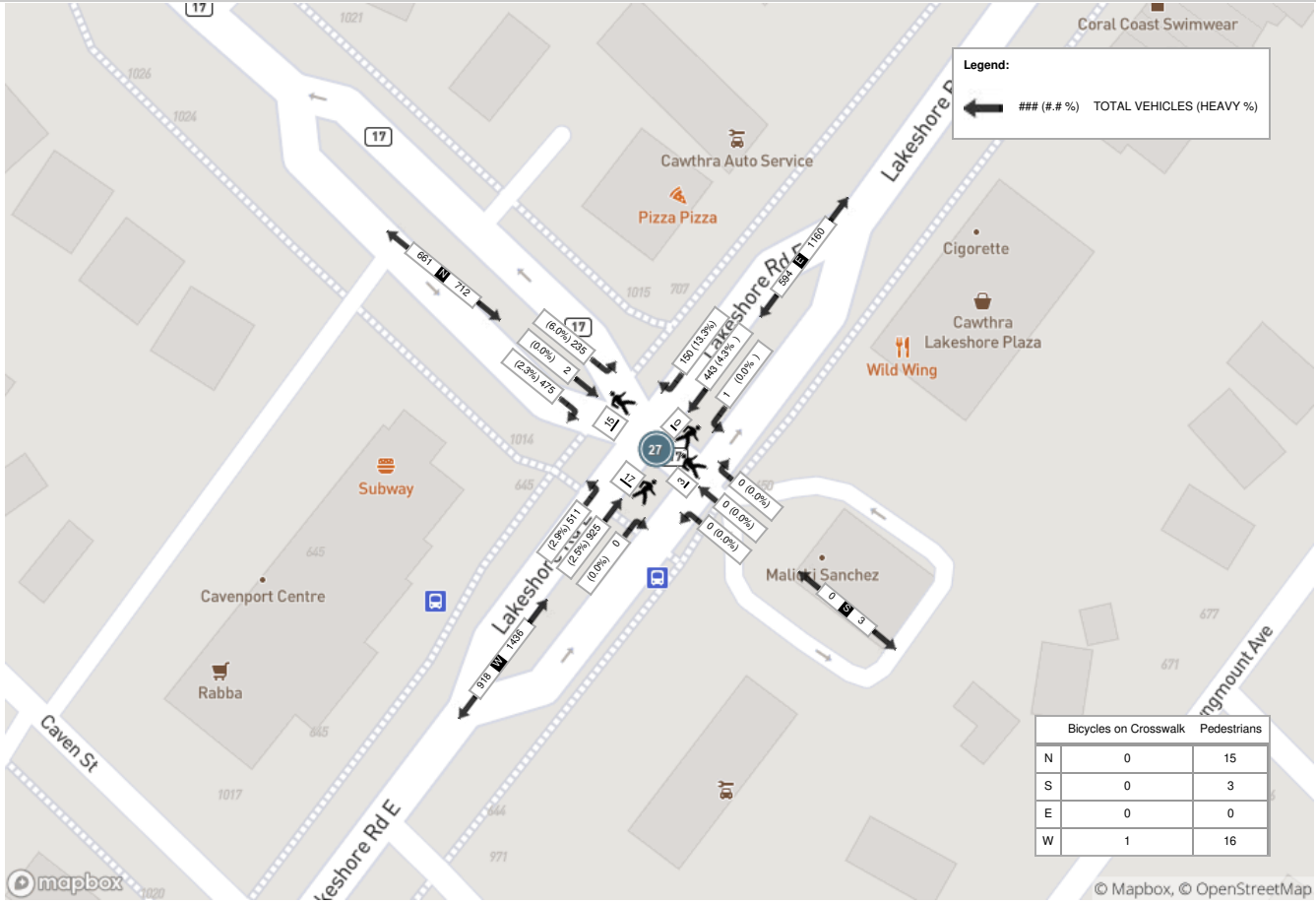
Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast (1.9 °C)

Start Time	N Approach CAWTHRA RD						E Approach LAKESHORE RD						S Approach CAWTHRA RD						W Approach LAKESHORE RD						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
16:45:00	53	0	132	0	3	185	0	218	59	0	0	277	0	2	0	0	4	2	90	141	0	0	1	231	695
17:00:00	24	0	144	0	8	168	0	261	63	0	0	324	0	0	0	0	1	0	96	154	0	0	5	250	742
17:15:00	39	0	143	1	7	183	1	233	48	0	0	282	1	0	0	0	4	1	86	154	0	0	5	240	706
17:30:00	52	0	114	0	2	166	0	250	41	0	0	291	0	0	2	0	3	2	87	155	0	0	2	242	701
Grand Total	168	0	533	1	20	702	1	962	211	0	0	1174	1	2	2	0	12	5	359	604	0	0	13	963	**2844**
Approach%	23.9%	0%	75.9%	0.1%		-	0.1%	81.9%	18%	0%		-	20%	40%	40%	0%		-	37.3%	62.7%	0%	0%		-	**-**
Totals %	5.9%	0%	18.7%	0%		24.7%	0%	33.8%	7.4%	0%		41.3%	0%	0.1%	0.1%	0%		0.2%	12.6%	21.2%	0%	0%		33.9%	**-**
PHF	0.79	0	0.93	0.25		0.95	0.25	0.92	0.84	0		0.91	0.25	0.25	0.25	0		0.63	0.93	0.97	0	0		0.96	**-**
Heavy	1	0	1	0		2	0	12	2	0		14	0	0	0	0		0	6	9	0	0		15	**-**
Heavy %	0.6%	0%	0.2%	0%		0.3%	0%	1.2%	0.9%	0%		1.2%	0%	0%	0%	0%		0%	1.7%	1.5%	0%	0%		1.6%	**-**
Lights	167	0	532	1		700	1	950	209	0		1160	1	2	2	0		5	353	595	0	0		948	**-**
Lights %	99.4%	0%	99.8%	100%		99.7%	100%	98.8%	99.1%	0%		98.8%	100%	100%	100%	0%		100%	98.3%	98.5%	0%	0%		98.4%	**-**
Single-Unit Trucks	1	0	0	0		1	0	8	1	0		9	0	0	0	0		0	5	4	0	0		9	**-**
Single-Unit Trucks %	0.6%	0%	0%	0%		0.1%	0%	0.8%	0.5%	0%		0.8%	0%	0%	0%	0%		0%	1.4%	0.7%	0%	0%		0.9%	**-**
Buses	0	0	1	0		1	0	4	0	0		4	0	0	0	0		0	0	4	0	0		4	**-**
Buses %	0%	0%	0.2%	0%		0.1%	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.4%	**-**
Articulated Trucks	0	0	0	0		0	0	0	1	0		1	0	0	0	0		0	1	1	0	0		2	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0.5%	0%		0.1%	0%	0%	0%	0%		0%	0.3%	0.2%	0%	0%		0.2%	**-**
Pedestrians	-	-	-	-	20	-	-	-	-	-	0	-	-	-	-	-	11	-	-	-	-	-	13	-	**-**
Pedestrians%	-	-	-	-	44.4%		-	-	-	-	0%		-	-	-	-	24.4%		-	-	-	-	28.9%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	2.2%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: CAWTHRA RD & LAKESHORE RD
Date: Thu, Mar 01, 2018 Deployment Lead: Theo Daglis

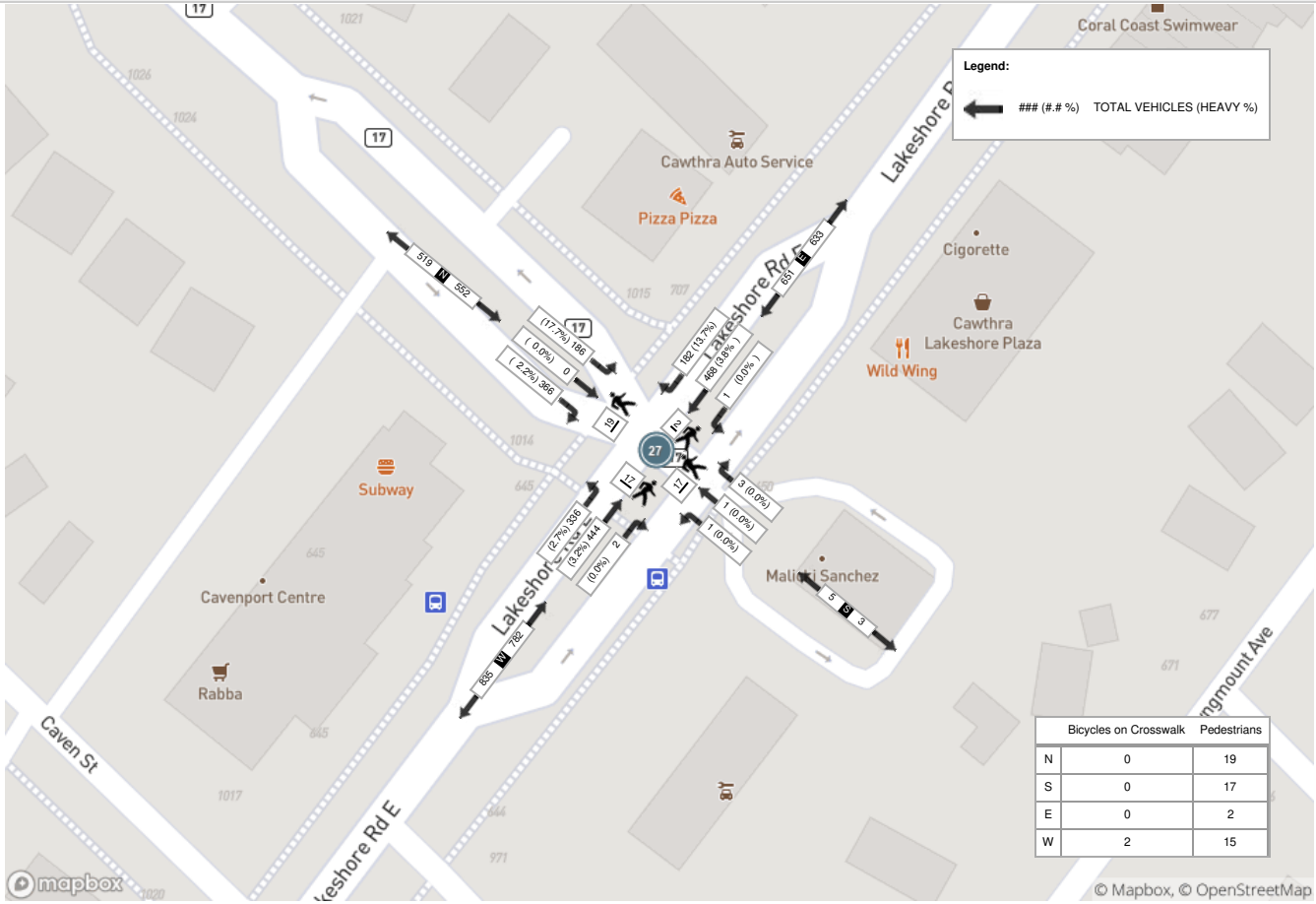
Peak Hour: 07:45 AM - 08:45 AM **Weather: Partly Cloudy (-0.8 °C)**



Spectrum

Turning Movement Count
Location Name: CAWTHRA RD & LAKESHORE RD
Date: Thu, Mar 01, 2018 Deployment Lead: Theo Daglis

Peak Hour: 11:30 AM - 12:30 PM Weather: Overcast (3.5 °C)

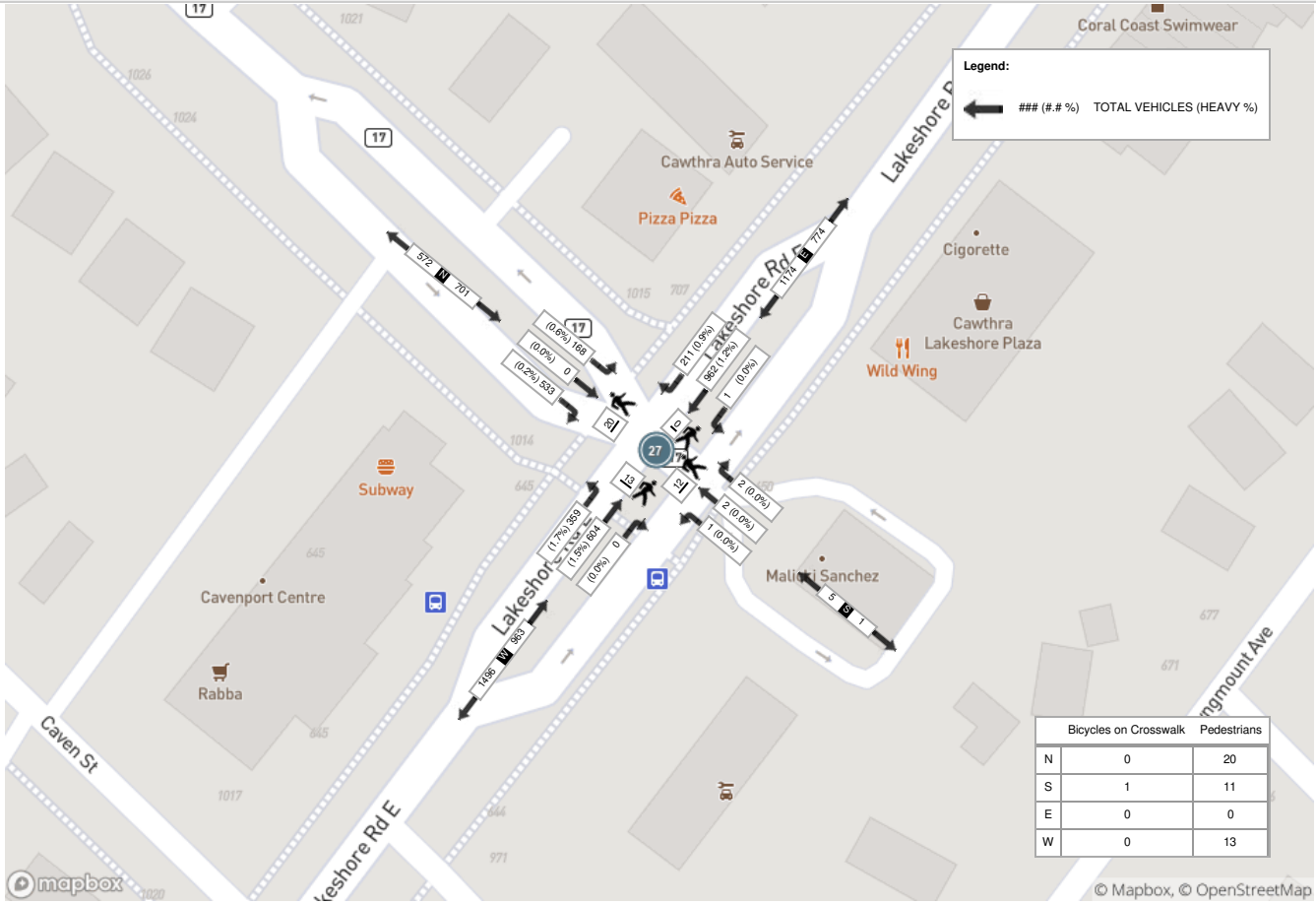


	Bicycles on Crosswalk	Pedestrians
N	0	19
S	0	17
E	0	2
W	2	15

Spectrum

Turning Movement Count
Location Name: CAWTHRA RD & LAKESHORE RD
Date: Thu, Mar 01, 2018 Deployment Lead: Theo Daglis

Peak Hour: 04:45 PM - 05:45 PM **Weather: Overcast (1.9 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	20
S	1	11
E	0	0
W	0	13

Signal Timing Report

Runtime: 2021-03-03 12:55:36

Device: 0712

Region: Mississauga **Signal ID:** 0712 **Location:** LAKESHORE ROAD E at Hampton Crescent / Lagoon Street

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	8	0	9	0	8	0	9
Ped Clear	Sec	0	12	0	12	0	12	0	12
Min Green	Sec	0	8	0	8	0	8	0	8
Passage	Sec	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
Maximum 1	Sec	0	13	0	25	0	13	0	25
Maximum 2	Sec	0	13	0	25	0	13	0	25
Yellow Change	Sec	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	3.0	0.0	2.5	0.0	3.0	0.0	2.5
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	other	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	0	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	0	2	0	2
[P2] Concurrency	Phase (,)	()	(6)	()	(8)	()	(2)	()	(4)

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	140	100	120	0	0	0	0	0
Offset	Sec	73	10	14	0	0	0	0	0
Split	Split	1	2	3	0	0	0	0	0
Sequence	Sequence	1	1	1	0	0	0	0	0

Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	0	108	0	32	0	108	0	32
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	0	69	0	31	0	69	0	31
Split 2 - Coord	Enum	false	true	false	false	false	true	false	false

Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	0	89	0	31	0	89	0	31
Split 3 - Coord	Enum	false	true	false	false	false	true	false	false
TB Schedule	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F----------	---A-------	----M------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	12345678901234 56789012345678 901	12345678901234 56789012345678 901	12345678901234 56789012345678 901	1---------- -------	----------5--------- -------	-2---------- --------	---------- 4-------	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	-2---------- -------	-----6---------- -------	----------1---------- -------	---------- -7----	---------- --8---	---------- 4-------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0
TB Dayplan	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Plan 1 Hour	Hour	0	6	9	15	19	3	0	0
Plan 1 Minute	Min	0	0	30	0	30	0	0	0
Plan 1 Action	Number	8	1	2	3	2	7	0	0
Plan 2 Hour	Hour	0	7	3	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	2	7	0	0	0	0	0
Plan 3 Hour	Hour	0	8	23	3	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	2	8	7	0	0	0	0
TB Action	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Free	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

Signal Timing Report

Runtime: 2021-03-03 12:05:15

Device: 0101

Region: Mississauga **Signal ID:** 0101 **Location:** LAKESHORE ROAD E at Cawthra Road

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	12	0	11	0	12	0	0
Ped Clear	Sec	0	20	0	18	0	20	0	0
Min Green	Sec	0	8	8	8	10	8	0	8
Passage	Sec	0.0	5.0	5.0	5.0	3.0	5.0	0.0	5.0
Maximum 1	Sec	0	40	25	25	15	40	0	0
Maximum 2	Sec	0	40	25	25	15	40	0	0
Yellow Change	Sec	3.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	2.5	2.7	2.7	0.0	2.5	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	other	redClear	phaseNotOn	phaseNotOn	phaseNotOn	redClear	other	other
[P2] Options	Bit	0	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In Walk	Enabled Non Lock Det	Enabled Non Lock Det Dual Entry	Enabled Non Lock Det	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In	0	Enabled Dual Entry
[P2] Ring	Ring	0	1	1	1	2	2	0	0
[P2] Concurrency	Phase (,)	()	(5,6)	()	()	(2)	(2)	()	()

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	120	100	120	0	0	0	0	0
Offset	Sec	74	42	112	0	0	0	0	0
Split	Split	1	2	3	0	0	0	0	0
Sequence	Sequence	1	1	1	0	0	0	0	0

Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	0	67	24	29	27	40	0	0
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	0	57	18	25	18	39	0	0
Split 2 - Coord	Enum	false	true	false	false	false	true	false	false
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	0	67	24	29	27	40	0	0
Split 3 - Coord	Enum	false	true	false	false	false	true	false	false

TB Schedule	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASON	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---------- -------	----------5--------- -------	-2---------- ---------	---------- 4-------	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	-2---------- -------	-----6---------- -------	---------1---------- -------	---------- -7----	---------- --8---	---------- -4-------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0

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

TB Action	Units	1	2	3	4	5	6	7	8
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Free	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

APPENDIX D

Level of Service Definitions

Level of Service Definitions

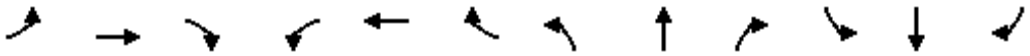
Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare.
B	> 10 and ≤ 15	VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal.
C	> 15 and ≤ 25	GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable.
D	> 25 and ≤ 35	FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street.
E	> 35 and ≤ 50	POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable.
F	> 50	UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX E

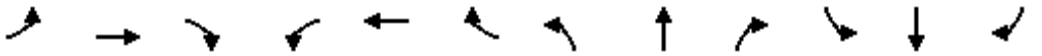
Detailed Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	931	14	12	1527	85	10	5	13	64	3	125
Future Volume (vph)	145	931	14	12	1527	85	10	5	13	64	3	125
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		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.93	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.94	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.89		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	3455		1803	3267		1676	1573		1613	1461	
Flt Permitted	0.07	1.00		0.24	1.00		0.67	1.00		0.75	1.00	
Satd. Flow (perm)	131	3455		454	3267		1179	1573		1265	1461	
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)	158	1012	15	13	1660	92	11	5	14	70	3	136
RTOR Reduction (vph)	0	1	0	0	5	0	0	11	0	0	44	0
Lane Group Flow (vph)	158	1026	0	13	1747	0	11	8	0	70	95	0
Confl. Peds. (#/hr)	1		1	2		2	6		6	49		49
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	55.8	55.8		55.8	55.8		21.4	21.4		21.4	21.4	
Effective Green, g (s)	55.8	55.8		55.8	55.8		21.4	21.4		21.4	21.4	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.24	0.24		0.24	0.24	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	80	2125		279	2009		278	371		298	344	
v/s Ratio Prot		0.30			0.53			0.01			c0.07	
v/s Ratio Perm	c1.21			0.03			0.01			0.06		
v/c Ratio	1.98	0.48		0.05	0.87		0.04	0.02		0.23	0.28	
Uniform Delay, d1	17.5	9.6		6.9	14.4		26.7	26.6		28.0	28.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	480.4	0.2		0.1	4.3		0.3	0.1		1.8	2.0	
Delay (s)	497.8	9.7		7.0	18.8		27.0	26.7		29.9	30.3	
Level of Service	F	A		A	B		C	C		C	C	
Approach Delay (s)		74.8			18.7			26.8			30.2	
Approach LOS		E			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



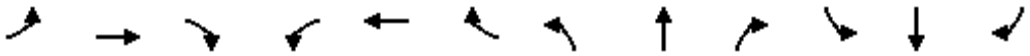
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	613	0	1	977	214	1	2	2	171	0	541
Future Volume (vph)	364	613	0	1	977	214	1	2	2	171	0	541
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Total Lost time (s)	3.0	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.97			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	0.95	1.00
Satd. Flow (prot)	1767	3610		1805	3513			1751		1679	1715	1359
Flt Permitted	0.11	1.00		0.40	1.00			0.54		0.95	0.95	1.00
Satd. Flow (perm)	204	3610		757	3513			951		1679	1715	1359
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)	396	666	0	1	1062	233	1	2	2	186	0	588
RTOR Reduction (vph)	0	0	0	0	16	0	0	2	0	0	0	240
Lane Group Flow (vph)	396	666	0	1	1279	0	0	3	0	93	93	348
Confl. Peds. (#/hr)	13		13				12		12	20		20
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Actuated Green, G (s)	50.5	50.5		33.5	33.5			18.3		31.3	31.3	45.3
Effective Green, g (s)	50.5	50.5		33.5	33.5			18.3		31.3	31.3	45.3
Actuated g/C Ratio	0.42	0.42		0.28	0.28			0.15		0.26	0.26	0.38
Clearance Time (s)	3.0	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	268	1519		211	980			145		437	447	513
v/s Ratio Prot	c0.17	0.18			0.36					0.06	0.05	c0.08
v/s Ratio Perm	c0.45			0.00				c0.00				0.18
v/c Ratio	1.48	0.44		0.00	1.31			0.02		0.21	0.21	0.68
Uniform Delay, d1	34.8	24.7		31.2	43.2			43.2		34.7	34.7	31.2
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	234.0	0.9		0.0	144.8			0.3		1.1	1.1	7.0
Delay (s)	268.8	25.6		31.3	188.1			43.5		35.8	35.7	38.3
Level of Service	F	C		C	F			D		D	D	D
Approach Delay (s)		116.3			187.9			43.5			37.7	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	126.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.9
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Lagoon St & Beachcomber Rd

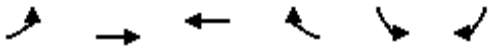
09-19-2021



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	0	0	55	0	0	15	0	55	0	0	0
Future Volume (vph)	0	0	0	55	0	0	15	0	55	0	0	0
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	0	0	60	0	0	16	0	60	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	0	60	16	60	0
Volume Left (vph)	0	60	16	0	0
Volume Right (vph)	0	0	0	60	0
Hadj (s)	0.00	0.23	0.53	-0.67	0.00
Departure Headway (s)	4.1	4.3	5.2	4.0	4.2
Degree Utilization, x	0.00	0.07	0.02	0.07	0.00
Capacity (veh/h)	866	820	679	882	843
Control Delay (s)	7.1	7.6	7.1	6.1	7.2
Approach Delay (s)	0.0	7.6	6.3		0.0
Approach LOS	A	A	A		A

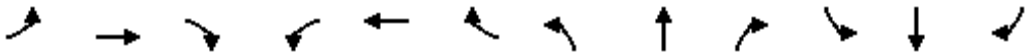
Intersection Summary				
Delay	6.9			
Level of Service	A			
Intersection Capacity Utilization	13.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	1908	614	16	15	38
Future Volume (Veh/h)	17	1908	614	16	15	38
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)	18	2074	667	17	16	41
Pedestrians		2	2			
Lane Width (m)		3.6	3.6			
Walking Speed (m/s)		1.2	1.2			
Percent Blockage		0	0			
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		197	96			
pX, platoon unblocked					0.43	
vC, conflicting volume	684				1750	344
vC1, stage 1 conf vol					676	
vC2, stage 2 conf vol					1075	
vCu, unblocked vol	684				84	344
tC, single (s)	4.3				7.2	7.1
tC, 2 stage (s)					6.2	
tF (s)	2.3				3.7	3.4
p0 queue free %	98				96	94
cM capacity (veh/h)	841				386	634

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	18	1037	1037	445	239	57
Volume Left	18	0	0	0	0	16
Volume Right	0	0	0	0	17	41
cSH	841	1700	1700	1700	1700	537
Volume to Capacity	0.02	0.61	0.61	0.26	0.14	0.11
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.0	2.8
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	12.5
Lane LOS	A					B
Approach Delay (s)	0.1			0.0		12.5
Approach LOS						B

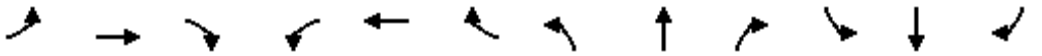
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	931	14	12	1527	85	10	5	13	64	3	125
Future Volume (vph)	145	931	14	12	1527	85	10	5	13	64	3	125
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		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.89	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.90	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.89		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	3455		1803	3267		1672	1568		1555	1408	
Flt Permitted	0.10	1.00		0.26	1.00		0.56	1.00		0.75	1.00	
Satd. Flow (perm)	177	3455		490	3267		982	1568		1219	1408	
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)	158	1012	15	13	1660	92	11	5	14	70	3	136
RTOR Reduction (vph)	0	1	0	0	3	0	0	12	0	0	48	0
Lane Group Flow (vph)	158	1026	0	13	1749	0	11	7	0	70	91	0
Confl. Peds. (#/hr)	1		1	2		2	6		6	49		49
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
Effective Green, g (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
Actuated g/C Ratio	0.75	0.75		0.75	0.75		0.15	0.15		0.15	0.15	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	2603		369	2461		147	235		182	211	
v/s Ratio Prot		0.30			0.54			0.00			c0.06	
v/s Ratio Perm	c0.89			0.03			0.01			0.06		
v/c Ratio	1.19	0.39		0.04	0.71		0.07	0.03		0.38	0.43	
Uniform Delay, d1	17.2	6.0		4.4	9.2		51.1	50.8		53.7	54.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	137.3	0.1		0.0	1.0		1.0	0.2		6.0	6.3	
Delay (s)	154.5	6.1		4.4	10.1		52.1	51.0		59.7	60.3	
Level of Service	F	A		A	B		D	D		E	E	
Approach Delay (s)		25.9			10.1			51.4			60.1	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

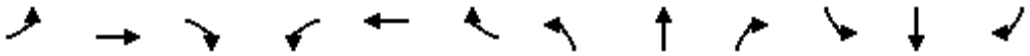
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	613	0	1	977	214	1	2	2	171	0	541
Future Volume (vph)	364	613	0	1	977	214	1	2	2	171	0	541
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Total Lost time (s)	3.0	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.97			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	0.95	1.00
Satd. Flow (prot)	1767	3610		1805	3513			1751		1679	1715	1359
Flt Permitted	0.11	1.00		0.40	1.00			0.54		0.95	0.95	1.00
Satd. Flow (perm)	204	3610		757	3513			951		1679	1715	1359
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)	396	666	0	1	1062	233	1	2	2	186	0	588
RTOR Reduction (vph)	0	0	0	0	16	0	0	2	0	0	0	240
Lane Group Flow (vph)	396	666	0	1	1279	0	0	3	0	93	93	348
Confl. Peds. (#/hr)	13		13				12		12	20		20
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Actuated Green, G (s)	50.5	50.5		33.5	33.5			18.3		31.3	31.3	45.3
Effective Green, g (s)	50.5	50.5		33.5	33.5			18.3		31.3	31.3	45.3
Actuated g/C Ratio	0.42	0.42		0.28	0.28			0.15		0.26	0.26	0.38
Clearance Time (s)	3.0	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	268	1519		211	980			145		437	447	513
v/s Ratio Prot	c0.17	0.18			0.36					0.06	0.05	c0.08
v/s Ratio Perm	c0.45			0.00				c0.00				0.18
v/c Ratio	1.48	0.44		0.00	1.31			0.02		0.21	0.21	0.68
Uniform Delay, d1	34.8	24.7		31.2	43.2			43.2		34.7	34.7	31.2
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	234.0	0.9		0.0	144.8			0.3		1.1	1.1	7.0
Delay (s)	268.8	25.6		31.3	188.1			43.5		35.8	35.7	38.3
Level of Service	F	C		C	F			D		D	D	D
Approach Delay (s)		116.3			187.9			43.5			37.7	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	126.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.9
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

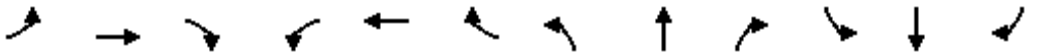
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1812	10	4	0	36	14	1	37	50	1	56
Future Volume (vph)	33	1812	10	4	0	36	14	1	37	50	1	56
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		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.85		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1728	3465		1805	3068		1685	1485		1712	1548	
Flt Permitted	0.73	1.00		0.06	1.00		0.72	1.00		0.73	1.00	
Satd. Flow (perm)	1328	3465		116	3068		1271	1485		1316	1548	
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)	36	1970	11	4	0	39	15	1	40	54	1	61
RTOR Reduction (vph)	0	0	0	0	14	0	0	25	0	0	48	0
Lane Group Flow (vph)	36	1981	0	4	25	0	15	16	0	54	14	0
Confl. Peds. (#/hr)	2		2				1		1	3		3
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	65.3	65.3		65.3	65.3		21.4	21.4		21.4	21.4	
Effective Green, g (s)	65.3	65.3		65.3	65.3		21.4	21.4		21.4	21.4	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.21	0.21		0.21	0.21	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	865	2258		75	1999		271	317		281	330	
v/s Ratio Prot		c0.57			0.01			0.01			0.01	
v/s Ratio Perm	0.03			0.03			0.01			c0.04		
v/c Ratio	0.04	0.88		0.05	0.01		0.06	0.05		0.19	0.04	
Uniform Delay, d1	6.2	14.2		6.3	6.1		31.4	31.3		32.3	31.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	4.2		0.3	0.0		0.4	0.3		1.5	0.2	
Delay (s)	6.3	18.4		6.6	6.1		31.7	31.6		33.8	31.5	
Level of Service	A	B		A	A		C	C		C	C	
Approach Delay (s)		18.2			6.2			31.7			32.6	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

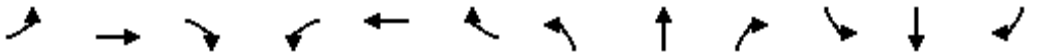
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	519	925	0	1	443	152	0	0	0	239	2	482
Future Volume (vph)	519	925	0	1	443	152	0	0	0	239	2	482
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Total Lost time (s)	3.0	6.5		6.5	6.5					6.7	6.7	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95					0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00					1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.96					1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)	1765	3610		1805	3472					1679	1720	1366
Flt Permitted	0.16	1.00		0.22	1.00					0.95	0.95	1.00
Satd. Flow (perm)	306	3610		424	3472					1679	1720	1366
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)	564	1005	0	1	482	165	0	0	0	260	2	524
RTOR Reduction (vph)	0	0	0	0	30	0	0	0	0	0	0	271
Lane Group Flow (vph)	564	1005	0	1	617	0	0	0	0	130	132	253
Confl. Peds. (#/hr)	17		17				3		3	15		15
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA					Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Actuated Green, G (s)	42.1	42.1		25.1	25.1					31.4	31.4	45.4
Effective Green, g (s)	42.1	42.1		25.1	25.1					31.4	31.4	45.4
Actuated g/C Ratio	0.38	0.38		0.22	0.22					0.28	0.28	0.41
Clearance Time (s)	3.0	6.5		6.5	6.5					6.7	6.7	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)	298	1360		95	780					471	483	555
v/s Ratio Prot	c0.24	0.28			0.18					0.08	0.08	c0.06
v/s Ratio Perm	c0.48			0.00								0.13
v/c Ratio	1.89	0.74		0.01	0.79					0.28	0.27	0.46
Uniform Delay, d1	28.3	30.1		33.6	40.8					31.3	31.3	24.1
Progression Factor	1.00	1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2	414.1	2.1		0.0	5.5					1.5	1.4	2.7
Delay (s)	442.4	32.2		33.7	46.3					32.7	32.7	26.8
Level of Service	F	C		C	D					C	C	C
Approach Delay (s)		179.7			46.3			0.0			28.8	
Approach LOS		F			D			A			C	

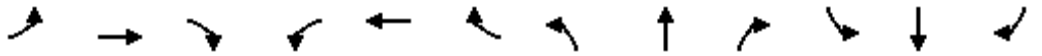
Intersection Summary			
HCM 2000 Control Delay	111.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	111.7	Sum of lost time (s)	22.9
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

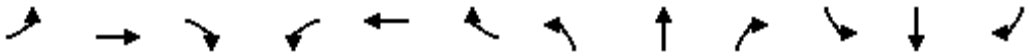


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	52	55	0	0	15	0	195	0	0	0
Future Volume (vph)	0	0	52	55	0	0	15	0	195	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	14.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (m)	7.5			7.5			17.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865						0.850				
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	1611	0	0	1770	0	1770	1583	0	0	1863	0
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	1611	0	0	1770	0	1770	1583	0	0	1863	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.5			25.5			67.9			93.7	
Travel Time (s)		7.3			1.8			4.9			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	57	60	0	0	16	0	212	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	0	0	60	0	16	212	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.5%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1835	10	4	511	12	14	1	46	50	1	56
Future Volume (vph)	33	1835	10	4	511	12	14	1	46	50	1	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	10.0		0.0	13.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			12.0			12.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00					1.00	0.99		0.99	0.98	
Frt		0.999			0.997			0.853			0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3464	0	1805	3279	0	1687	1482	0	1719	1545	0
Flt Permitted	0.439			0.060			0.717			0.724		
Satd. Flow (perm)	800	3464	0	114	3279	0	1271	1482	0	1303	1545	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			5			30			61	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		151.5			140.2			115.2			67.9	
Travel Time (s)		10.9			10.1			8.3			4.9	
Confl. Peds. (#/hr)	2		2				1		1	3		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Adj. Flow (vph)	36	1995	11	4	555	13	15	1	50	54	1	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	2006	0	4	568	0	15	51	0	54	62	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

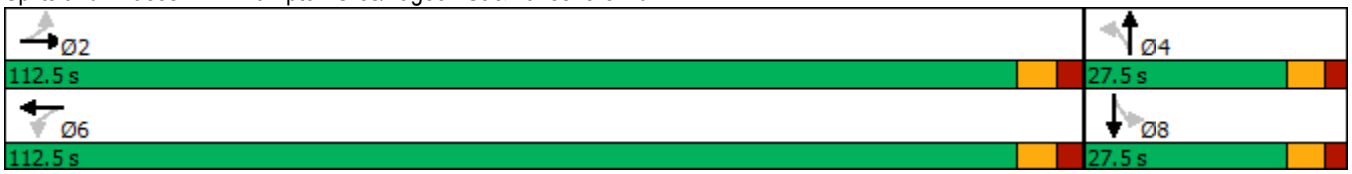


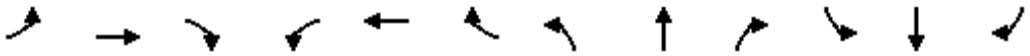
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	27.0	27.0		28.0	28.0		27.5	27.5		27.5	27.5	
Total Split (s)	112.5	112.5		112.5	112.5		27.5	27.5		27.5	27.5	
Total Split (%)	80.4%	80.4%		80.4%	80.4%		19.6%	19.6%		19.6%	19.6%	
Maximum Green (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
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		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.0	67.0		67.0	67.0		21.5	21.5		21.5	21.5	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.21	0.21		0.21	0.21	
v/c Ratio	0.07	0.88		0.05	0.26		0.06	0.15		0.20	0.17	
Control Delay	5.9	19.5		7.0	7.2		40.3	22.7		41.4	12.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	5.9	19.5		7.0	7.2		40.3	22.7		41.4	12.5	
LOS	A	B		A	A		D	C		D	B	
Approach Delay		19.2			7.2			26.7			25.9	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	2.4	159.1		0.3	22.6		2.5	3.5		9.2	0.2	
Queue Length 95th (m)	5.6	191.0		1.5	29.3		10.1	17.0		25.6	13.1	
Internal Link Dist (m)		127.5			116.2			91.2			43.9	
Turn Bay Length (m)	30.0			30.0			10.0			13.0		
Base Capacity (vph)	767	3322		109	3145		266	334		273	372	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.60		0.04	0.18		0.06	0.15		0.20	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 102.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 17.2		Intersection LOS: B	
Intersection Capacity Utilization 79.8%		ICU Level of Service D	

Analysis Period (min) 15

Splits and Phases: 2: Hampton Cres/Lagoon St & Lakeshore Rd E

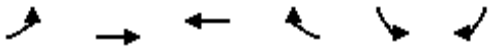




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1835	10	4	511	12	14	1	46	50	1	56
Future Volume (vph)	33	1835	10	4	511	12	14	1	46	50	1	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1732	3465		1805	3277		1685	1483		1712	1548	
Flt Permitted	0.44	1.00		0.06	1.00		0.72	1.00		0.72	1.00	
Satd. Flow (perm)	800	3465		113	3277		1271	1483		1304	1548	
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)	36	1995	11	4	555	13	15	1	50	54	1	61
RTOR Reduction (vph)	0	0	0	0	2	0	0	24	0	0	48	0
Lane Group Flow (vph)	36	2006	0	4	566	0	15	27	0	54	14	0
Confl. Peds. (#/hr)	2		2				1		1	3		3
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	67.0	67.0		67.0	67.0		21.5	21.5		21.5	21.5	
Effective Green, g (s)	67.0	67.0		67.0	67.0		21.5	21.5		21.5	21.5	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.21	0.21		0.21	0.21	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	525	2276		74	2152		267	312		274	326	
v/s Ratio Prot		c0.58			0.17			0.02			0.01	
v/s Ratio Perm	0.05			0.04			0.01			c0.04		
v/c Ratio	0.07	0.88		0.05	0.26		0.06	0.09		0.20	0.04	
Uniform Delay, d1	6.3	14.3		6.2	7.3		32.1	32.4		33.1	32.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	4.4		0.3	0.1		0.4	0.6		1.6	0.2	
Delay (s)	6.3	18.6		6.5	7.3		32.5	32.9		34.7	32.3	
Level of Service	A	B		A	A		C	C		C	C	
Approach Delay (s)		18.4			7.3			32.8			33.4	
Approach LOS		B			A			C			C	

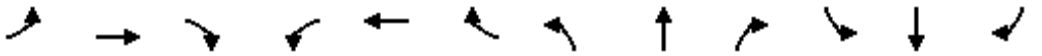
Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	102.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

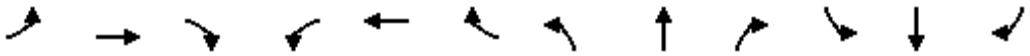


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	1931	626	16	15	38
Future Volume (vph)	17	1931	626	16	15	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	13.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.996		0.903	
Flt Protected	0.950				0.986	
Satd. Flow (prot)	1612	3539	3391	0	1519	0
Flt Permitted	0.950				0.986	
Satd. Flow (perm)	1612	3539	3391	0	1519	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		56.8	95.6		170.1	
Travel Time (s)		4.1	6.9		12.2	
Confl. Peds. (#/hr)					2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	12%	2%	6%	7%	20%	8%
Adj. Flow (vph)	18	2099	680	17	16	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	2099	697	0	57	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.0%		ICU Level of Service C	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	543	937	0	1	448	173	0	0	0	256	2	501
Future Volume (vph)	543	937	0	1	448	173	0	0	0	256	2	501
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Storage Length (m)	17.0		0.0	17.0		0.0	0.0		0.0	58.0		0.0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			13.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99									0.98	0.98	0.97
Frt					0.958							0.850
Flt Protected	0.950			0.950						0.950	0.953	
Satd. Flow (prot)	1767	3610	0	1805	3458	0	0	1900	0	1679	1720	1394
Flt Permitted	0.153			0.217						0.950	0.953	
Satd. Flow (perm)	282	3610	0	412	3458	0	0	1900	0	1647	1689	1352
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					47							455
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.6			120.7			67.0			266.6	
Travel Time (s)		6.9			8.7			4.8			19.2	
Confl. Peds. (#/hr)	17		17				3		3	15		15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	590	1018	0	1	487	188	0	0	0	278	2	545
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	590	1018	0	1	675	0	0	0	0	139	141	545
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.00	1.21
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA					Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Detector Phase	5	2		6	6		3	3		4	4	5
Switch Phase												
Minimum Initial (s)	10.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	10.0
Minimum Split (s)	13.0	38.5		38.5	38.5		14.7	14.7		35.7	35.7	13.0
Total Split (s)	17.0	57.0		40.0	40.0		25.0	25.0		38.0	38.0	17.0
Total Split (%)	14.2%	47.5%		33.3%	33.3%		20.8%	20.8%		31.7%	31.7%	14.2%
Maximum Green (s)	14.0	50.5		33.5	33.5		18.3	18.3		31.3	31.3	14.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	3.0
All-Red Time (s)	0.0	2.5		2.5	2.5		2.7	2.7		2.7	2.7	0.0
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	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)		12.0		12.0	12.0					11.0	11.0	
Flash Dont Walk (s)		20.0		20.0	20.0					18.0	18.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	46.6	43.1		26.0	26.0					31.4	31.4	49.1
Actuated g/C Ratio	0.41	0.38		0.23	0.23					0.28	0.28	0.44
v/c Ratio	1.96	0.74		0.01	0.81					0.30	0.29	0.64
Control Delay	466.0	33.5		32.0	46.2					35.4	35.3	8.2
Queue Delay	0.0	0.0		0.0	0.0					0.0	0.0	0.0
Total Delay	466.0	33.5		32.0	46.2					35.4	35.3	8.2
LOS	F	C		C	D					D	D	A
Approach Delay		192.2			46.2						17.4	
Approach LOS		F			D						B	
Queue Length 50th (m)	~194.8	105.3		0.2	73.1					26.8	27.2	11.8
Queue Length 95th (m)	#276.8	129.4		1.7	94.6					49.2	49.5	48.7
Internal Link Dist (m)		71.6			96.7			43.0			242.6	
Turn Bay Length (m)	17.0			17.0						58.0		
Base Capacity (vph)	301	1620		122	1063					467	478	850
Starvation Cap Reductn	0	0		0	0					0	0	0
Spillback Cap Reductn	0	0		0	0					0	0	0
Storage Cap Reductn	0	0		0	0					0	0	0
Reduced v/c Ratio	1.96	0.63		0.01	0.63					0.30	0.29	0.64

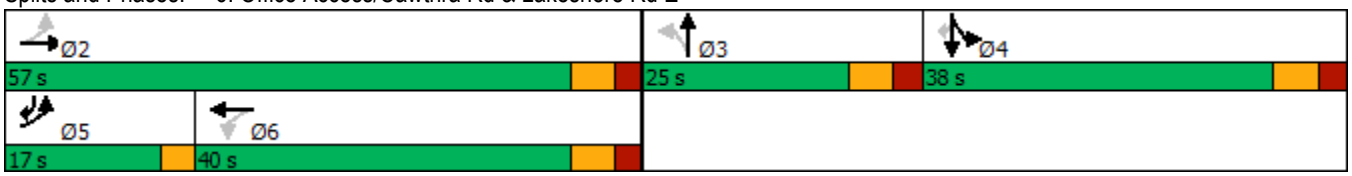
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 112.7			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.96			
Intersection Signal Delay: 114.1		Intersection LOS: F	
Intersection Capacity Utilization 87.1%		ICU Level of Service E	

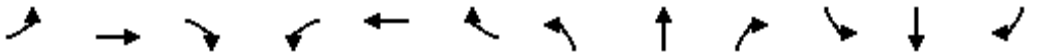
Analysis Period (min) 15

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

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

Splits and Phases: 6: Office Access/Cawthra Rd & Lakeshore Rd E

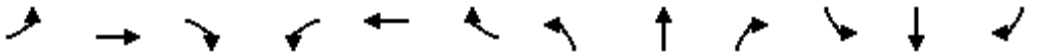




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	543	937	0	1	448	173	0	0	0	256	2	501
Future Volume (vph)	543	937	0	1	448	173	0	0	0	256	2	501
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Total Lost time (s)	3.0	6.5		6.5	6.5					6.7	6.7	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95					0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00					1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00					1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.96					1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)	1765	3610		1805	3459					1679	1720	1366
Flt Permitted	0.15	1.00		0.22	1.00					0.95	0.95	1.00
Satd. Flow (perm)	285	3610		412	3459					1679	1720	1366
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)	590	1018	0	1	487	188	0	0	0	278	2	545
RTOR Reduction (vph)	0	0	0	0	36	0	0	0	0	0	0	272
Lane Group Flow (vph)	590	1018	0	1	639	0	0	0	0	139	141	273
Confl. Peds. (#/hr)	17		17				3		3	15		15
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA					Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Actuated Green, G (s)	43.1	43.1		26.1	26.1					31.4	31.4	45.4
Effective Green, g (s)	43.1	43.1		26.1	26.1					31.4	31.4	45.4
Actuated g/C Ratio	0.38	0.38		0.23	0.23					0.28	0.28	0.40
Clearance Time (s)	3.0	6.5		6.5	6.5					6.7	6.7	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)	292	1380		95	801					467	479	550
v/s Ratio Prot	c0.25	0.28			0.18					0.08	0.08	c0.06
v/s Ratio Perm	c0.52			0.00								0.14
v/c Ratio	2.02	0.74		0.01	0.80					0.30	0.29	0.50
Uniform Delay, d1	28.6	29.9		33.4	40.8					32.0	31.9	25.1
Progression Factor	1.00	1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2	471.1	2.1		0.0	5.6					1.6	1.6	3.2
Delay (s)	499.7	32.0		33.4	46.4					33.6	33.5	28.3
Level of Service	F	C		C	D					C	C	C
Approach Delay (s)		203.6			46.4			0.0			30.1	
Approach LOS		F			D			A			C	

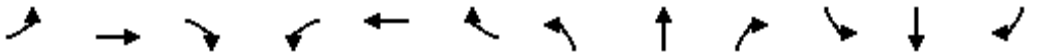
Intersection Summary			
HCM 2000 Control Delay	123.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	112.7	Sum of lost time (s)	22.9
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

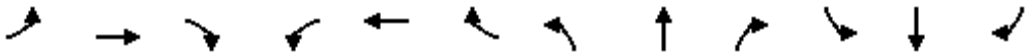


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	30	168	0	0	51	0	184	0	0	0
Future Volume (vph)	0	0	30	168	0	0	51	0	184	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	14.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (m)	7.5			7.5			17.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865						0.850				
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	1611	0	0	1770	0	1770	1583	0	0	1863	0
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	1611	0	0	1770	0	1770	1583	0	0	1863	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.5			25.5			67.9			93.7	
Travel Time (s)		7.3			1.8			4.9			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	33	183	0	0	55	0	200	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	183	0	55	200	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	1021	15	12	1642	86	11	5	14	68	3	127
Future Volume (vph)	154	1021	15	12	1642	86	11	5	14	68	3	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	10.0		0.0	13.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			12.0			12.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00		0.99	0.98		0.90	0.89	
Frt		0.998			0.993			0.887			0.853	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3456	0	1805	3269	0	1687	1562	0	1719	1408	0
Flt Permitted	0.079			0.229			0.552			0.744		
Satd. Flow (perm)	144	3456	0	435	3269	0	971	1562	0	1218	1408	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			11			15			45	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		151.5			140.2			115.2			67.9	
Travel Time (s)		10.9			10.1			8.3			4.9	
Confl. Peds. (#/hr)	1		1	2		2	6		6	49		49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Adj. Flow (vph)	167	1110	16	13	1785	93	12	5	15	74	3	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	1126	0	13	1878	0	12	20	0	74	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	27.0	27.0		28.0	28.0		27.5	27.5		27.5	27.5	
Total Split (s)	112.5	112.5		112.5	112.5		27.5	27.5		27.5	27.5	
Total Split (%)	80.4%	80.4%		80.4%	80.4%		19.6%	19.6%		19.6%	19.6%	
Maximum Green (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
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		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
Actuated g/C Ratio	0.75	0.75		0.75	0.75		0.15	0.15		0.15	0.15	
v/c Ratio	1.55	0.43		0.04	0.76		0.08	0.08		0.41	0.57	
Control Delay	307.5	6.9		4.8	12.5		53.1	27.1		61.4	47.0	
Queue Delay	0.0	0.0		0.0	0.9		0.0	0.0		0.0	0.0	
Total Delay	307.5	6.9		4.8	13.4		53.1	27.1		61.4	47.0	
LOS	F	A		A	B		D	C		E	D	
Approach Delay		45.7			13.4			36.8			51.9	
Approach LOS		D			B			D			D	
Queue Length 50th (m)	~36.2	55.5		0.9	146.4		3.1	1.3		19.8	26.1	
Queue Length 95th (m)	#85.9	66.3		2.7	174.3		9.7	9.3		36.9	50.0	
Internal Link Dist (m)		127.5			116.2			91.2			43.9	
Turn Bay Length (m)	30.0			30.0			10.0			13.0		
Base Capacity (vph)	108	2605		327	2466		145	247		182	249	
Starvation Cap Reductn	0	0		0	304		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	1.55	0.43		0.04	0.87		0.08	0.08		0.41	0.57	

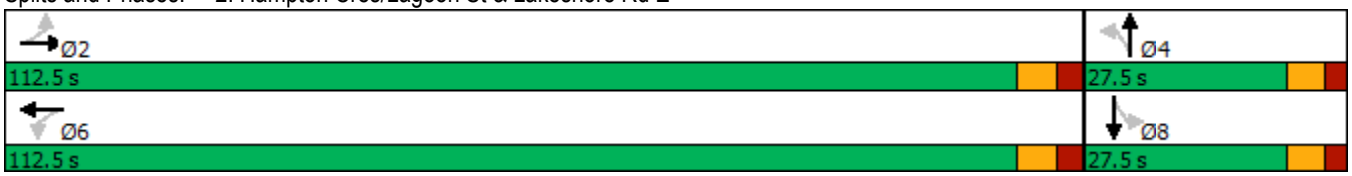
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.55			
Intersection Signal Delay: 28.2		Intersection LOS: C	
Intersection Capacity Utilization 91.3%		ICU Level of Service F	

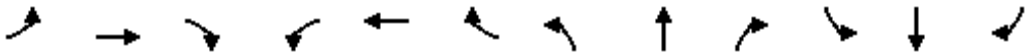
Analysis Period (min) 15

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

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

Splits and Phases: 2: Hampton Cres/Lagoon St & Lakeshore Rd E

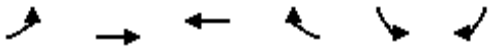




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	1021	15	12	1642	86	11	5	14	68	3	127
Future Volume (vph)	154	1021	15	12	1642	86	11	5	14	68	3	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.89	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.90	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.89		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	3455		1803	3268		1672	1562		1555	1408	
Flt Permitted	0.08	1.00		0.23	1.00		0.55	1.00		0.74	1.00	
Satd. Flow (perm)	144	3455		435	3268		972	1562		1219	1408	
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)	167	1110	16	13	1785	93	12	5	15	74	3	138
RTOR Reduction (vph)	0	1	0	0	3	0	0	13	0	0	38	0
Lane Group Flow (vph)	167	1125	0	13	1875	0	12	7	0	74	103	0
Confl. Peds. (#/hr)	1		1	2		2	6		6	49		49
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
Effective Green, g (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
Actuated g/C Ratio	0.75	0.75		0.75	0.75		0.15	0.15		0.15	0.15	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	2603		327	2462		145	234		182	211	
v/s Ratio Prot		0.33			0.57			0.00			c0.07	
v/s Ratio Perm	c1.16			0.03			0.01			0.06		
v/c Ratio	1.55	0.43		0.04	0.76		0.08	0.03		0.41	0.49	
Uniform Delay, d1	17.2	6.3		4.4	10.0		51.2	50.8		53.9	54.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	286.3	0.1		0.1	1.4		1.1	0.2		6.6	7.8	
Delay (s)	303.6	6.4		4.4	11.4		52.3	51.1		60.5	62.4	
Level of Service	F	A		A	B		D	D		E	E	
Approach Delay (s)		44.8			11.4			51.5			61.7	
Approach LOS		D			B			D			E	

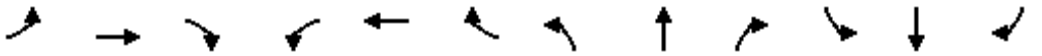
Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

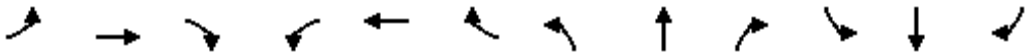


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	1296	1724	40	9	54
Future Volume (vph)	68	1296	1724	40	9	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	13.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.885	
Flt Protected	0.950				0.993	
Satd. Flow (prot)	1612	3539	3395	0	1522	0
Flt Permitted	0.950				0.993	
Satd. Flow (perm)	1612	3539	3395	0	1522	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		56.8	95.6		170.1	
Travel Time (s)		4.1	6.9		12.2	
Confl. Peds. (#/hr)				4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	12%	2%	6%	7%	20%	8%
Adj. Flow (vph)	74	1409	1874	43	10	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	1409	1917	0	69	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.5%		ICU Level of Service C	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	641	0	1	1019	235	1	2	2	196	0	570
Future Volume (vph)	380	641	0	1	1019	235	1	2	2	196	0	570
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Storage Length (m)	17.0		0.0	17.0		0.0	0.0		0.0	58.0		0.0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			13.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor								0.98		0.98	0.98	0.96
Frt					0.972			0.946				0.850
Flt Protected	0.950			0.950				0.990		0.950	0.950	
Satd. Flow (prot)	1767	3610	0	1805	3509	0	0	1754	0	1679	1715	1394
Flt Permitted	0.110			0.387				0.538		0.950	0.950	
Satd. Flow (perm)	205	3610	0	735	3509	0	0	952	0	1637	1672	1343
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					23			2				385
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.6			120.7			67.0			266.6	
Travel Time (s)		6.9			8.7			4.8			19.2	
Confl. Peds. (#/hr)	13		13				12		12	20		20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	413	697	0	1	1108	255	1	2	2	213	0	620
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	413	697	0	1	1363	0	0	5	0	106	107	620
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.00	1.21
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Detector Phase	5	2		6	6		3	3		4	4	5
Switch Phase												
Minimum Initial (s)	10.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	10.0
Minimum Split (s)	13.0	38.5		38.5	38.5		14.7	14.7		35.7	35.7	13.0
Total Split (s)	17.0	57.0		40.0	40.0		25.0	25.0		38.0	38.0	17.0
Total Split (%)	14.2%	47.5%		33.3%	33.3%		20.8%	20.8%		31.7%	31.7%	14.2%
Maximum Green (s)	14.0	50.5		33.5	33.5		18.3	18.3		31.3	31.3	14.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	3.0
All-Red Time (s)	0.0	2.5		2.5	2.5		2.7	2.7		2.7	2.7	0.0
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	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max
Walk Time (s)		12.0		12.0	12.0					11.0	11.0	
Flash Dont Walk (s)		20.0		20.0	20.0					18.0	18.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	54.0	50.5		33.5	33.5			18.3		31.3	31.3	49.0
Actuated g/C Ratio	0.45	0.42		0.28	0.28			0.15		0.26	0.26	0.41
v/c Ratio	1.51	0.46		0.00	1.37			0.03		0.24	0.24	0.79
Control Delay	272.9	26.2		31.0	206.6			37.0		36.8	36.8	19.0
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay	272.9	26.2		31.0	206.6			37.0		36.8	36.8	19.0
LOS	F	C		C	F			D		D	D	B
Approach Delay		118.0			206.5			37.0			23.6	
Approach LOS		F			F			D			C	
Queue Length 50th (m)	~125.2	64.2		0.2	~234.1			0.7		21.8	22.1	49.1
Queue Length 95th (m)	#189.8	81.5		1.6	#279.1			4.6		38.7	38.9	102.5
Internal Link Dist (m)		71.6			96.7			43.0			242.6	
Turn Bay Length (m)	17.0			17.0						58.0		
Base Capacity (vph)	274	1519		205	996			146		437	447	782
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	1.51	0.46		0.00	1.37			0.03		0.24	0.24	0.79

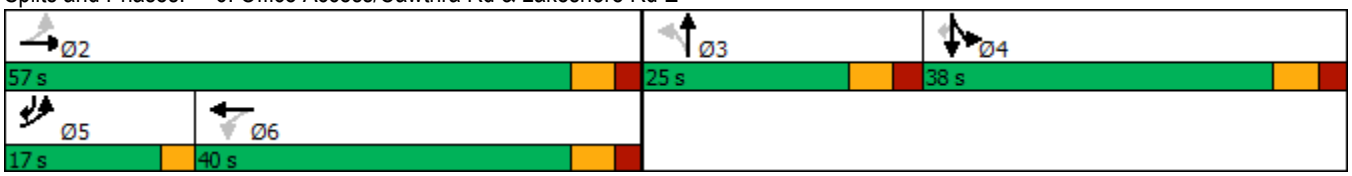
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.51			
Intersection Signal Delay: 130.6		Intersection LOS: F	
Intersection Capacity Utilization 99.5%		ICU Level of Service F	

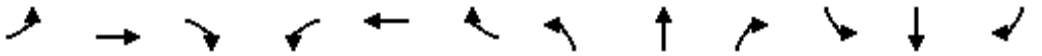
Analysis Period (min) 15

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

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

Splits and Phases: 6: Office Access/Cawthra Rd & Lakeshore Rd E

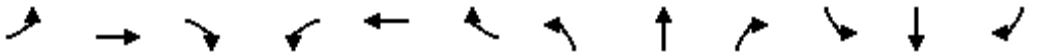




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	641	0	1	1019	235	1	2	2	196	0	570
Future Volume (vph)	380	641	0	1	1019	235	1	2	2	196	0	570
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Total Lost time (s)	3.0	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.97			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	0.95	1.00
Satd. Flow (prot)	1767	3610		1805	3509			1752		1679	1715	1359
Flt Permitted	0.11	1.00		0.39	1.00			0.54		0.95	0.95	1.00
Satd. Flow (perm)	204	3610		735	3509			951		1679	1715	1359
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)	413	697	0	1	1108	255	1	2	2	213	0	620
RTOR Reduction (vph)	0	0	0	0	17	0	0	2	0	0	0	240
Lane Group Flow (vph)	413	697	0	1	1346	0	0	3	0	106	107	380
Confl. Peds. (#/hr)	13		13				12		12	20		20
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Actuated Green, G (s)	50.5	50.5		33.5	33.5			18.3		31.3	31.3	45.3
Effective Green, g (s)	50.5	50.5		33.5	33.5			18.3		31.3	31.3	45.3
Actuated g/C Ratio	0.42	0.42		0.28	0.28			0.15		0.26	0.26	0.38
Clearance Time (s)	3.0	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	268	1519		205	979			145		437	447	513
v/s Ratio Prot	c0.18	0.19			0.38					0.06	0.06	c0.09
v/s Ratio Perm	c0.47			0.00				c0.00				0.19
v/c Ratio	1.54	0.46		0.00	1.38			0.02		0.24	0.24	0.74
Uniform Delay, d1	34.8	24.9		31.2	43.2			43.2		35.0	35.0	32.3
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	261.3	1.0		0.0	175.4			0.3		1.3	1.3	9.3
Delay (s)	296.1	25.9		31.3	218.6			43.5		36.3	36.2	41.6
Level of Service	F	C		C	F			D		D	D	D
Approach Delay (s)		126.5			218.5			43.5			40.2	
Approach LOS		F			F			D			D	

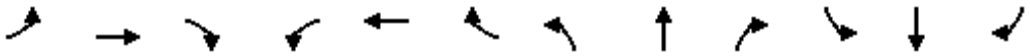
Intersection Summary			
HCM 2000 Control Delay	142.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.9
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	52	77	0	0	15	0	33	0	0	0
Future Volume (vph)	0	0	52	77	0	0	15	0	33	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	14.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (m)	7.5			7.5			17.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865						0.850				
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	1611	0	0	1770	0	1770	1583	0	0	1863	0
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	1611	0	0	1770	0	1770	1583	0	0	1863	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.5			25.5			67.9			93.7	
Travel Time (s)		7.3			1.8			4.9			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	57	84	0	0	16	0	36	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	0	0	84	0	16	36	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

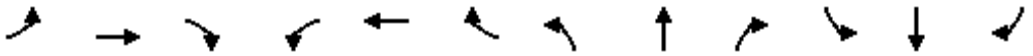
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.9%		ICU Level of Service A	
Analysis Period (min) 15			



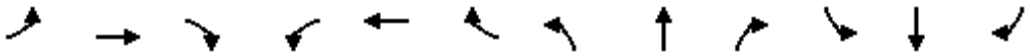
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	52	77	0	0	15	0	33	0	0	0
Future Volume (vph)	0	0	52	77	0	0	15	0	33	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	57	84	0	0	16	0	36	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	57	84	16	36	0
Volume Left (vph)	0	84	16	0	0
Volume Right (vph)	57	0	0	36	0
Hadj (s)	-0.57	0.23	0.53	-0.67	0.00
Departure Headway (s)	3.5	4.3	5.3	4.1	4.4
Degree Utilization, x	0.06	0.10	0.02	0.04	0.00
Capacity (veh/h)	992	822	651	835	804
Control Delay (s)	6.7	7.8	7.3	6.1	7.4
Approach Delay (s)	6.7	7.8	6.5		0.0
Approach LOS	A	A	A		A

Intersection Summary				
Delay	7.1			
Level of Service	A			
Intersection Capacity Utilization	20.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1835	10	4	513	30	14	5	46	53	2	53
Future Volume (vph)	19	1835	10	4	513	30	14	5	46	53	2	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	10.0		0.0	13.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			12.0			12.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00					1.00	0.99		0.99	0.98	
Frt		0.999			0.992			0.864			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3464	0	1805	3272	0	1687	1511	0	1719	1551	0
Flt Permitted	0.427			0.060			0.718			0.721		
Satd. Flow (perm)	778	3464	0	114	3272	0	1273	1511	0	1297	1551	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			12			30			58	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		151.5			140.2			115.2			67.9	
Travel Time (s)		10.9			10.1			8.3			4.9	
Confl. Peds. (#/hr)	2		2				1		1	3		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Adj. Flow (vph)	21	1995	11	4	558	33	15	5	50	58	2	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	2006	0	4	591	0	15	55	0	58	60	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

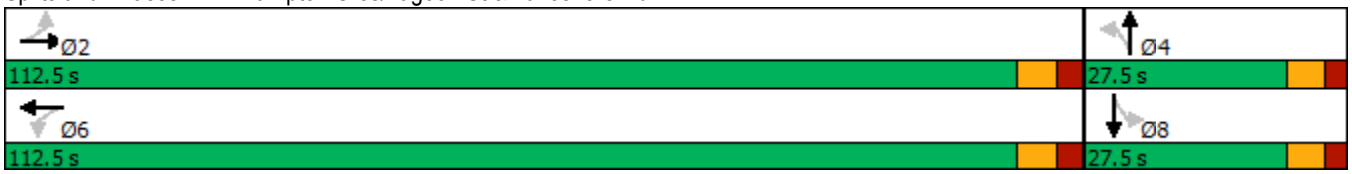


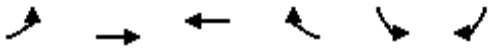
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	27.0	27.0		28.0	28.0		27.5	27.5		27.5	27.5	
Total Split (s)	112.5	112.5		112.5	112.5		27.5	27.5		27.5	27.5	
Total Split (%)	80.4%	80.4%		80.4%	80.4%		19.6%	19.6%		19.6%	19.6%	
Maximum Green (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
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		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.0	67.0		67.0	67.0		21.5	21.5		21.5	21.5	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.21	0.21		0.21	0.21	
v/c Ratio	0.04	0.88		0.05	0.28		0.06	0.16		0.21	0.16	
Control Delay	5.6	19.5		7.0	7.2		40.3	23.7		41.6	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	5.6	19.5		7.0	7.2		40.3	23.7		41.6	12.9	
LOS	A	B		A	A		D	C		D	B	
Approach Delay		19.3			7.2			27.2			27.0	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	1.4	159.1		0.3	23.4		2.5	4.2		10.0	0.3	
Queue Length 95th (m)	3.8	191.0		1.5	30.3		10.1	18.2		27.4	13.1	
Internal Link Dist (m)		127.5			116.2			91.2			43.9	
Turn Bay Length (m)	30.0			30.0			10.0			13.0		
Base Capacity (vph)	746	3322		109	3138		266	340		272	371	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.60		0.04	0.19		0.06	0.16		0.21	0.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 102.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 79.8%		ICU Level of Service D	

Analysis Period (min) 15

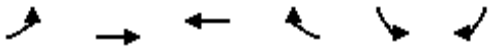
Splits and Phases: 2: Hampton Cres/Lagoon St & Lakeshore Rd E





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	1981	616	2	0	0
Future Volume (vph)	2	1981	616	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	3539	3539	0	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	3539	3539	0	1863	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		140.2	56.8		55.9	
Travel Time (s)		10.1	4.1		4.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	2153	670	2	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	2153	672	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.2	7.2		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100			100	100	100
Sign Control		Free	Free		Stop	

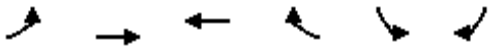
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.1%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	1981	616	2	0	0
Future Volume (Veh/h)	2	1981	616	2	0	0
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)	2	2153	670	2	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		140	152			
pX, platoon unblocked					0.39	
vC, conflicting volume	672				1752	336
vC1, stage 1 conf vol					671	
vC2, stage 2 conf vol					1080	
vCu, unblocked vol	672				0	336
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	915				400	660

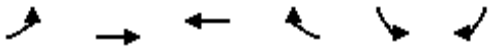
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	2	1076	1076	447	225	0
Volume Left	2	0	0	0	0	0
Volume Right	0	0	0	0	2	0
cSH	915	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.63	0.63	0.26	0.13	0.00
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	8.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	A					A
Approach Delay (s)	0.0			0.0		0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	635	16	15	39
Future Volume (vph)	0	0	635	16	15	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	13.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.996		0.902	
Flt Protected					0.986	
Satd. Flow (prot)	1696	3539	3391	0	1518	0
Flt Permitted					0.986	
Satd. Flow (perm)	1696	3539	3391	0	1518	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		56.8	95.6		68.1	
Travel Time (s)		4.1	6.9		4.9	
Confl. Peds. (#/hr)					2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	12%	2%	6%	7%	20%	8%
Adj. Flow (vph)	0	0	690	17	16	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	707	0	58	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

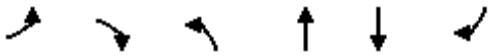
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	635	16	15	39
Future Volume (Veh/h)	0	0	635	16	15	39
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)	0	0	690	17	16	42
Pedestrians		2	2			
Lane Width (m)		3.6	3.6			
Walking Speed (m/s)		1.2	1.2			
Percent Blockage		0	0			
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		197	96			
pX, platoon unblocked						
vC, conflicting volume	707				700	356
vC1, stage 1 conf vol					698	
vC2, stage 2 conf vol					2	
vCu, unblocked vol	707				700	356
tC, single (s)	4.3				7.2	7.1
tC, 2 stage (s)					6.2	
tF (s)	2.3				3.7	3.4
p0 queue free %	100				96	93
cM capacity (veh/h)	824				399	623

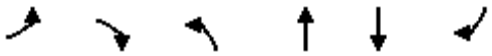
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	0	0	460	247	58
Volume Left	0	0	0	0	0	16
Volume Right	0	0	0	0	17	42
cSH	1700	1700	1700	1700	1700	539
Volume to Capacity	0.00	0.00	0.00	0.27	0.15	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.5
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.5
Approach LOS						B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	127	0	0	16	53	69
Future Volume (vph)	127	0	0	16	53	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.924	
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	0	1863	1721	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	1863	1721	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	34.9			68.1	102.0	
Travel Time (s)	2.5			4.9	7.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	0	0	17	58	75
Shared Lane Traffic (%)						
Lane Group Flow (vph)	138	0	0	17	133	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100	100	100			100
Sign Control	Stop			Stop	Stop	

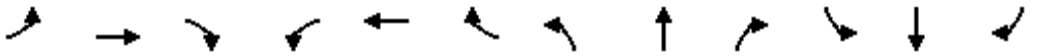
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.7%		ICU Level of Service A	
Analysis Period (min) 15			



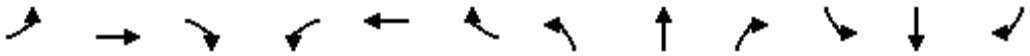
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	127	0	0	16	53	69
Future Volume (vph)	127	0	0	16	53	69
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	138	0	0	17	58	75

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	138	17	133
Volume Left (vph)	138	0	0
Volume Right (vph)	0	0	75
Hadj (s)	0.23	0.03	-0.30
Departure Headway (s)	4.5	4.4	3.9
Degree Utilization, x	0.17	0.02	0.15
Capacity (veh/h)	783	779	882
Control Delay (s)	8.4	7.5	7.6
Approach Delay (s)	8.4	7.5	7.6
Approach LOS	A	A	A

Intersection Summary			
Delay	8.0		
Level of Service	A		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

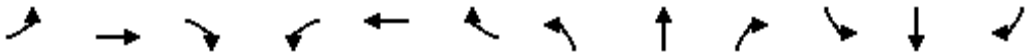


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	559	945	0	1	458	173	0	0	0	256	2	501
Future Volume (vph)	559	945	0	1	458	173	0	0	0	256	2	501
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Storage Length (m)	17.0		0.0	17.0		0.0	0.0		0.0	58.0		0.0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			13.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99									0.98	0.98	0.97
Frt					0.959							0.850
Flt Protected	0.950			0.950						0.950	0.953	
Satd. Flow (prot)	1767	3610	0	1805	3462	0	0	1900	0	1679	1720	1394
Flt Permitted	0.148			0.212						0.950	0.953	
Satd. Flow (perm)	273	3610	0	403	3462	0	0	1900	0	1647	1689	1352
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					45							452
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.6			120.7			67.0			266.6	
Travel Time (s)		6.9			8.7			4.8			19.2	
Confl. Peds. (#/hr)	17		17				3		3	15		15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	608	1027	0	1	498	188	0	0	0	278	2	545
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	608	1027	0	1	686	0	0	0	0	139	141	545
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.00	1.21
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



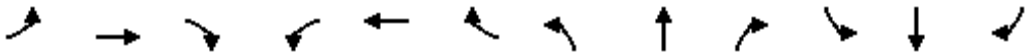
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA					Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Detector Phase	5	2		6	6		3	3		4	4	5
Switch Phase												
Minimum Initial (s)	10.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	10.0
Minimum Split (s)	13.0	38.5		38.5	38.5		14.7	14.7		35.7	35.7	13.0
Total Split (s)	17.0	57.0		40.0	40.0		25.0	25.0		38.0	38.0	17.0
Total Split (%)	14.2%	47.5%		33.3%	33.3%		20.8%	20.8%		31.7%	31.7%	14.2%
Maximum Green (s)	14.0	50.5		33.5	33.5		18.3	18.3		31.3	31.3	14.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	3.0
All-Red Time (s)	0.0	2.5		2.5	2.5		2.7	2.7		2.7	2.7	0.0
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	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)		12.0		12.0	12.0					11.0	11.0	
Flash Dont Walk (s)		20.0		20.0	20.0					18.0	18.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	46.9	43.4		26.4	26.4					31.4	31.4	49.1
Actuated g/C Ratio	0.41	0.38		0.23	0.23					0.28	0.28	0.43
v/c Ratio	2.04	0.74		0.01	0.81					0.30	0.30	0.64
Control Delay	500.2	33.6		32.0	46.6					35.6	35.4	8.4
Queue Delay	0.0	0.0		0.0	0.0					0.0	0.0	0.0
Total Delay	500.2	33.6		32.0	46.6					35.6	35.4	8.4
LOS	F	C		C	D					D	D	A
Approach Delay		207.1			46.6						17.6	
Approach LOS		F			D						B	
Queue Length 50th (m)	~205.7	106.6		0.2	74.8					27.0	27.3	12.3
Queue Length 95th (m)	#288.3	130.9		1.7	96.7					49.2	49.5	49.6
Internal Link Dist (m)		71.6			96.7			43.0			242.6	
Turn Bay Length (m)	17.0			17.0						58.0		
Base Capacity (vph)	298	1615		119	1059					465	477	847
Starvation Cap Reductn	0	0		0	0					0	0	0
Spillback Cap Reductn	0	0		0	0					0	0	0
Storage Cap Reductn	0	0		0	0					0	0	0
Reduced v/c Ratio	2.04	0.64		0.01	0.65					0.30	0.30	0.64

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113.1			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 2.04			
Intersection Signal Delay: 122.4		Intersection LOS: F	
Intersection Capacity Utilization 88.3%		ICU Level of Service E	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	30	71	0	0	51	0	120	0	0	0
Future Volume (vph)	0	0	30	71	0	0	51	0	120	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	14.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (m)	7.5			7.5			17.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865						0.850				
Flt Protected					0.950		0.950					
Satd. Flow (prot)	0	1611	0	0	1770	0	1770	1583	0	0	1863	0
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	1611	0	0	1770	0	1770	1583	0	0	1863	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.5			25.5			67.9			93.7	
Travel Time (s)		7.3			1.8			4.9			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	33	77	0	0	55	0	130	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	77	0	55	130	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

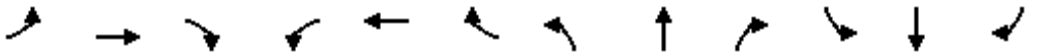
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.7%		ICU Level of Service A	
Analysis Period (min) 15			



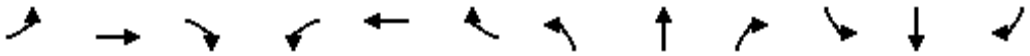
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	30	71	0	0	51	0	120	0	0	0
Future Volume (vph)	0	0	30	71	0	0	51	0	120	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	33	77	0	0	55	0	130	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total (vph)	33	77	55	130	0
Volume Left (vph)	0	77	55	0	0
Volume Right (vph)	33	0	0	130	0
Hadj (s)	-0.57	0.23	0.53	-0.67	0.00
Departure Headway (s)	3.8	4.6	5.3	4.1	4.4
Degree Utilization, x	0.04	0.10	0.08	0.15	0.00
Capacity (veh/h)	892	757	662	853	792
Control Delay (s)	7.0	8.1	7.6	6.6	7.4
Approach Delay (s)	7.0	8.1	6.9		0.0
Approach LOS	A	A	A		A

Intersection Summary				
Delay	7.2			
Level of Service	A			
Intersection Capacity Utilization	24.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	1010	15	12	1639	47	11	13	14	62	7	41
Future Volume (vph)	56	1010	15	12	1639	47	11	13	14	62	7	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	10.0		0.0	13.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			12.0			12.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00		0.99	0.99		0.91	0.91	
Frt		0.998			0.996			0.922			0.873	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3455	0	1805	3275	0	1687	1662	0	1719	1469	0
Flt Permitted	0.062			0.216			0.722			0.738		
Satd. Flow (perm)	113	3455	0	410	3275	0	1268	1662	0	1210	1469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6			15			45	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		151.5			140.2			115.2			67.9	
Travel Time (s)		10.9			10.1			8.3			4.9	
Confl. Peds. (#/hr)	1		1	2		2	6		6	49		49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	20%	0%	10%	0%	7%	0%	8%	5%	0%	3%
Adj. Flow (vph)	61	1098	16	13	1782	51	12	14	15	67	8	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	1114	0	13	1833	0	12	29	0	67	53	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	27.0	27.0		28.0	28.0		27.5	27.5		27.5	27.5	
Total Split (s)	112.5	112.5		112.5	112.5		27.5	27.5		27.5	27.5	
Total Split (%)	80.4%	80.4%		80.4%	80.4%		19.6%	19.6%		19.6%	19.6%	
Maximum Green (s)	105.5	105.5		105.5	105.5		21.0	21.0		21.0	21.0	
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		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	64.7	64.7		64.7	64.7		21.8	21.8		21.8	21.8	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.22	0.22		0.22	0.22	
v/c Ratio	0.85	0.50		0.05	0.87		0.04	0.08		0.26	0.15	
Control Delay	88.9	9.6		5.8	18.8		42.2	27.0		43.3	17.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	88.9	9.6		5.8	18.8		42.2	27.0		43.3	17.1	
LOS	F	A		A	B		D	C		D	B	
Approach Delay		13.7			18.7			31.4			31.7	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	8.4	54.6		0.9	138.3		1.8	2.1		10.7	1.2	
Queue Length 95th (m)	#17.3	65.4		2.7	164.4		9.6	13.5		34.1	15.2	
Internal Link Dist (m)		127.5			116.2			91.2			43.9	
Turn Bay Length (m)	30.0			30.0			10.0			13.0		
Base Capacity (vph)	107	3285		390	3114		275	372		262	354	
Starvation Cap Reductn	0	0		0	91		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	0.57	0.34		0.03	0.61		0.04	0.08		0.26	0.15	

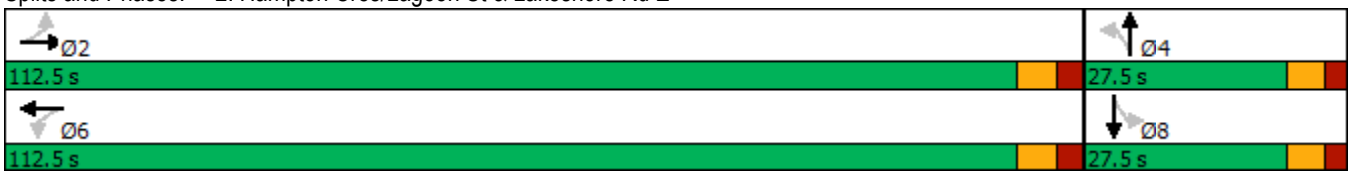
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 100.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 17.5		Intersection LOS: B	
Intersection Capacity Utilization 75.6%		ICU Level of Service D	

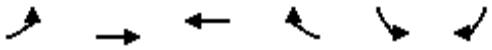
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

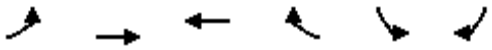
Splits and Phases: 2: Hampton Cres/Lagoon St & Lakeshore Rd E





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	1219	1718	3	0	0
Future Volume (vph)	5	1219	1718	3	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	3539	3539	0	1863	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	3539	3539	0	1863	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		140.2	56.8		55.9	
Travel Time (s)		10.1	4.1		4.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1325	1867	3	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	1325	1870	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.2	7.2		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

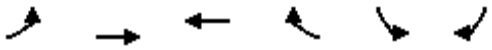
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	1219	1718	3	0	0
Future Volume (Veh/h)	5	1219	1718	3	0	0
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)	5	1325	1867	3	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		140	152			
pX, platoon unblocked	0.73				0.81	0.73
vC, conflicting volume	1870				2541	935
vC1, stage 1 conf vol					1868	
vC2, stage 2 conf vol					672	
vCu, unblocked vol	1449				1500	166
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	100
cM capacity (veh/h)	338				130	619

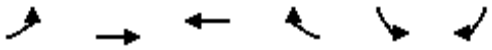
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	5	662	662	1245	625	0
Volume Left	5	0	0	0	0	0
Volume Right	0	0	0	0	3	0
cSH	338	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.39	0.39	0.73	0.37	0.00
Queue Length 95th (m)	0.4	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	15.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					A
Approach Delay (s)	0.1			0.0		0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	1692	41	9	56
Future Volume (vph)	0	0	1692	41	9	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	13.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.996		0.884	
Flt Protected					0.993	
Satd. Flow (prot)	1696	3539	3391	0	1521	0
Flt Permitted					0.993	
Satd. Flow (perm)	1696	3539	3391	0	1521	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		56.8	95.6		68.1	
Travel Time (s)		4.1	6.9		4.9	
Confl. Peds. (#/hr)				4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	12%	2%	6%	7%	20%	8%
Adj. Flow (vph)	0	0	1839	45	10	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1884	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

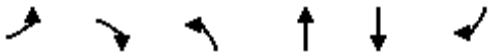
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.7%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	1692	41	9	56
Future Volume (Veh/h)	0	0	1692	41	9	56
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)	0	0	1839	45	10	61
Pedestrians					4	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		197	96			
pX, platoon unblocked	0.73				0.73	0.73
vC, conflicting volume	1888				1866	946
vC1, stage 1 conf vol					1866	
vC2, stage 2 conf vol					0	
vCu, unblocked vol	1469				1438	171
tC, single (s)	4.3				7.2	7.1
tC, 2 stage (s)					6.2	
tF (s)	2.3				3.7	3.4
p0 queue free %	100				91	90
cM capacity (veh/h)	296				111	596

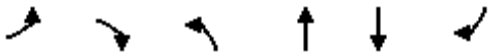
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	0	0	1226	658	71
Volume Left	0	0	0	0	0	10
Volume Right	0	0	0	0	45	61
cSH	1700	1700	1700	1700	1700	368
Volume to Capacity	0.00	0.00	0.00	0.72	0.39	0.19
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	5.6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	17.1
Lane LOS						C
Approach Delay (s)	0.0			0.0		17.1
Approach LOS						C

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	86	0	1	40	63	135
Future Volume (vph)	86	0	1	40	63	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.908	
Flt Protected	0.950			0.999		
Satd. Flow (prot)	1770	0	0	1861	1691	0
Flt Permitted	0.950			0.999		
Satd. Flow (perm)	1770	0	0	1861	1691	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	34.9			68.1	102.0	
Travel Time (s)	2.5			4.9	7.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	0	1	43	68	147
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	0	0	44	215	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Stop	Stop	

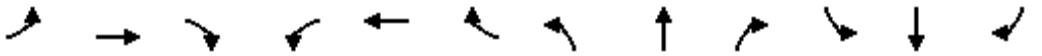
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.0%		ICU Level of Service A	
Analysis Period (min) 15			



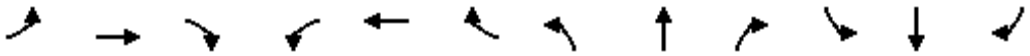
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	86	0	1	40	63	135
Future Volume (vph)	86	0	1	40	63	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	93	0	1	43	68	147

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	93	44	215
Volume Left (vph)	93	1	0
Volume Right (vph)	0	0	147
Hadj (s)	0.23	0.04	-0.38
Departure Headway (s)	4.7	4.4	3.8
Degree Utilization, x	0.12	0.05	0.23
Capacity (veh/h)	723	790	923
Control Delay (s)	8.3	7.6	7.9
Approach Delay (s)	8.3	7.6	7.9
Approach LOS	A	A	A

Intersection Summary			
Delay	8.0		
Level of Service	A		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	624	0	1	1004	235	1	2	2	196	0	554
Future Volume (vph)	380	624	0	1	1004	235	1	2	2	196	0	554
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1860	1900	1640
Storage Length (m)	17.0		0.0	17.0		0.0	0.0		0.0	58.0		0.0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			13.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor								0.98		0.98	0.98	0.96
Frt					0.972			0.946				0.850
Flt Protected	0.950			0.950				0.990		0.950	0.950	
Satd. Flow (prot)	1767	3610	0	1805	3509	0	0	1754	0	1679	1715	1394
Flt Permitted	0.110			0.394				0.538		0.950	0.950	
Satd. Flow (perm)	205	3610	0	749	3509	0	0	952	0	1637	1672	1343
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					23			2				385
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.6			120.7			67.0			266.6	
Travel Time (s)		6.9			8.7			4.8			19.2	
Confl. Peds. (#/hr)	13		13				12		12	20		20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	413	678	0	1	1091	255	1	2	2	213	0	602
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	413	678	0	1	1346	0	0	5	0	106	107	602
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.00	1.21
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Split	NA	pm+ov
Protected Phases	5	2			6			3		4	4	5
Permitted Phases	2			6			3					4
Detector Phase	5	2		6	6		3	3		4	4	5
Switch Phase												
Minimum Initial (s)	10.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	10.0
Minimum Split (s)	13.0	38.5		38.5	38.5		14.7	14.7		35.7	35.7	13.0
Total Split (s)	17.0	57.0		40.0	40.0		25.0	25.0		38.0	38.0	17.0
Total Split (%)	14.2%	47.5%		33.3%	33.3%		20.8%	20.8%		31.7%	31.7%	14.2%
Maximum Green (s)	14.0	50.5		33.5	33.5		18.3	18.3		31.3	31.3	14.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	3.0
All-Red Time (s)	0.0	2.5		2.5	2.5		2.7	2.7		2.7	2.7	0.0
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	6.5		6.5	6.5			6.7		6.7	6.7	3.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max
Walk Time (s)		12.0		12.0	12.0					11.0	11.0	
Flash Dont Walk (s)		20.0		20.0	20.0					18.0	18.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	54.0	50.5		33.5	33.5			18.3		31.3	31.3	49.0
Actuated g/C Ratio	0.45	0.42		0.28	0.28			0.15		0.26	0.26	0.41
v/c Ratio	1.51	0.45		0.00	1.35			0.03		0.24	0.24	0.77
Control Delay	272.9	26.0		31.0	199.5			37.0		36.8	36.8	17.3
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay	272.9	26.0		31.0	199.5			37.0		36.8	36.8	17.3
LOS	F	C		C	F			D		D	D	B
Approach Delay		119.4			199.3			37.0			22.4	
Approach LOS		F			F			D			C	
Queue Length 50th (m)	~125.2	62.0		0.2	~229.4			0.7		21.8	22.1	43.7
Queue Length 95th (m)	#189.8	79.1		1.6	#274.4			4.6		38.7	38.9	94.1
Internal Link Dist (m)		71.6			96.7			43.0			242.6	
Turn Bay Length (m)	17.0			17.0						58.0		
Base Capacity (vph)	274	1519		209	996			146		437	447	782
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	1.51	0.45		0.00	1.35			0.03		0.24	0.24	0.77

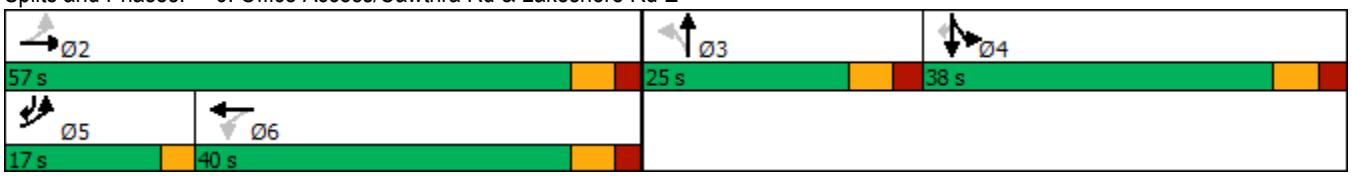
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 135			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.51			
Intersection Signal Delay: 128.1		Intersection LOS: F	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	

Analysis Period (min) 15

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

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

Splits and Phases: 6: Office Access/Cawthra Rd & Lakeshore Rd E

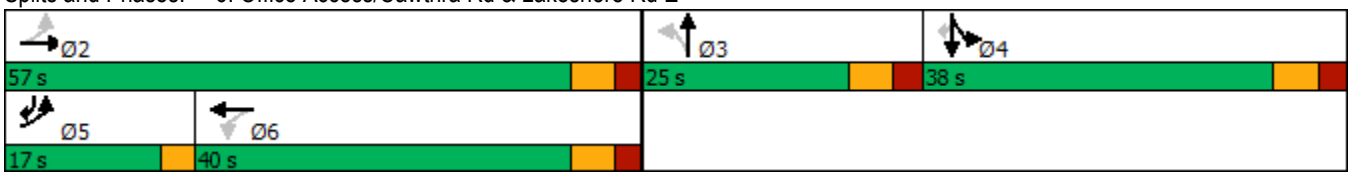


Analysis Period (min) 15

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

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

Splits and Phases: 6: Office Access/Cawthra Rd & Lakeshore Rd E



APPENDIX F

Transportation Tomorrow Survey Results

Fri Mar 26 2021 12:46:39 GMT-0400 (Eastern Daylight Time) - Run Time: 1570ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld
Column: Planning district of destination - pd_dest

Filters:
2006 GTA zone of household - gta06_hhld In 3642
and
Regional municipality of destination - region_dest In 4
and
Planning district of destination - pd_dest In 34,35,36

Trip 2016
ROW: gta06_hhld
COLUMN:pd_dest

gta06_hhld	pd_dest	total
3642	35	101
3642	36	7148

Fri Mar 26 2021 16:43:30 GMT-0400 (Eastern Daylight Time) - Run Time: 2285ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA zone of household - gta06_hhld In 3642, 3876

Trip 2016
ROW : gta06_hhld
COLUMN : mode_prime

gta06_ori	mode_prin	total			2016
3642	Transit No	584	63%	Vehicle	
3642	Cycling	65		Passenger	
3642	Auto	7026		Transit	9.6%
3642	GO only	131	14%	Bike	0.7%
3642	Transit wit	216	23%	Walk	1.7%
3642	Auto Passe	1007			
3642	School Bus	132			
3642	Taxi	67			
3642	Rideshare	81			

3642	Walk	162
3876	auto	235
3876	Auto Passe	30
		9736

Fri Mar 26 2021 12:50:18 GMT-0400 (Eastern Daylight Time) - Run Time: 1851ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld
Column: Regional municipality of destination - region_dest

Filters:
2006 GTA zone of household - gta06_hhld In 3642

Trip 2016
ROW : gta06_hhld
COLUMN : region_dest

gta06_hhld	region_dest	total
3642	1	1852
3642	3	102
3642	4	7249
3642	5	251
		9454

Mon Mar 29 2021 16:41:28 GMT-0400 (Eastern Daylight Time) - Run Time: 2396ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: Regional municipality of origin - region_orig

Filters:
2006 GTA zone of destination - gta06_dest In 3642
and
Trip purpose of destination - purp_dest In M,

Trip 2016
ROW : gta06_dest
COLUMN : region_orig

gta06_de	region_ori	total
3642	1	24
3642	4	747
		771

Mon Mar 29 2021 16:45:00 GMT-0400 (Eastern Daylight Time) - Run Time: 2639ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: Planning district of origin - pd_orig

Filters:
Planning district of origin - pd_orig In 35,36
and
Trip purpose of destination - purp_dest In M,
and
2006 GTA zone of destination - gta06_dest In 3642

Trip 2016
ROW : gta06_dest
COLUMN : pd_orig

gta06_dest	pd_orig	total
3642	36	747

Mon Mar 29 2021 16:54:58 GMT-0400 (Eastern Daylight Time) - Run Time: 2233ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Planning district of origin - pd_orig

Filters:
2006 GTA zone of destination - gta06_dest In 3642
and
Trip purpose of destination - purp_dest In M
and
Planning district of origin - pd_orig In 35,36

Trip 2016
Table:

gta06_orig	total
3612	31
3632	48
3639	24
3640	11
3641	14
3642	179
3643	66

3647	34
3648	138
3649	57
3650	14
3874	15
3876	20
3877	94
3879	2
	747

Mon Mar 29 2021 17:37:11 GMT-0400 (Eastern Daylight Time) - Run Time: 1978ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld

Column: 2006 GTA zone of destination - gta06_dest

Filters:

2006 GTA zone of household - gta06_hhld In 3642

and

Planning district of destination - pd_dest In 36

Trip 2016

Table:

gta06_dest	total	
3605	60	north
3606	37	north
3608	41	north
3609	82	north
3611	19	North
3612	50	north
3614	100	north
3639	96	west
3640	46	west
3641	300	north
3642	3903	north
3643	46	north
3646	10	north
3648	211	north
3649	273	north
3650	39	west
3651	22	west
3653	121	north
3654	60	north
3657	133	north
3659	22	north

3660	111	north
3661	14	north
3665	10	north
3669	89	north
3670	35	north
3671	39	north
3672	17	north
3675	40	north
3680	28	north
3686	11	north
3687	12	north
3690	12	north
3693	13	north
3699	24	north
3700	63	north
3701	13	north
3709	35	north
3710	19	north
3717	37	north
3720	40	north
3812	15	west
3824	22	north
3835	45	north
3842	8	north
3851	10	north
3856	13	north
3859	13	north
3860	13	north
3861	13	north
3862	44	north
3864	41	north
3871	33	north
3874	109	north
3876	149	north
3877	211	north
3878	78	north
	7150	

APPENDIX G

Background Developments

nextrans
CONSULTING ENGINEERS

nextrans.ca

Transportation Impact Study

PROPOSED MIXED-USE DEVELOPMENT

420 Lakeshore Road E
MISSISSAUGA, ONTARIO

June 2020
Project No: NT-20-049

Based on the information above, the non-auto mode of transportation (transit + walking + carpooling) accounts for 33% during the morning peak period and 36% during the afternoon peak period.

5.3. Site Trip Generation

The trip generation forecasts were undertaken using the information contained in the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE). For the purposes of this assessment, the ITE Land Use Codes (LUC) 222 "Multifamily Housing High-Rise General Urban/Suburban" fitted curve equations have been utilized for the proposed development. It should be noted that the "Multifamily Housing High-Rise with First Floor Commercial" Land Use Category can also be used, however, the sample size is very small and may not representative. In addition, since there are only 2 townhouse units, it has been included in the total 195 residential dwelling unit calculations.

It is anticipated that the small-scale ground related retail of 538 m^2 (or 5,791 ft^2) gross floor area will only serve the new residents who live in the proposed buildings, or in the immediate area residents who can walk or bicycle to shop at the proposed development. It is not anticipated to serve larger catchment area and therefore is expected to generate minimal car trips to and from the proposed retail/commercial development. However, for the purposes of this assessment and to be conservative, the retail/commercial component has been included in the analysis. The LUC 820 "Shopping Centre General Urban/Suburban" average rates have been utilized for the proposed development. Given that the proposed retail/commercial component is quite small and located at the bottom of the fitted curb equation where the average rate is similar to the fitted curve. For this reason, the average rates were utilized in the analysis. In addition, the dense multi-use urban category only has two sample size, which is quite small and not very presentative. Therefore, the general urban/suburban category has been utilized. The site trip generation is summarized in Table 5.

Table 5 – Site Trip Generation

ITE Land Use	Magnitude (units/GFA)	Parameters			Morning Peak Hour			Afternoon Peak Hour		
					In	Out	Total	In	Out	Total
Multifamily Housing (High-Rise) LUC 222 General Urban/Suburban	195 units	Trip Rates AM - T = 0.28(X) + 12.86 PM - T = 0.34(X) + 8.56			0.08	0.26	0.34	0.23	0.15	0.38
		Total Trips			16	51	67	46	29	75
		Mode	AM	PM						
		Transit	23%	21%	4	12	16	10	6	16
		Cycling	0%	0%	0	0	0	0	0	0
		Walking	3%	8%	0	2	2	4	2	6
		Passenger	7%	7%	1	4	5	3	2	5
		Auto	67%	64%	11	33	44	29	19	48
Shopping Centre LUC 820 General Urban/Suburban	5,791 ft^2	Trip Rates - Average Rates			0.58	0.36	0.94	1.83	1.98	3.81
		Total Trips			3	2	5	21	1	22
		Mode	AM	PM						
		Transit	23%	21%	1	0	1	4	0	4
		Cycling	0%	0%	0	0	0	0	0	0
		Walking	3%	8%	0	0	0	2	0	2
		Passenger	7%	7%	0	0	0	1	0	1
		Auto	67%	64%	2	2	4	14	1	15
Summary		Total Trips			19	53	72	67	30	97
		Transit Trips			5	12	17	14	6	20
		Active Transportation Trips			0	2	2	6	2	8
		Carpool Trips			1	4	5	4	2	6
		Auto Trips			13	35	48	43	20	63

Based on the analysis noted above, the proposed development is expected to generate:

- 72 total two-way trips (19 inbound and 53 outbound) and 97 total two-way trips (67 inbound and 30 outbound) during the AM and PM peak hours, respectively;
- 48 two-way auto trips (13 inbound and 35 outbound) and 63 two-way auto trips (43 inbound and 20 outbound) during the AM and PM peak hours, respectively;
- 17 two-way transit trips (5 inbound and 12 outbound) and 20 two-way transit trips (14 inbound and 6 outbound) during the AM and PM peak hours, respectively;
- 2 two-way active transportation trips (0 inbound and 2 outbound) and 8 two-way active transportation trips (6 inbound and 2 outbound) during the AM and PM peak hours, respectively; and
- 5 two-way carpool/paid ride trips (1 inbound and 4 outbound) and 6 two-way carpool/paid ride trips (4 inbound and 2 outbound) during the AM and PM peak hours, respectively

5.4. Existing Use Trip Generation

As indicated, the existing site is a beer store and a parking lot. Based on the existing survey information, the existing beer store is approximately 550 m^2 (or 5,920 ft^2). Typically, turning movement counts will be conducted at all existing site driveways to determine the existing auto trip generation from the existing use. However, given the COVID-19 situation, this task is not possible. For the purposes of this assessment, the trip generation estimates for the liquor store (beer store) were undertaken using the information contained in the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE). Land Use Code 899 – Liquor Store is the applicable land use for the existing Beer Store. In addition, since the Beer Store does not open during the morning peak period, no trips were estimated for the morning peak period. A trip generation comparison between the existing use and the proposed mixed-use development has been provided to illustrate the difference in auto trip generation between the two land uses. Table 6 summarizes the auto trip generation comparison.

Table 6 – Trip Generation Comparison (Auto Trip)

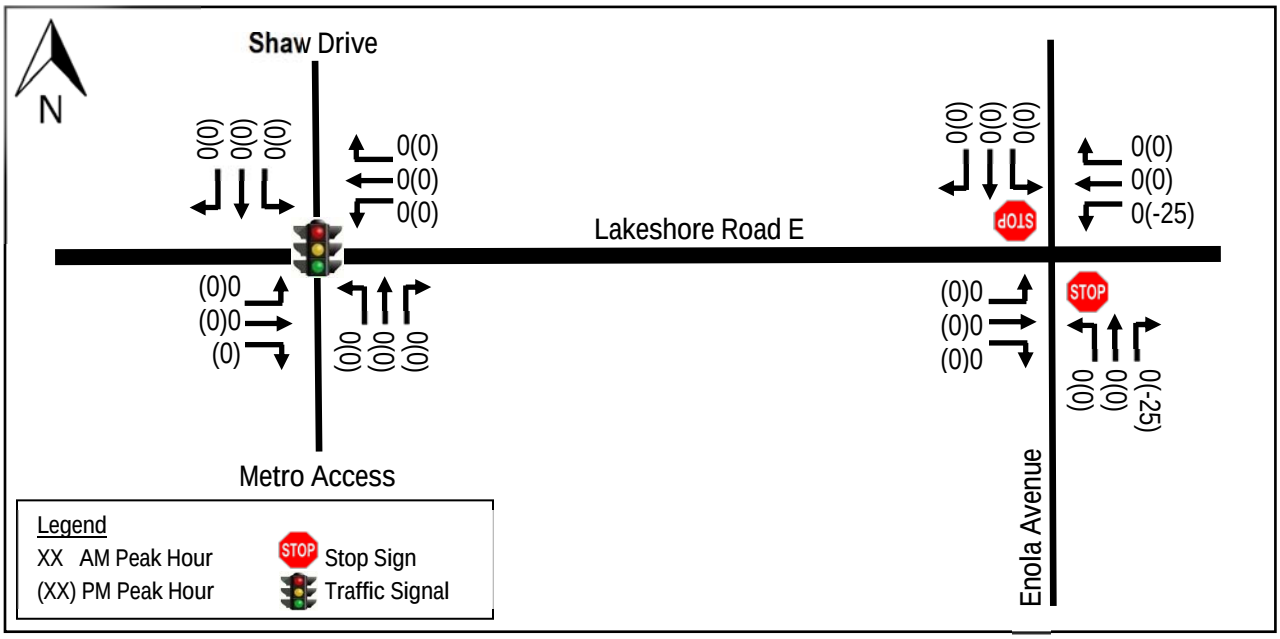
ITE Land Use	Magnitude (GFA/Unit)	Parameters	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Existing Land Use Trip Generation								
Liquor Store (LUC 899) General Urban/Suburban	5,920	Trip Rates AM - None PM - Ln(T) = 0.43Ln(X) + 3.87	0.00	0.00	0.00	8.7	8.7	17.40
		Auto Trips	0	0	0	52	51	103
Proposed Development Trip Generation								
Proposed Development	195 units	Auto Trips	13	35	48	43	20	63
Proposed - Existing								
Difference			13	35	48	-9	-31	-40

As indicated in the table above, the proposed mixed-use development is expected to generate additional 48 auto trips during the morning peak hour but generates 40 less auto trips during the afternoon peak hour, as compared to the existing land use (Beer Store). Therefore, it is concluded that the incremental proposed development traffic is negligible.

For the purposes of this assessment, existing auto trips generated by the existing shopping centre will be removed from the road network. This provision is necessary in order to avoid double-count the numbers of auto trips to and from the proposed development. Given that the existing site has many access options, including an interconnection with the Metro parking lot and access to the existing Shaw Drive signal, it is assumed that only traffic to and from the east would use Enola Avenue Access. To be conservative, it is assumed that only 50% of the inbound and outbound traffic would use

the Enola Avenue access. Figure 11 illustrates the existing shopping centre site traffic volumes to be removed from the road network.

Figure 11 – Existing Site Traffic to be Removed



5.5. Site Trip Distribution and Assignment

The 2016 Transportation Tomorrow Survey (TTS) data was reviewed for Traffic Zones 3642, 3647, 3648 and 3877 in order to estimate the general trip distribution for the proposed development. Table 6 summarizes the planning district/traffic zones distribution based on the 2016 TTS data, with Table 7 summarizing the site trip assignment based on the 2016 TTS data detailed breakdown for the City of Mississauga Wards and existing transportation network in the area for the residential component of proposed development.

Table 7 – Trip Distribution for Residential Component

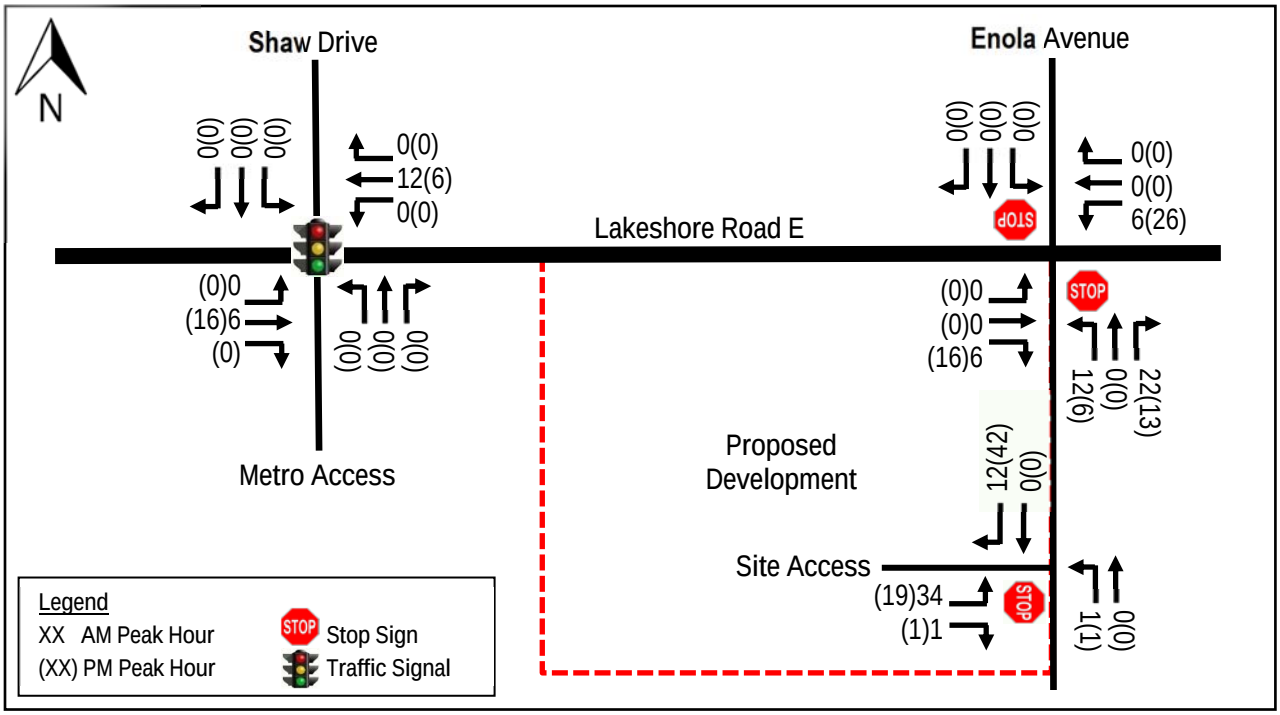
Mode	Mississauga	Toronto	Brampton	Oakville	York Region	Brantford	Hamilton	Total
Auto	57%	34%	3%	2%	3%	1%	0%	100%
Transit	46%	46%	0%	1%	2%	0%	5%	100%

Table 8 – Site Trip Distribution

General Direction (To/From)	Auto	Transit
North	41%	20%
South	0%	0%
East	42%	58%
West	17%	22%
Total	*100%*	*100%*

Figure 12 illustrates the proposed development generated traffic volumes. It should be noted that the auto site trip distribution and assignment have been taken into consideration the 2016 TTS information, existing turning restrictions (if any), existing intersection operations and capacity constraints.

Figure 12 – Site Traffic Volumes

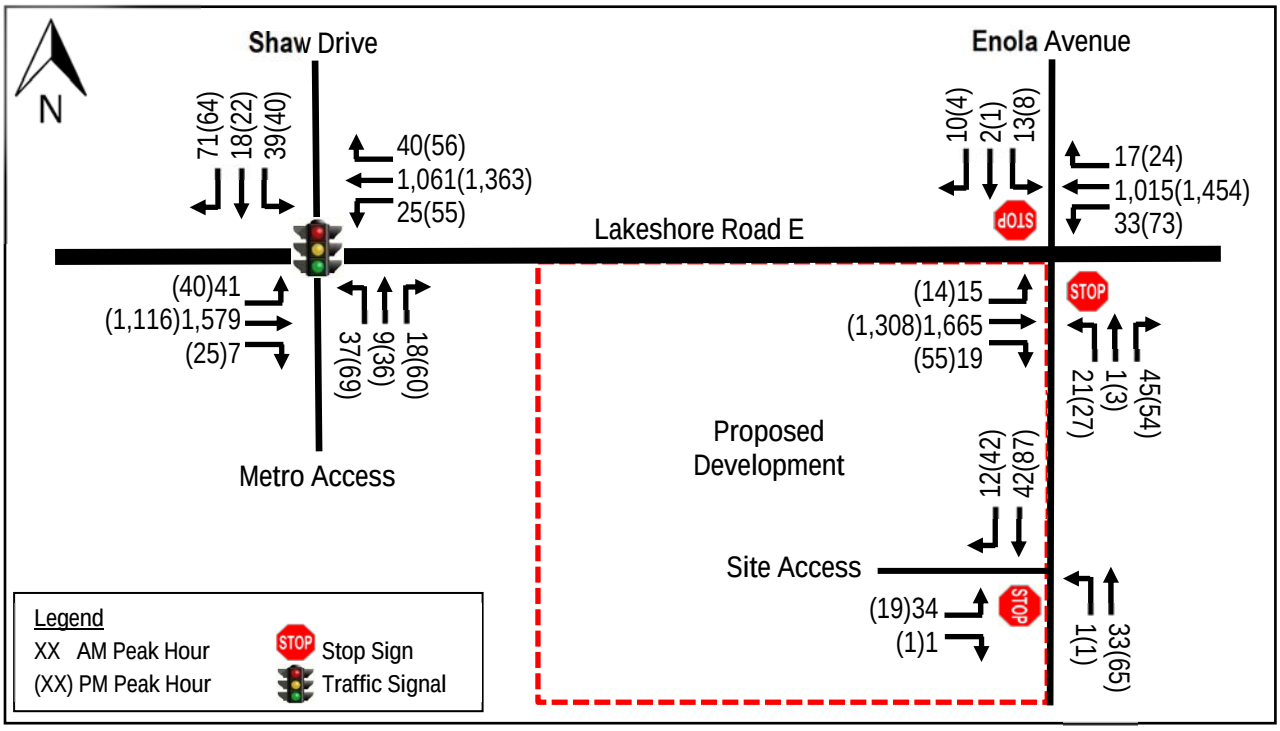


6.0 FUTURE TOTAL TRAFFIC CONDITIONS

6.1. Future Total Traffic Assessment for Auto Mode

The estimated 2026 future total traffic volumes (future background traffic volumes plus site generated traffic volumes) are illustrated in **Figure 13**, and were analyzed using Synchro Version 10 software. The detailed calculations are provided in **Appendix F** and summarized in **Table 11**.

Figure 13 – 2027 Future Total Traffic Volumes



TRANSPORTATION STUDY

(Revised as per Submission Comments)

- **Traffic Impact Study**
- **Parking Study**
- **Site Plan Review**

Proposed Mixed-Use Development
857 Lakeshore Road East
Mississauga, ON

May 2020

Prepared for

2577009 Ontario Inc.
c/o Evans Planning Inc.

TRANS-PLAN
Transportation Engineering

785 Dundas St W
Toronto, ON, M6J 1V2

1 (647) 931 7383
1 (877) 668 8784

trans-plan.com
admin@trans-plan.com

Figure 7 – Site Traffic Assignment, Weekday AM and PM Peak Hours

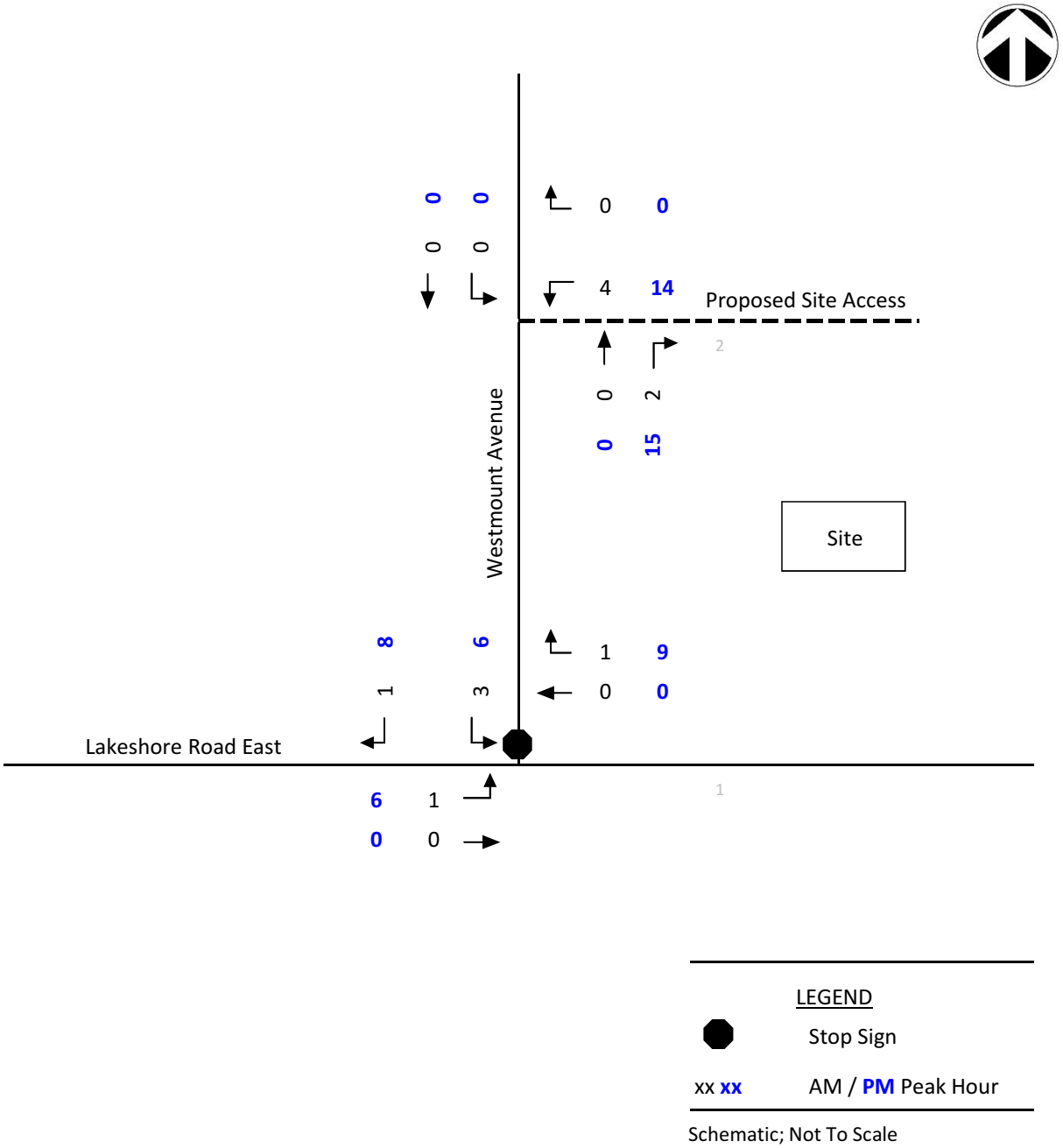
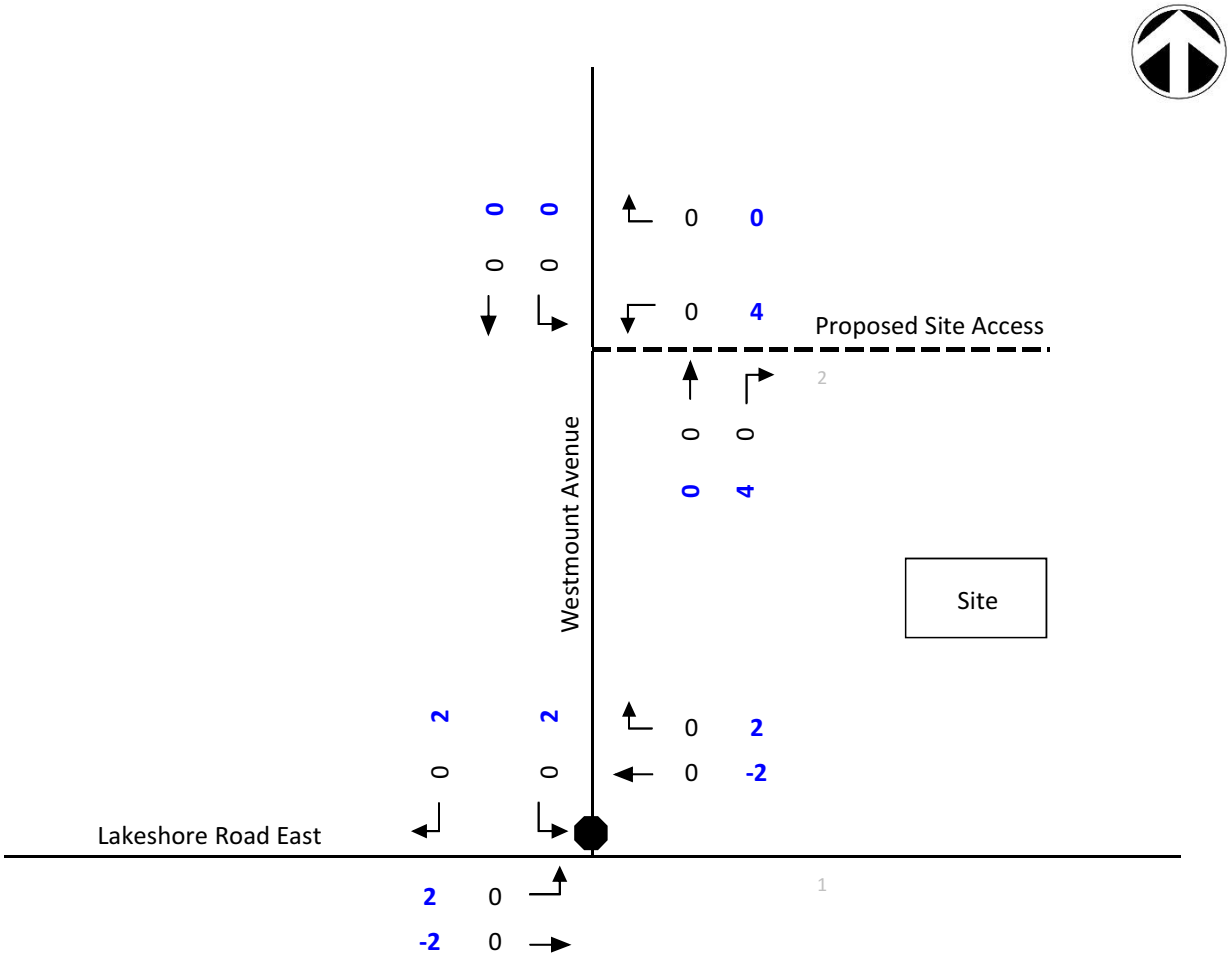


Figure 8 – Pass-by Trip Adjustment, Weekday AM and PM Peak Hours



LEGEND

Stop Sign

xx **xx** AM / **PM** Peak Hour

Schematic; Not To Scale

TRANSPORTATION STUDY

- Traffic Impact Study
- Parking Study
- Site Plan Review
- Transportation Demand Management Plan

Proposed Residential Development 958 – 960 East Avenue
City of Mississauga, ON

March 2020

Prepared for
Peel Housing Corporation

TRANS-PLAN
Transportation Engineering

785 Dundas St W
Toronto, ON, M6J 1V2

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Figure 6 - Site Traffic Assignment, Weekday AM & PM Peak Hours

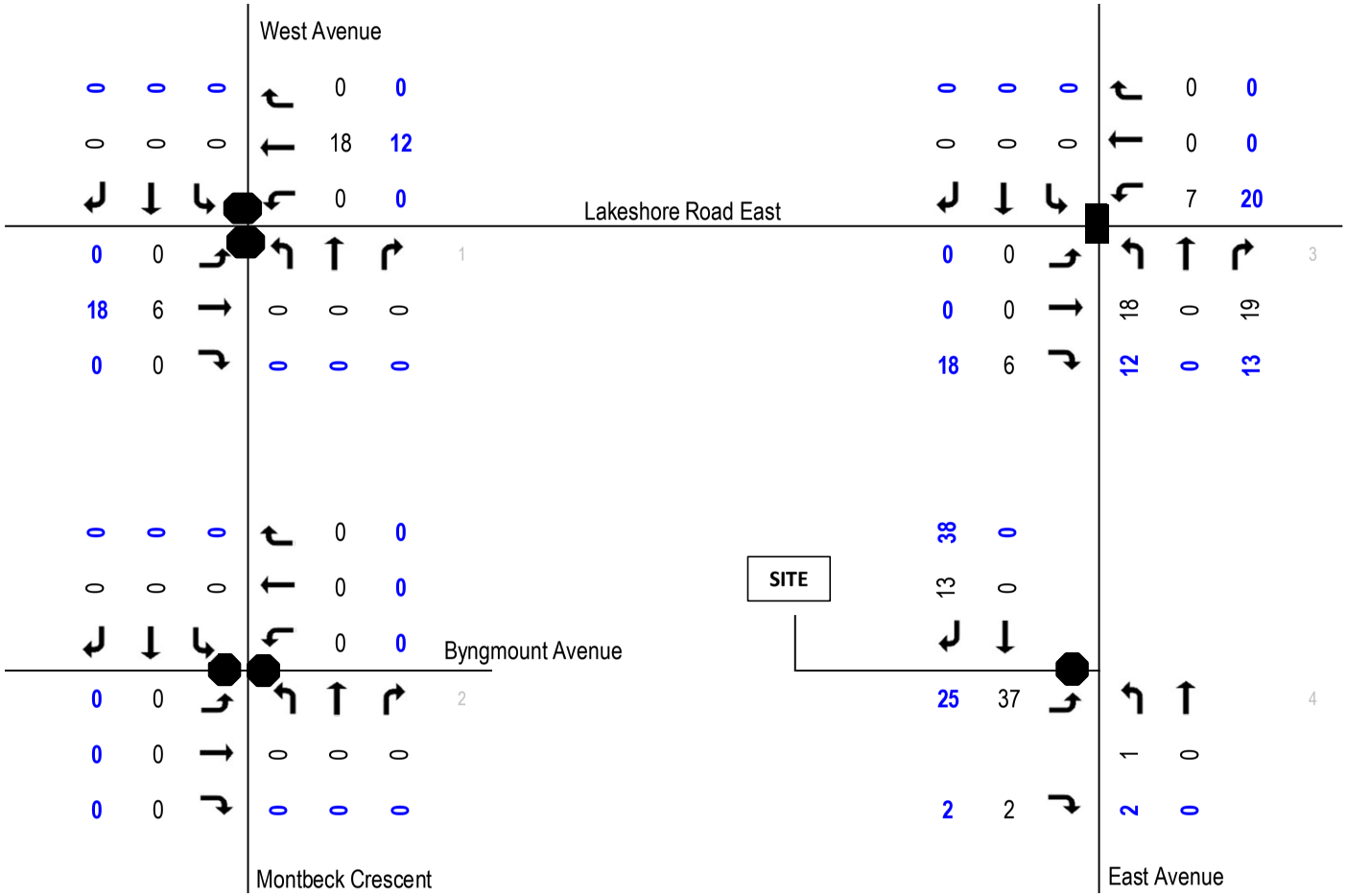


Figure 8 - Site Traffic Assignment, Weekday AM & PM Peak Hours, Byngmount Extension

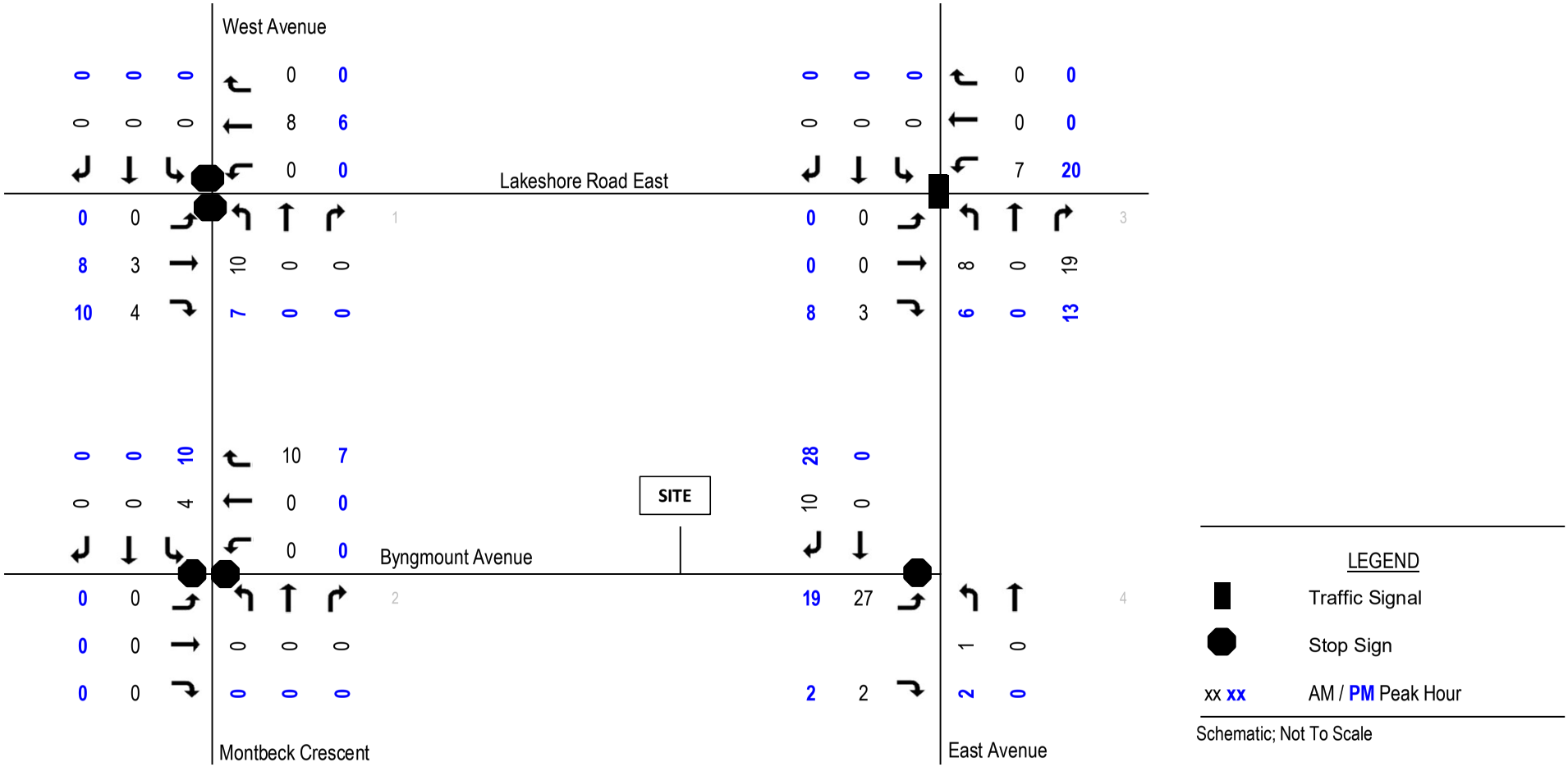
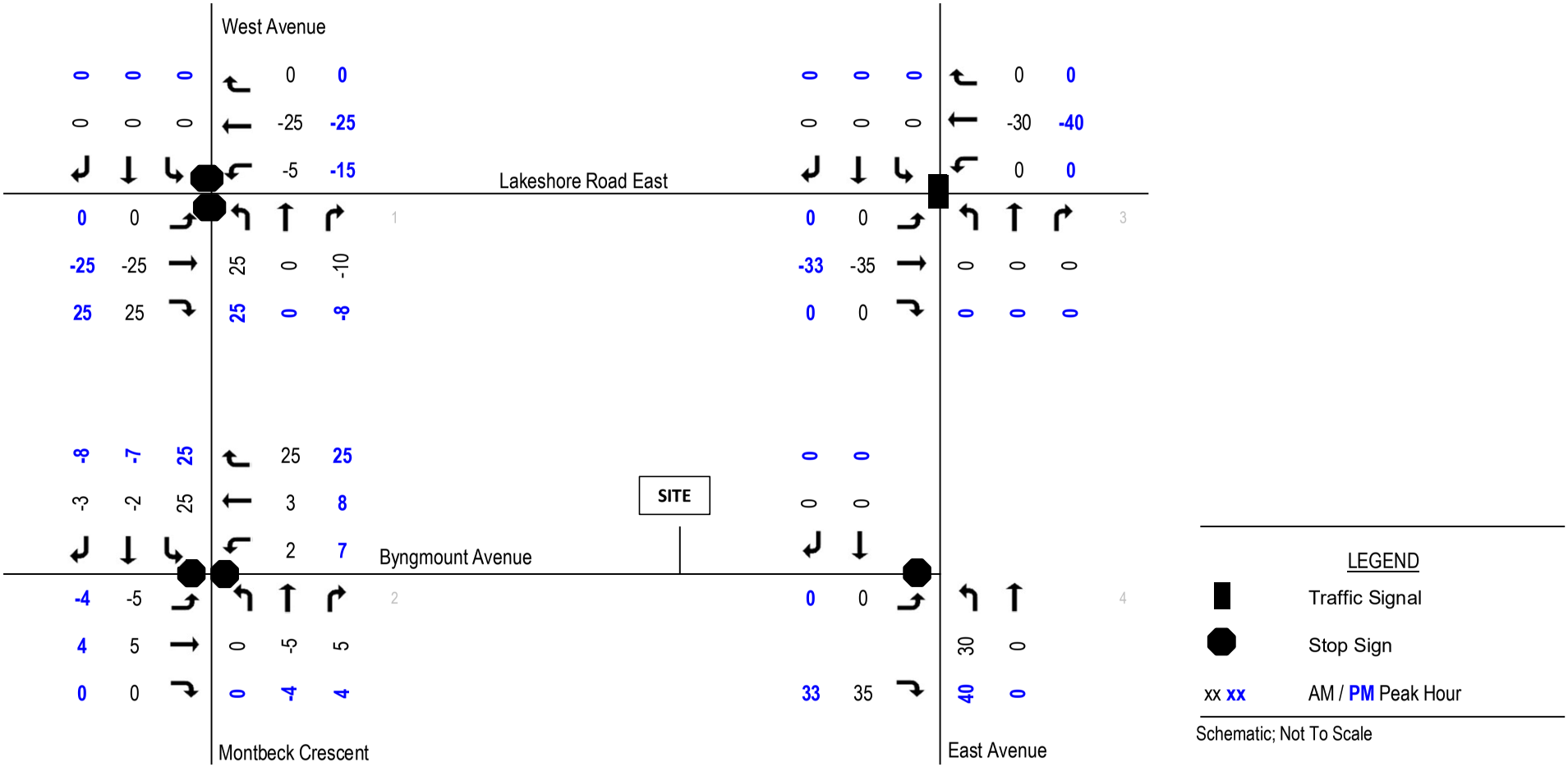


Figure 9 - Redistribution of Traffic, Weekday AM & PM Peak Hours, Byngmount Extension



Queenscorp (Cawthra South) Inc.

1174-1206 Cawthra Road

Traffic Impact Study and Parking Utilization Study

March 2016

5. Site generated traffic

5.1 Modal split

As a conservative measure no transit reduction was applied to the estimated site trips in the study analysis.

5.2 Site trip generation

The proposed multi-unit residential townhouse development consists of a total of 154 dwelling units.

Site traffic generated by the proposed development for the weekday am and pm peak hours was estimated by applying the trip rates for Land Use Codes 230 Residential Condominium / Townhouse in Trip Generation, 9th Edition published by the Institute of Transportation Engineers (ITE). Comparison of the average rates to the fitted curve equation resulted in a slightly higher number of trips based on the fitted curve equation for the residential units and adopted as such for a more conservative analysis.

Table 1 summarizes the estimated total trip generation of the development for the 2020 planning horizon.

Table 1 Site trip generation

Land Use Code	Units/ GFA ft^2	Parameters	Peak Hour Trip Generation					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Residential Condominium / Townhouse (LUC 230)	154 Units	Trip Rate	0.08	0.39	0.47	0.37	0.18	0.55
		Trip Ratio	17%	83%	-	67%	33%	-
		Gross Trips	13	61	74	58	29	87

The proposed residential development is expected to generate a total of 74 two-way vehicle trips during the am peak hour consisting of 13 inbound and 61 outbound trips. During the pm peak hour it is expected to generate 87 new two-way vehicle trips consisting of 58 inbound and 29 outbound trips.

5.3 Site trip distribution and assignment

The distribution of site traffic was derived from existing traffic patterns along Cawthra Road.

Based on the existing traffic counts, the residential site trips are expected to be predominantly oriented north (85%) on Cawthra Road which links to the QEW north of the site and only 15% to the south. Trips oriented north through the Atwater Avenue intersection with Cawthra Road were distributed based on the existing directional distributions in each of the weekday peak hours. Atwater Avenue provides local links, easterly to Ogden Avenue and westerly to Mineola Road (and Hurontario Street).

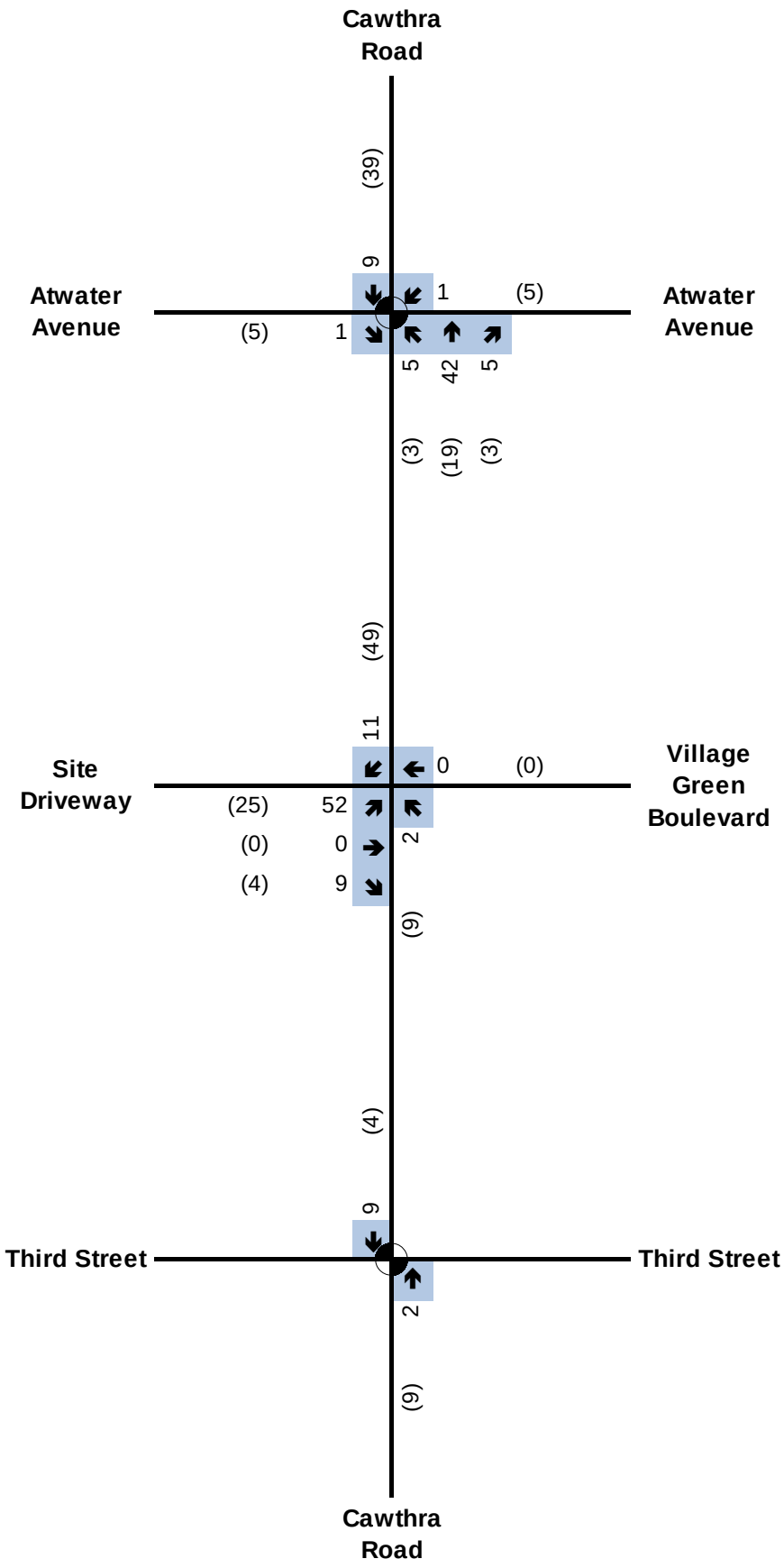
As this distribution is generally supported by the existing local residential traffic patterns, both the site and background residential development would have similar directional characteristics.

Table 2 summarizes the proportion of residential site trips distributed to the study area under the 2020 road network by direction of approach and departure for the weekday am and pm peak hours.

Table 2 Site trip distribution

Trip Orientation	Inbound / Outbound Distribution (%)
North on Cawthra Road	68.0%
South on Cawthra Road	15.0%
East on Atwater Avenue via Cawthra Road	8.5%
West on Atwater Avenue via Cawthra Road	8.5%

The estimated residential site trips generated by the proposed development as assigned to the nearby road network for the weekday am and pm peak hours is shown in **Figure 5**,



Legend

XX AM Peak Hour Volumes

(XX) PM Peak Hour Volumes

Signalized Intersection

Queenscorp (Cawthra South) Inc.
Cawthra Road Residential
Traffic Impact Study

Estimated Site Trips

Job Number 11111895
Revision A
Date Mar 2016

Figure 05

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 T 1 416 213 7121 F 1 416 890 8499 E info@ghdcanada.com W www.ghd.com

Plot Date: 11 March 2016 - 11:41 AM Plotted by: Michael Dowdall Cad File No: G:\Legacy\SernasTransTech\Projects\2015\11111895 Cawthra South TIS\Analysis\Cawthra South Figures.dwg

APPENDIX H

Sight Distance Analysis

The time gaps in **Table 9.9.3** can be decreased by 1.0 s for right-turn maneuvers without undue interference with major-road traffic. These adjusted time gaps for the right turn from the minor road are shown in **Table 9.9.5**. Design values based on these adjusted time gaps are shown in **Table 9.9.6** for passenger cars. **Figure 9.9.5** includes the design values for the design vehicles for each of the time gaps in **Table 9.9.5**.

Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20)	10.5

Note: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.1 s for each percent grade for left turns.

Table 9.9.6: Design Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver

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

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane highway with no median and with grades of 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

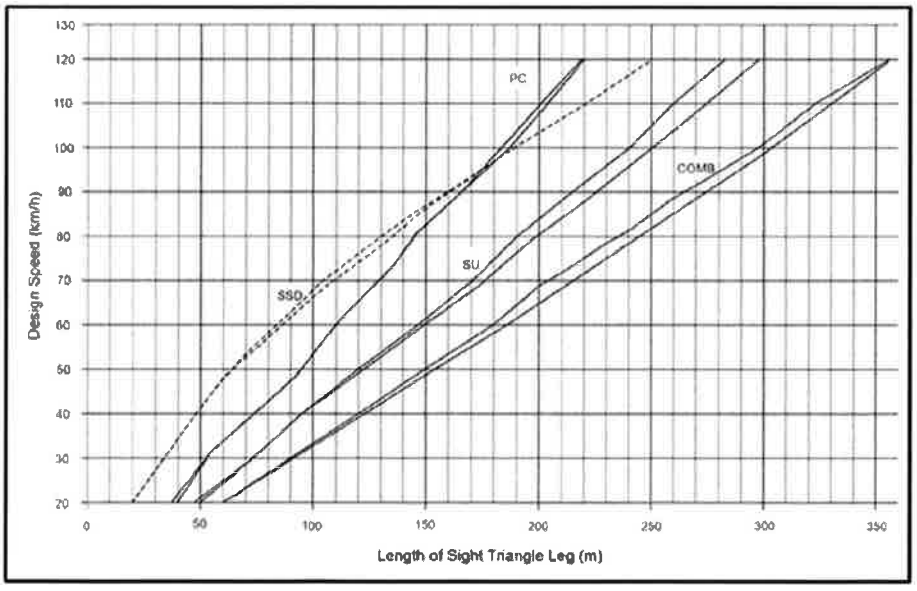


Figure 9.9.5: Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver (Calculated and Design Values Plotted)

APPENDIX I

Zoning By-Laws and TAC

3.1.2 Required Number of Parking Spaces

3.1.2.1 Required Number of Parking Spaces for Residential Uses

3.1.2.1.1 Off-street **parking spaces** for residential **uses** shall be provided in accordance with Table 3.1.2.1 - Required Number of Off-Street Parking Spaces for Residential Uses. *(0117-2022)*

Table 3.1.2.1 - Required Number of Off-Street Parking Spaces for Residential Uses
(0207-2008), (0297-2013), (0174-2017), (0179-2018), (0181-2018/LPAT Order 2019 February 15), (0111-2019/LPAT Order 2021 March 09), (0018-2021), (0117-2022)

Column A		B	C	D	E	F
Line 1.0	**TYPE OF USE**	**UNIT OF MEASUREMENT**	**PRECINCT 1**	**PRECINCT 2**	**PRECINCT 3**	**PRECINCT 4**
2.0	Condominium **Apartment**	resident spaces per unit	0.8	0.9	1.0	1.1
		visitor spaces per unit	0.2	0.2	0.2	0.2
3.0	Rental **Apartment**	resident spaces per unit	0.8	0.8	0.9	1.0
		visitor spaces per unit	0.2	0.2	0.2	0.2
4.0	**Public authority dwelling unit** or **dwelling unit** provided by a not-for profit housing provider in a rental **apartment**	resident spaces per unit	0.4	0.6	0.65	0.7
		visitor spaces per unit	0.2	0.2	0.2	0.2
5.0	**Apartment** (within CC1 to CC4 zones)	0.8 resident spaces per unit 0.15 visitor spaces per unit (1)				
6.0	**Detached Dwelling**, **Linked Dwelling**, **Semi-Detached**, **Street Townhouse**	spaces per unit	2.0	2.0	2.0	2.0
7.0	Condominium **Detached Dwelling**, Condominium **Semi-Detached**, Condominium **Townhouse**, **Detached Dwelling** on a **CEC** - **Road**, **Semi-Detached** on a **CEC** - **Road**, **Townhouse** on a **CEC** - **Road**	resident spaces per unit	2.0	2.0	2.0	2.0
		visitor spaces per unit	0.25	0.25	0.25	0.25
8.0	**Duplex**, **Triplex**	spaces per unit	1.25	1.25	1.25	1.25
9.0	**Dwelling units** located above a commercial development with a maximum **height** of three **storeys**	spaces per unit	1.0	1.0	1.0	1.0
10.0	**Group Home**	spaces per unit	2.0	2.0	2.0	2.0
11.0	**Back to Back** and **Stacked Townhouse** without exclusive use **garage** and **driveway**	resident spaces per unit	1.0	1.1	1.3	1.5
		visitor spaces per unit	0.25	0.25	0.25	0.25

Table 3.1.2.1 continued on next page

Column	A	B	C	D	E	F
Line 1.0	TYPE OF USE	UNIT OF MEASUREMENT	PRECINCT 1	PRECINCT 2	PRECINCT 3	PRECINCT 4
Table 3.1.2.1 continued from previous page						
12.0	**Back to Back** and **Stacked Townhouse** with exclusive use **garage** and **driveway**	resident spaces per unit	2.0	2.0	2.0	2.0
		visitor spaces per unit	0.25	0.25	0.25	0.25
13.0	**Long-Term Care Building**	spaces per bed	0.33	0.33	0.33	0.33
14.0	**Retirement Building**	spaces per unit	0.5	0.5	0.5	0.5
15.0	**Public authority dwelling unit** or **dwelling unit** provided by a not-for profit housing provider in a **retirement building**	spaces per unit	0.25	0.35	0.35	0.35
16.0	**Transitional Housing**	spaces per unit or sleeping rooms, whichever is greater	0.1	0.1	0.1	0.1
17.0	All other housing forms not identified above with more than two **dwelling units**	resident spaces per unit	2.0	2.0	2.0	2.0
		visitor spaces per unit	0.25	0.25	0.25	0.25

NOTES: (1) See Sentence 3.1.2.1.2 of this By-law.
(2) *deleted by 0117-2022*

3.1.2.1.2 Visitor **parking spaces** shall not be required for an **apartment** legally **existing** within CC1 to CC4 zones for which a building permit has been issued on or before May 29, 2009. *(0207-2008), (0174-2017), (0018-2021), (0117-2022)*

3.1.2.1.3 Shared Arrangement for Residential Visitor and Non-Residential Parking Component

For the purpose of Article 3.1.2.1 of this By-law, a shared parking arrangement may be used for the calculation of required residential visitor/non-residential parking in accordance with the following:
(0117-2022)

the greater of

(1) Visitor spaces per unit in accordance with applicable regulations contained in Table 3.1.2.1 of this By-law;

or

(2) Parking required for all non-residential **uses**, located in the same **building** or on the same **lot** as the residential **use**, except **banquet hall/conference centre/convention centre**, **entertainment establishment**, **overnight accommodation**, **place of religious assembly**, **recreational establishment** and **restaurant** over 220 m^2 **GFA - non-residential**.

Parking for **banquet hall**/**conference centre**/**convention centre**, **entertainment establishment**, **overnight accommodation**, **place of religious assembly**, **recreational establishment** and **restaurant** over 220 m^2 **GFA - non-residential** shall not be included in the above shared parking arrangement and shall be provided in accordance with applicable regulations contained in Table 3.1.2.2 of this By-law.

Column A		B	C	D	E	F
Line 1.0	**TYPE OF USE**	**UNIT OF MEASUREMENT**	**PRECINCT 1**	**PRECINCT 2**	**PRECINCT 3**	**PRECINCT 4**
Table 3.1.2.2 continued from previous page						
37.0	**Place of Religious Assembly**	space per 4.5 seats for permanent fixed seating (1);	1.0	1.0	1.0	1.0
		plus				
		spaces for any non-fixed moveable seating per 100 m^2 **GFA - non-residential**, all in the **worship area**;	27.1	27.1	27.1	27.1
		or				
		spaces for all non-fixed moveable seating per 100 m^2 **GFA - non-residential**, in the **worship area**;	27.1	27.1	27.1	27.1
		or				
		spaces per 100 m^2 **GFA - non-residential**, whichever is greater.	10.0	10.0	10.0	10.0
		Where the **worship area** of a **place of religious assembly** includes permanent fixed seating or non-fixed moveable seating for clergy, leaders, choirs, or musicians, such seating or area shall be included in the calculation of seating for the purpose of calculating required parking. Where a community/multi-use hall is equal to or less than the **gross floor area** of the **worship area**, no additional parking shall be required for that **use**.				
38.0	**Power Generating Facility**	space per staff on duty with a minimum of 2.0 spaces	1.0	1.0	1.0	1.0
39.0	**Private Club**	spaces per 100 m^2 **GFA - non-residential**	4.5	4.5	4.5	4.5
40.0	**Recreational Establishment**	spaces per 100 m^2 **GFA - non-residential**, except for an arena	4.5	4.5	4.5	4.5
41.0	**Repair Establishment**	spaces per 100 m^2 **GFA - non-residential**	3.0	3.0	4.0	5.0
42.0	Retail Centre:					
42.1	Retail Centre (Less than or equal to 2 000 m^2 **GFA - non-residential**)	spaces per 100 m^2 **GFA - non-residential**	3.0	3.0	3.5	4.3
		Parking for **restaurant** and **convenience restaurant** over 220 m^2 **GFA - non-residential**, **place of religious assembly**, **funeral establishment**, **overnight accommodation**, **banquet hall/ conference centre/convention centre** and **entertainment establishment uses** will be provided in accordance with the applicable regulations contained in Table 3.1.2.2 of this By-law.				
42.2	Retail Centre (Greater than 2 000 m^2 **GFA - non-residential**)	spaces per 100 m^2 **GFA - non-residential**	3.8	3.8	4.5	5.4

Table 3.1.2.2 continued on next page

3.1.2.2.3 For the purpose of Article 3.1.2.2 of this By-law, a **warehouse/distribution facility**, **wholesaling facility** (multiple-occupancy **building**) is a **building(s)** occupied by more than one occupant located on one **lot**, where the primary function of all occupants is warehousing, distribution or wholesaling. *(0379-2009), (0018-2021)*

3.1.2.2.4 For the purpose of Article 3.1.2.2 of this By-law, where a single occupant **office building** includes a **manufacturing**, **warehouse/distribution** and/or **wholesaling facility** component and the **GFA - non-residential** of the **manufacturing**, **warehouse/ distribution** and/or **wholesaling facility** component is greater than 10% of the total **GFA - non-residential** of the **building**, parking for the **manufacturing**, **warehouse/ distribution** and/or **wholesaling facility** component shall be calculated in accordance with the applicable **manufacturing**, **warehouse/distribution** and/or **wholesaling facility** (single occupancy) regulations contained in Table 3.1.2.2 of this By-law. *(0308-2011), (0018-2021)*

3.1.2.3 C4 Zone Parking Requirement

For the purpose of Article 3.1.2.2 of this By-law, off-street **parking spaces** for non-residential **uses** in C4 zones shall be provided in accordance with Precinct 1 requirements in Table 3.1.2.2 of this By-law. *(0117-2022)*

3.1.2.4 Mixed Use Development Shared Parking

A shared parking formula may be used for the calculation of required parking for a mixed use development. A mixed use development means the following:
(0379-2009), (0174-2017), (0018-2021), (0117-2022)

(1) Non-office **uses** in an **office** or **medical office building** or group of **buildings** on the same **lot**;
(2) **Office** or **medical office** space in a **building** or group of **buildings** on the same **lot** primarily occupied by retail **uses**;
(3) A **building** or group of **buildings** on the same **lot** containing a mix of **office** or **medical office**, commercial **uses** and **dwelling units**;
(4) Non-residential **uses** in an **apartment**.

Shared parking is to be calculated in compliance with Table 3.1.2.4 - Mixed Use Development Shared Parking Formula.

The initial step in determining required parking for a mixed use development is to calculate the parking requirement for each **use** in the development as if these **uses** were free-standing **buildings**. The parking requirement for each **use** is then multiplied by the percent of the peak period for each time period (i.e. noon), contained in Table 3.1.2.4 - Mixed Use Development Shared Parking Formula. Each column is totalled for weekday and weekend. The highest figure obtained from all time periods shall become the required parking for the mixed use development.

Table 3.1.2.4 - Mixed Use Development Shared Parking Formula (2)
(0379-2009), (0111-2019/LPAT Order 2021 March 09), (0018-2021), (0117-2022)

Column	A	B	C	D	E
Line 1.0	**TYPE OF USE**	**PERCENTAGE OF PEAK PERIOD (WEEKDAY)**			
		Morning	**Noon**	**Afternoon**	**Evening**
1.1	**Office/Medical Office/Financial Institution**	100	90	95	10
1.2	Retail Centre/ **Retail Store/Service Establishment**	80	90	90	90
1.3	**Restaurant/ Convenience Restaurant/ Take-out Restaurant**	20	100	30	100
1.4	**Overnight Accommodation**	70	70	70	100
1.5	Residential - Resident (1) Residential - Visitor	90 20	65 20	90 60	100 100

Table 3.1.2.4 continued on next page

APPENDIX J

ITE Results

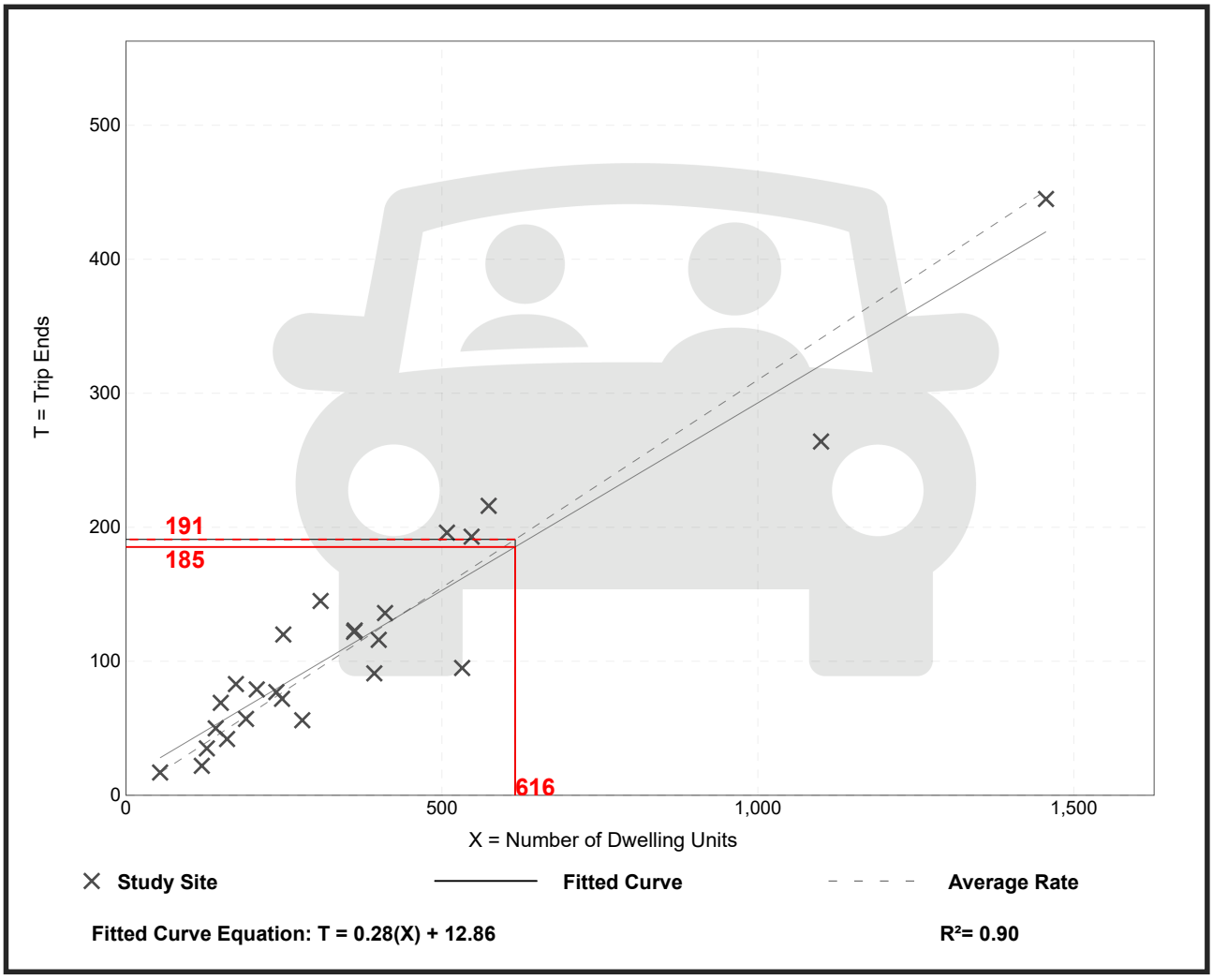
Multifamily Housing (High-Rise)
(222)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 25
Avg. Num. of Dwelling Units: 372
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.31	0.18 - 0.48	0.08

Data Plot and Equation



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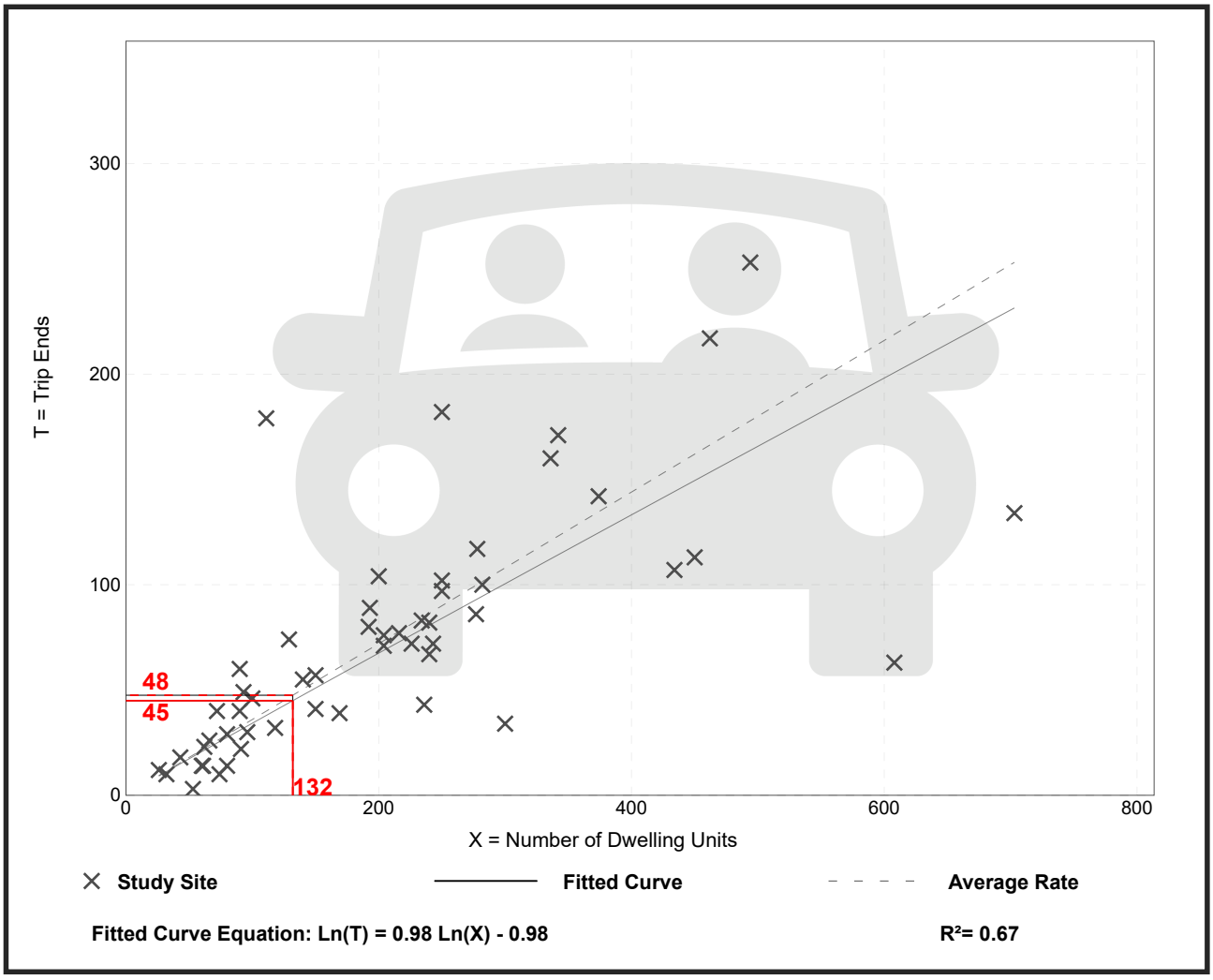
Multifamily Housing (Mid-Rise)
(221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 53
Avg. Num. of Dwelling Units: 207
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

Data Plot and Equation



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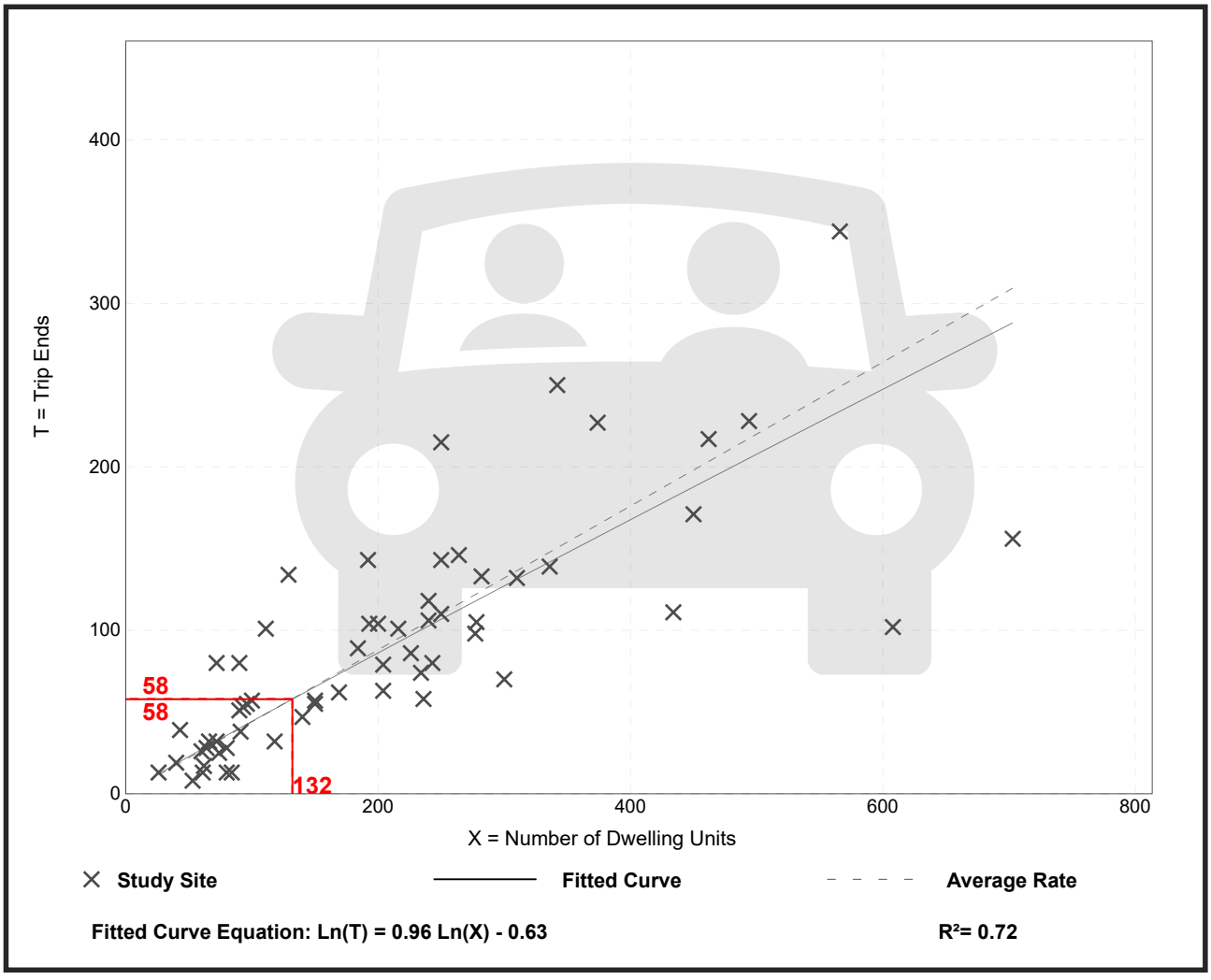
Multifamily Housing (Mid-Rise)
(221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 60
Avg. Num. of Dwelling Units: 208
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

Data Plot and Equation



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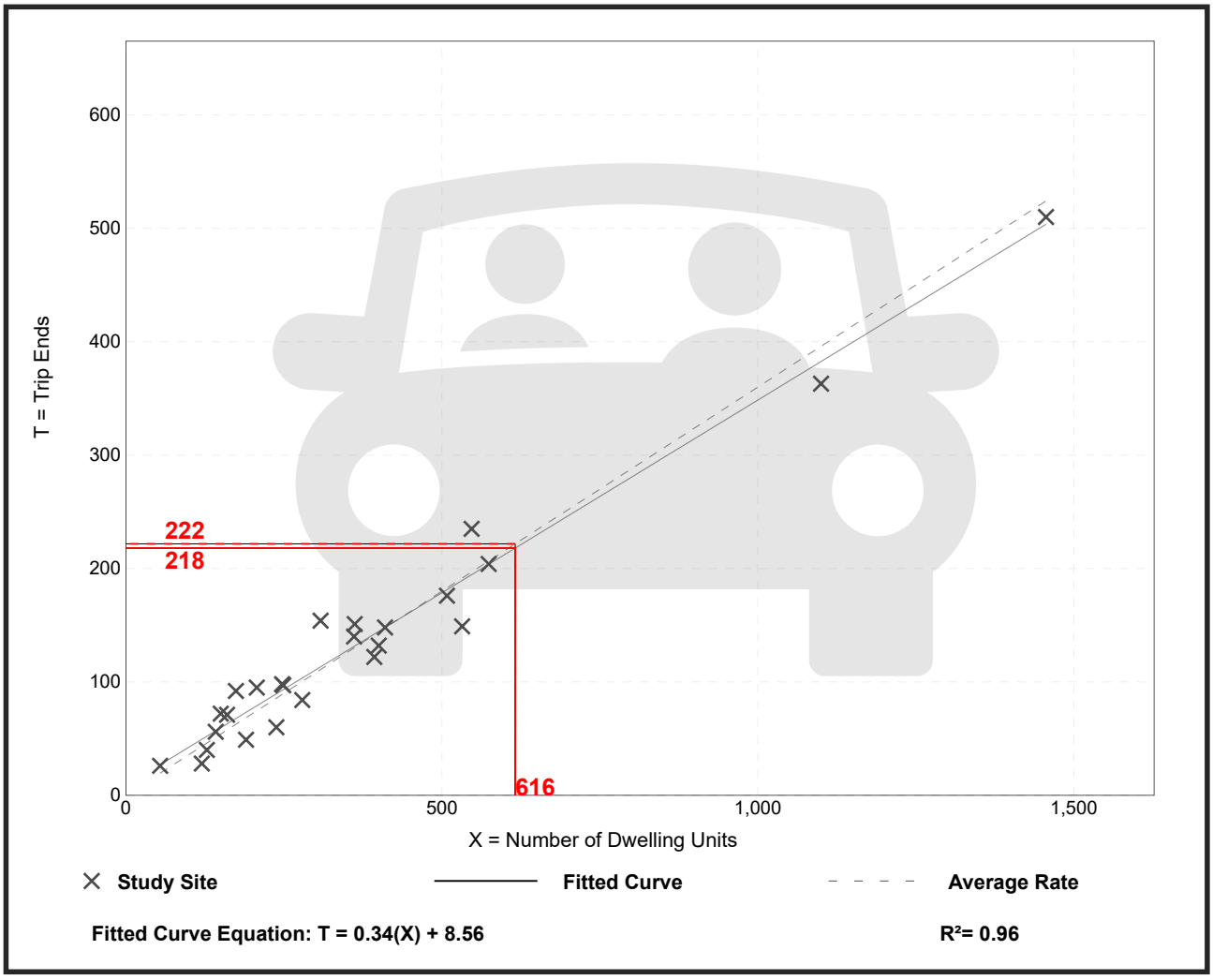
Multifamily Housing (High-Rise)
(222)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 25
Avg. Num. of Dwelling Units: 372
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.23 - 0.53	0.06

Data Plot and Equation



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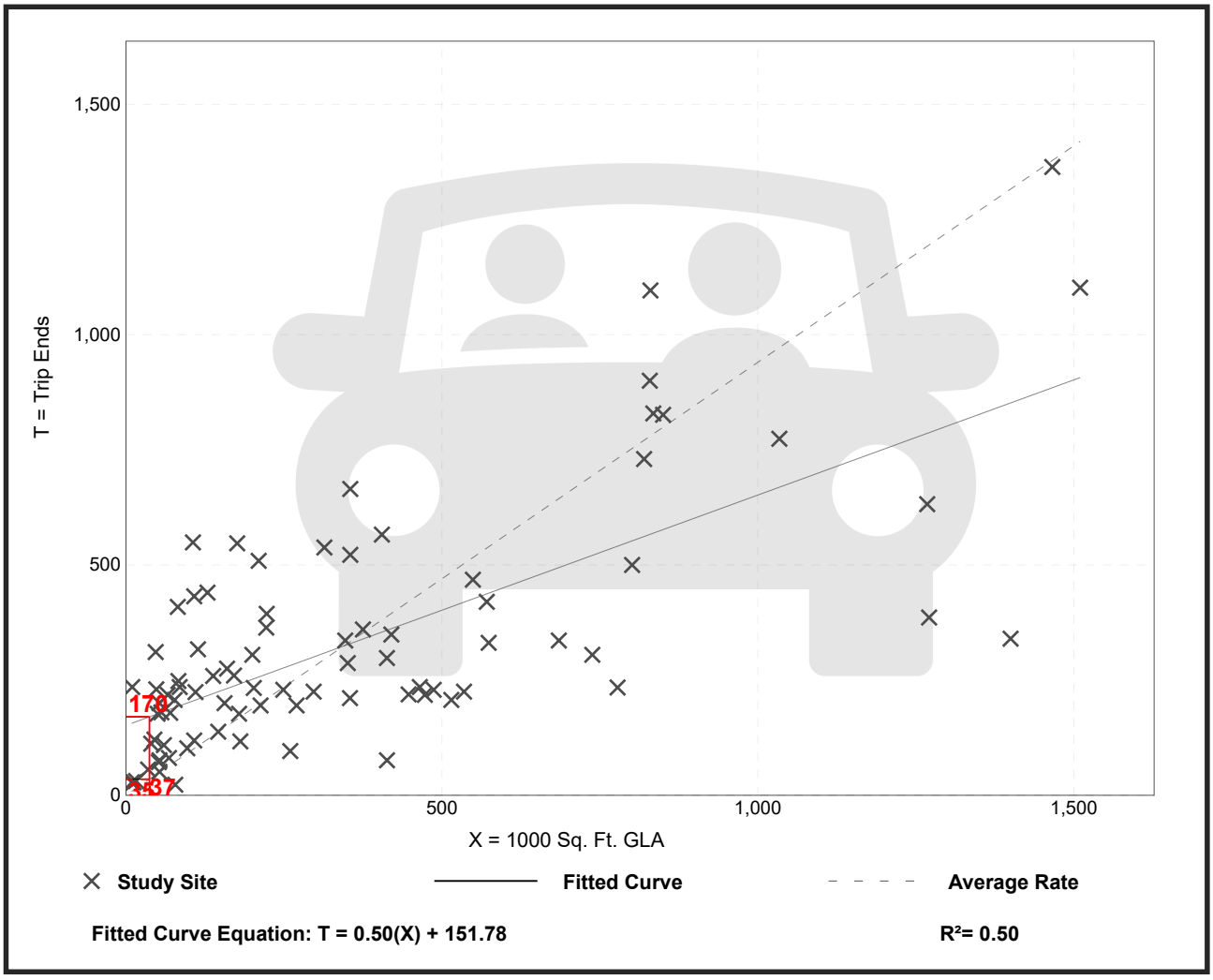
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 84
Avg. 1000 Sq. Ft. GLA: 351
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



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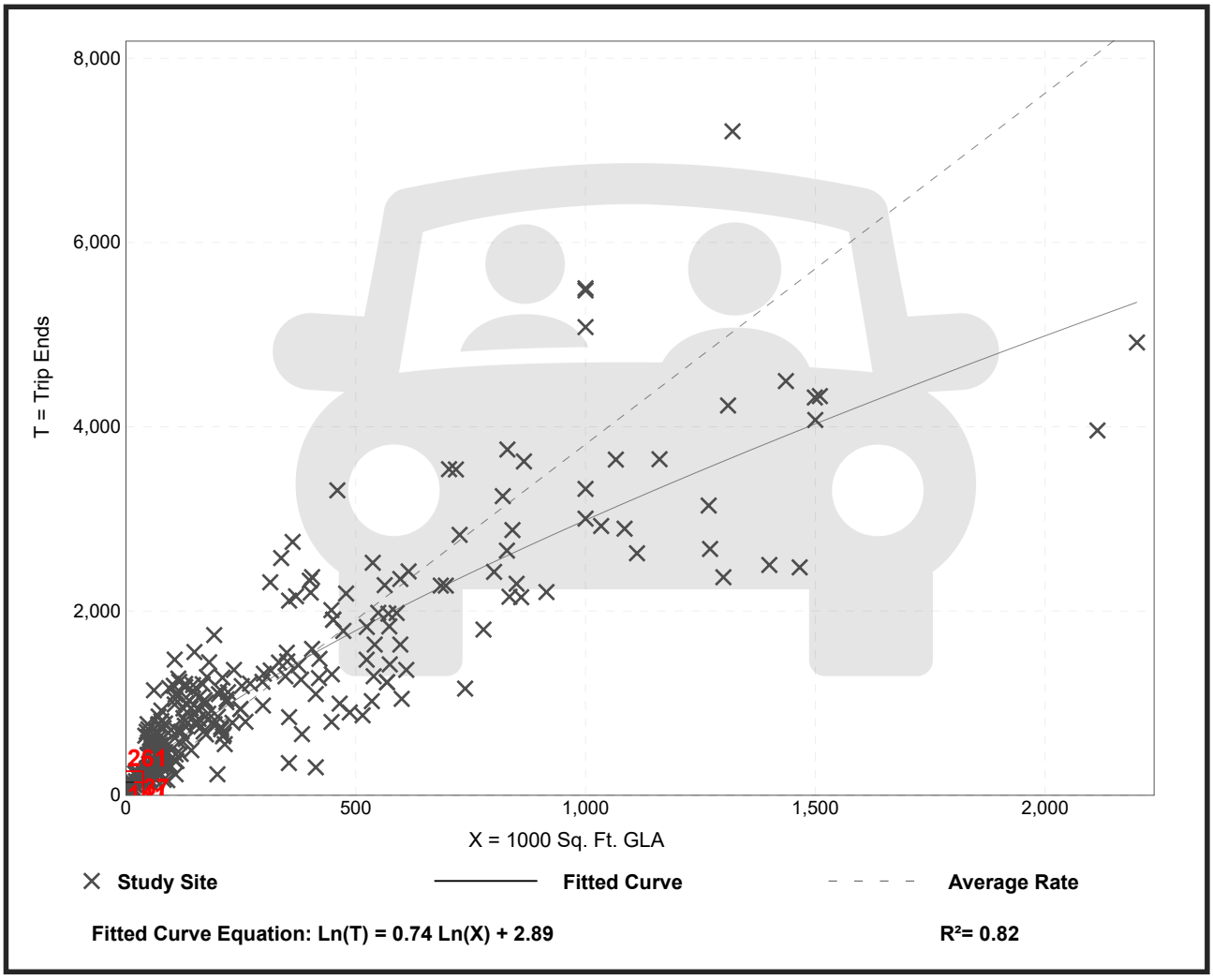
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 261
Avg. 1000 Sq. Ft. GLA: 327
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

Data Plot and Equation



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APPENDIX K

Internal Reduction

Project Name:	579-603 Lakeshore Rd E
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	25	25	1.00	16	16
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	54	54	1.00	166	166
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	5		2	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	2	33	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	2		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	23	25	23	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	53	54	53	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	15	16	15	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	164	166	164	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	579-603 Lakeshore Rd E
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	78	78	1.00	84	84
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	157	157	1.00	101	101
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	2		24	3	22	4
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	42	21	0		3
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	0	0	6	0
Retail	0		0	0	72	0
Restaurant	0	39		0	25	0
Cinema/Entertainment	0	3	0		6	0
Residential	0	8	0	0		0
Hotel	0	2	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	8	70	78	70	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	22	135	157	135	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	22	62	84	62	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	8	93	101	93	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

BDP.
Quadrangle

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579, 619 Lakeshore Road East and 1022, 1028 Caven Street

579, 619 Lakeshore Road East and 1022, 1028 Caven Street
Mississauga, Ontario
for
Star Seeker Inc.

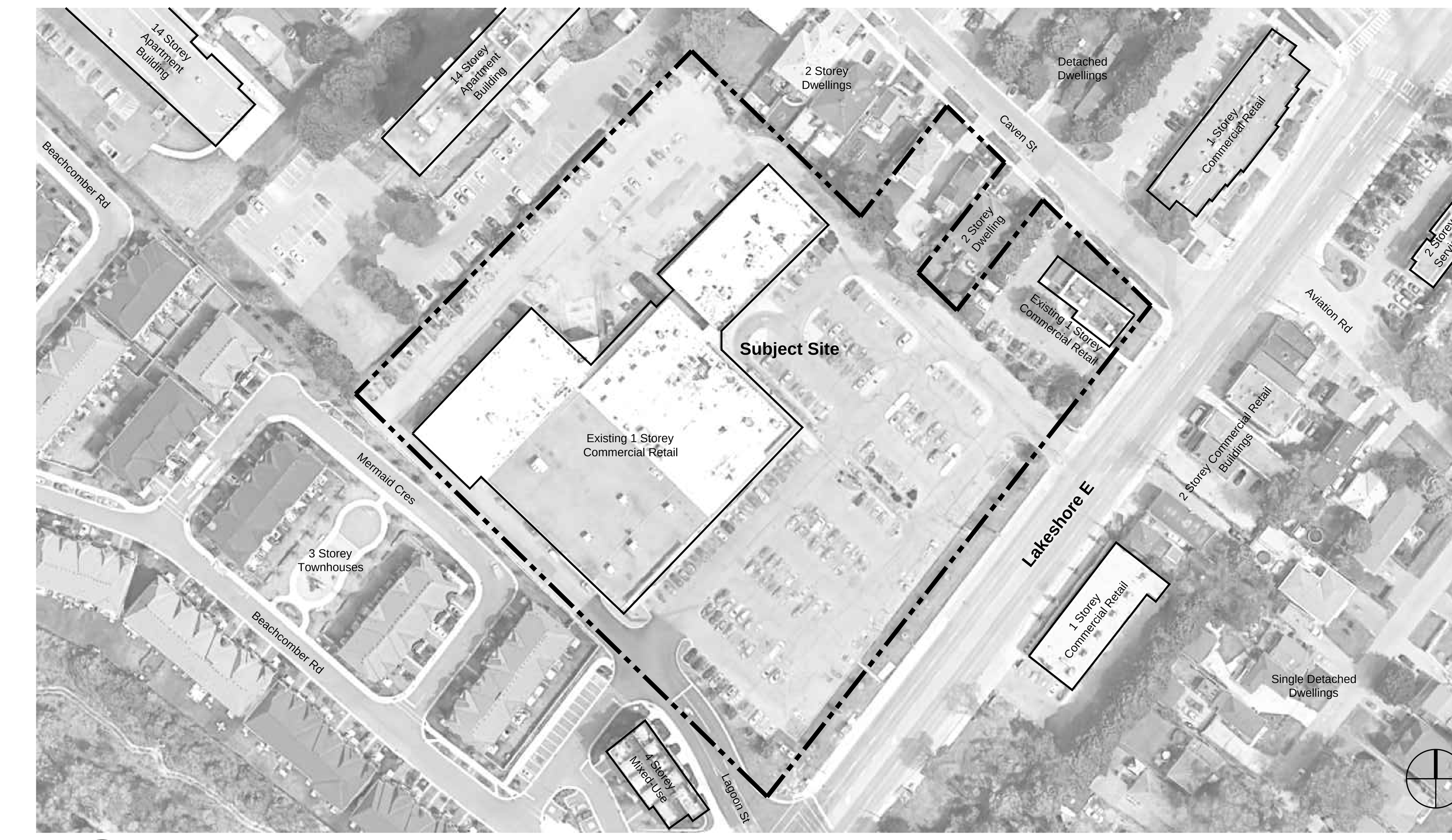
Project No. 17125
Date 11 July 2022
Issued for Rezoning-R1

ARCHITECTURAL DRAWINGS

BUILDING A

	BACH		1 BED				1 BED + DEN									2 BED				2 BED+DEN									Totals
SUITE TYPES	B-A	B-B	1-A	1-B	1-C	1-D	1D-A	1D-B	1D-C	1D-D	1D-E	1D-F	1D-G	1D-H	1D-I	2-A	2-B	2-C	2-D	2D-A	2D-B	2D-C	2D-D	2D-E	2D-F	2D-G	2D-H	2D-I	
AREA (sm)							52.9	53.7	54.6	56.0	56.2	56.3	56.8	59.0	59.5	66.5	65.2	62.5	67.9	72.2	76.6	77.9	80.4	80.8	81.1	84.8	89.4	99.1	
AREA (sf)							569	578	588	603	605	606	611	635	640	716	702	673	731	777	825	839	865	870	873	913	962	1,067	
16											4	1	1	2			1		1			1	1	1		1			14
15											4	1	1	2			1		1			1	1	1		1			14
14											4	1	1	2			1		1			1	1	1		1			14
13											4	1	1	2			1		1			1	1	1		1			14
12											4	1	1	2			1		1			1	1	1		1			14
11											4	1	1	2			1		1			1	1	1		1			14
10											4	1	1	2			1		1			1	1	1		1			14
9											4	1	1	2			1		1			1	1	1		1			14
8											4	1	1	2			1		1			1	1	1		1			14
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6							1	1	1		12	1	1	11		1						1		1	1			1	33
5							1	1	1		12	1	1	11		1						1		1	1			1	33
4							1	1	1		12	1	1	11		1						1		1	1			1	33
3							1	1	1		12	1	1	11		1						1		1	1			1	33
2											10	1	1	9		1		1	0			1		1	1			1	27
Ground Floor							0	0		1	8			8	3	1				1	1						1	0	24
Subtotals	0	0	0	0	0	0	4	4	4	1	102	14	14	79	3	6	9	1	9	1	1	14	9	14	5	9	1	5	
TOTAL	0		0				225									25				59									309 Suites
Percentage	0%		0%				73%									8%				19%									
BARRIER FREE SUITES (hatched in grey)																													
Required (15%)	0		34													13													47
Provided	0		79													14													93

1 A101 Context Plan
SCALE: N/A



2 A101 Key Plan
SCALE: N/A

BUILDING B

	BACH			1 BED					1 BED + DEN																					
SUITE TYPES	B-A	B-B	B-C	1-A	1-B	1-C	1-D	1-E	1D-A	1D-B	1D-C	1D-D	1D-E	1D-F	1D-G	1D-H	1D-I	1D-J	1D-K	1D-L	1D-M	1D-N	1D-O	1D-P	1D-Q	1D-R	1D-S	1D-T	1D-U	1D-V
AREA (sm)	29.1	30.8	37.0	39.4	44.5	45.5	46.3	47.1	51.0	51.1	51.3	55.2	53.3	54.4	56.4	57.0	57.7	58.1	58.3	58.4	58.6	59.2	59.3	59.6	59.9	60.4	60.4	61.1	62.5	63.3
AREA (sf)	313	332	398	424	479	490	498	507	549	550	552	594	574	586	607	614	621	625	628	629	631	637	638	642	645	650	650	658	673	681
16			1					2	2			1	1				4	4					1							
15			1					2	2			1	1				4	4					1							
14			1					2	2			1	1				4	4					1							
13			1					2	2			1	1				4	4					1							
12			1					2	2			1	1				4	4					1							
11			1					2	2			1	1				4	4					1							
10			1					2	2			1	1				4	4					1							
9			1					2	2			1	1				4	4					1							
8			1					2	2			1	1				4	4					1							
7													1		1	1	2	2								1	1		1	1
6		9				1	6				7								1		1							1		
5		9				1	6				7								1		1							1		
4		9				1	6				7								1		1							1		
3		9				1	6				7								1		1							1		
2		6				1	6				4			1						2								1		
Ground Floor	3			1	5					1	4											1		1	1					
Subtotals	3	42	9	1	5	5	30	18	18	1	36	9	10	1	1	1	38	38	4	2	4	1	9	1	1	1	1	5	1	1
TOTAL	54			59					184																					
Percentage	11%			12%					38%																					
BARRIER FREE SUITES (hatched in grey)																														
Required (15%)	9			37																										
Provided	9			38																										

	2 BED																				2BED+D									Totals
SUITE TYPES	2-A	2-B	2-C	2-D	2-E	2-F	2-G	2-H	2-I	2-J	2-K	2-L	2-M	2-N	2-O	2-P	2-Q	2-R	2-S	2-T	2D-A	2D-B	2D-C	2D-D	2D-E	2D-F	2D-G	2D-H	2D-I	59
AREA (sm)	57.8	58.9	59.7	60.9	61.0	61.4	63.2	63.8	64.1	64.7	65.0	65.9	67.6	68.3	69.4	69.7	70.9	71.3	71.4	73.5	74.1	75.2	78.2	78.4	82.9	84.2	87.2	88.4	133.6	
AREA (sf)	622	634	643	656	657	661	680	687	690	696	700	709	728	735	747	750	763	767	769	791	798	809	842	844	892	906	939	952	1,438	
16																2				2			4							24
15																2				2			4							24
14																2				2			4							24
13																2				2			4							24
12																2				2			4							24
11																2				2			4							24
10																2				2			4							24
9																2				2			4							24
8																2				2			4							24
7																2							2							15
6		1	1	1	1	1	2		1	1	1		1	2				1	1		2	1			1			1	1	47
5		1	1	1	1	1	2		1	1	1		1	2				1	1		2	1			1			1	1	47
4		1	1	1	1	1	2		1	1	1		1	2				1	1		2	1			1			1	1	47
3		1	1	1	1	1	2		1	1	1		1	2				1	1		2	1			1			1	1	47
2		1	1		1		2		1		1		1	1					1		2	1					1	1	1	37
Ground Floor	1						2	1				1			1		1							1		1				26
Subtotals	1	5	5	4	5	4	12	1	5	4	5	1	5	9	1	20	1	4	5	18	10	5	38	1	4	1	1	5	5	
TOTAL	115																				70									482 Suites
Percentage	24%																				15%									
BARRIER FREE SUITES (hatched in grey)																														
Required (15%)	28																													65
Provided	28																													66

BUILDING C

	BACH		1 BED		1 BED + DEN			2 BED			2 BED + DEN			Totals
SUITE TYPES	B-A	B-B	1-A	1-B	1D-A	1D-B	1D-C	2-A	2-B	2-C	2D-A	2D-B	2D-C	
AREA (sm)	39.6	40.2	49.2	50.4	56.7	58.6	59.4	65.8	66.9	68.6	75.6			
AREA (sf)	426	433	530	543	610	631	639	708	720	738	814			
6	1	1	1	8	1	1	5	1	1	1	1			22
5	1	1	1	8	1	1	5	1	1	1	1			22
4	1	1	1	8	1	1	5	1	1	1	1			22
3	1	1	1	8	1	1	5	1	1	1	1			22
2	1	1	1	8	1	1	5	1	1	1	1			22
Ground Floor														0
Subtotals	5	5	5	40	5	5	25	5	5	5	5	0	0	
TOTAL	10		45		35			15			5			110
Percentage	9%		40%		32%			14%			5%			Suites
BARRIER FREE SUITES (hatched in grey)														
Required (15%)	2		12					3						15
Provided	5		25					5						30

BUILDING D

	BACH			1 BED					1 BED + DEN				2 BED				2 BED + DEN			Totals
SUITE TYPES	B-A	B-B	B-C	1-A	1-B	1-C	1-D	1-E	1D-A	1D-B	1D-C	1D-D	2-A	2-B	2-C	2-D	2D-A	2D-B	2D-C	
AREA (sm)	33.1	35.1	40.2	44.8	49.2	50.4	0.0	0.0	58.6	59.4			61.8	65.7	71.4	71.5	75.6			
AREA (sf)	356	378	433	482	530	543	0	0	631	639	0	0	665	707	769	770	814	0	0	
6		1	1		1	11			1	8			1	1	1	1	2			29
5	3	1	1	3	1	11			1	8			1	1	1	1	2			35
4	3	1	1	3	1	11			1	8			1	1	1	1	2			35
3	3	1	1	3	1	11			1	8			1	1	1	1	2			35
2	3	1	1	3	1	11			1	8			1	1	1	1	2			35
Ground Floor																				0
Subtotals	12	5	5	12	5	55	0	0	5	40	0	0	5	5	5	5	10	0	0	
TOTAL	22			72					45				20				10			169
Percentage	13%			43%					27%				12%				5%			Suites
BARRIER FREE SUITES (hatched in grey)																				
Required (15%)	4			18									5							23
Provided	5			40									5							45

BUILDING A, B, C AND D

	BACH		1 BED		1 BED+DEN		2 BED		2 BED+DEN		Totals
SUITE TYPES	Requested	Providing	Requested	Providing	Requested	Providing	Requested	Providing	Requested	Providing	
Building A		0		0		225		25		59	309
Building B		54		59		184		115		70	482
Building C		10		45		35		15		5	110
Building D		22		72		45		20		10	169
Subtotals	N/A	86	N/A	176	N/A	489	N/A	175	N/A	144	
TOTAL		86		176		489		175		144	1070
AVG. AREA (sm)		35.638	51.1	38.9	62.7	57.339	74.3	65.881	85.9	83.785	
AVG. AREA (sf)		383.6	550.04	418.72	674.9	617.2	799.77	709.14	924.63	901.86	
Percentage	10%	8%	15%	17%	45%	46%	20%	16%	10%	13%	
BARRIER FREE SUITES (hatched in grey)											
Required (15%)	13		100				48				148
Provided	13		100				48				148

PROJECT STATISTICS

BUILDING A

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA sf	0225-2007, C4-14 GFA Exempt* (sm)	City-Wide By-Law 0225-2007, C4-14 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	STUDIO	1B	1B+D	2B	2B+D	Total Suites	Retail Useable sm	Retail Useable sf
MPH	215.2	1	215.2	2,316		0.0	0			0	0	0	0	0	0	0.0	0
Level 8-16	1,031.7	9	9,285.3	99,947	447	8,838.1	95,134			0	0	72	18	36	126	0.0	0
Level 7	1,031.7	1	1,031.7	11,105	962	69.3	746			0	0	0	0	0	0	0.0	0
Level 3-6	2,199.0	4	8,796.0	94,680	199	8,597.3	92,541			0	0	112	4	16	132	0.0	0
Level 2	2,199.0	1	2,199.0	23,670	50	2,013.7	21,675			0	0	21	2	4	27	0.0	0
Ground	2,184.0	1	2,184.0	23,509	318	1,854.2	19,959	0	0	0	0	20	1	3	24	0.0	0
Building A Total			23,711.2	255,227		21,372.6	230,055	0	0	0	0	225	25	59	309	0.0	0
			Required Amenity to be deducted from GFA =			618 sm (2sm/unit)				0%	0%	73%	8%	19%	100%		

Residential GFA = 20,755 sm
Non-Residential GFA = 0 sm
Total GFA for Density Calculation = 20,754.6 sm

BUILDING B

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA sf	0225-2007, C4-14 GFA Exempt* (sm)	City-Wide By-Law 0225-2007, C4-14 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	STUDIO	1B	1B+D	2B	2B+D	Total Suites	Retail Useable sm	Retail Useable sf
MPH	338.4	1	338.4	3,643		0.0	0			0	0	0	0	0	0	0.0	0
Level 8-16	1616.9	9	14,552.1	156,639	561	13,990.9	150,598			9	18	117	36	36	216	0.0	0
Level 7	1616.9	1	1,616.9	17,404	605	1,011.7	10,890			0	0	11	2	2	15	0.0	0
Level 3-6	3203.8	4	12,815.2	137,943	1,260	11,555.0	124,378			36	28	40	60	24	188	0.0	0
Level 2	3203.8	1	3,203.8	34,486	365	2,839.1	30,561			6	7	8	10	6	37	0.0	0
Ground	3171.5	1	3,171.5	34,138	600	2,571.2	27,677	0	0	3	6	8	7	2	26	0.0	0
Building B Total			35,697.9	384,252		31,968.0	344,103	0	0	54	59	184	115	70	482	0.0	0
			Required Amenity to be deducted from GFA =			964 sm (2sm/unit)				11%	12%	38%	24%	15%	100%		

Residential GFA = 31,004 sm
Non-Residential GFA = 0 sm
Total GFA for Density Calculation = 31,004.0 sm

BUILDING C

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA sf	0225-2007, C4-14 GFA Exempt* (sm)	City-Wide By-Law 0225-2007, C4-14 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	STUDIO	1B	1B+D	2B	2B+D	Total Suites	Retail Useable sm	Retail Useable sf
MPH	219.8	1	219.8	2,366	0	0.0	0			0	0	0	0	0	0	0.0	0
Level 6	1360.7	1	1,360.7	14,647	33	1,327.7	14,291			2	9	7	3	1	22	0.0	0
Leve 3-5	1360.7	3	4,082.1	43,940	99	3,983.1	42,874			6	27	21	9	3	66	0.0	0
Level 2	1360.7	1	1,360.7	14,647	33	1,327.7	14,291			2	9	7	3	1	22	0.0	0
Ground	2031.4	1	2,031.4	21,866	169	308.5	3,321	1,554	16,727	0	0	0	0	0	0	1,554.0	16,727
Building C Total			9,054.7	97,465		6,947.0	74,778	1,554	16,727	10	45	35	15	5	110	1,554.0	16,727
			Required Amenity to be deducted from GFA =			220 sm (2sm/unit)				9%	41%	32%	14%	5%	100%		

Residential GFA = 6,727 sm
Non-Residential GFA = 1,554 sm
Total GFA for Density Calculation = 8,281.0 sm

BUILDING D

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA sf	0225-2007, C4-14 GFA Exempt* (sm)	City-Wide By-Law 0225-2007, C4-14 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	STUDIO	1B	1B+D	2B	2B+D	Total Suites	Retail Useable sm	Retail Useable sf
MPH	225	1	225.0	2,422		0.0	0			0	0	0	0	0	0	0.0	0
Level 6	1810.4	1	1,810.4	19,487	33	1,777.4	19,132			2	12	9	4	2	29	0.0	0
Level 3-5	2056.7	3	6,170.1	66,415	99	6,071.6	65,354			15	45	27	12	6	105	0.0	0
Level 2	2056.7	1	2,056.7	22,138	33	2,023.9	21,785			5	15	9	4	2	35	0.0	0
Ground	2711.3	1	2,711.3	29,184	349	596.2	6,417	1,767	19,015	0	0	0	0	0	0	1,776.0	19,117
Building D Total			12,973.5	139,647		10,469.0	112,688	1,767	19,015	22	72	45	20	10	169	1,776.0	19,117
			Required Amenity to be deducted from GFA =			338 sm (2sm/unit)				13%	43%	27%	12%	6%	100%		

Residential GFA = 10,131 sm
Non-Residential GFA = 1,767 sm
Total GFA for Density Calculation = 11,897.5 sm

BELOW GRADE PARKING

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA sf	0225-2007, C4-14 GFA Exempt* (sm)	City-Wide By-Law 0225-2007, C4-14 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	NOTE
P1	20685	1	20,685.0	222,653	58	20,627.2	222,031.2			See parking statistics below.
P2	20685	1	20,685.0	222,653	60	20,625.2	222,009.7			
P3	20685	1	20,685.0	222,653	60	20,625.2	222,009.7			
TOTAL GBA AND GFA BELOW GRADE			41,370.0	445,307		61,877.6	666,050			

TOTAL DEVELOPMENT

TOTAL GBA ABOVE GRADE	sm	sf	TOTAL GFA ABOVE GRADE	sm	sf	NUMBER OF UNITS	STUDIO	1B	1B+D	2B	2B+D	
BUILDING A	23,711	255,227	BUILDING A	20,755	223,403	BUILDING A	0	0	225	25	59	309
BUILDING B	35,698	384,252	BUILDING B	31,004	333,727	BUILDINGB	54	59	184	115	70	482
BUILDING C	9,055	97,465	BUILDING C	8,281	89,137	BUILDING C	10	45	35	15	5	110
BUILDING D	12,974	139,647	BUILDING D	11,897	128,064	BUILDING D	22	72	45	20	10	169
						TOTAL	86	176	489	175	144	1070
						%	8%	16%	46%	16%	13%	
TOTAL GBA =	81,437	876,591	TOTAL GFA =	71,937	774,330	TOTAL UNIT=			1,070			

FSI

		sf		NOTE
Gross Site Area	24,239.00 sm	260,909	Gross FSI: 2.97	
RES GFA	68,617 sm	738,588	(Total GFA ABOVE GRADE/Gross Site Area)	
NON-RES GFA	3,321 sm	35,742		
Total GFA (above + below grade)	133,815 sm	1,440,381		

VEHICULAR PARKING

Parking Breakdown

Required				
Residential - Occupant				
Studio	1.0	x	86	86
1B	1.0	x	176	176
1B+D	1.0	x	489	489
2B	1.0	x	175	175
2B+D	1.0	x	144	144
Total				1070
Shared Visitor/Retail				
0.2/unit	0.2	x	1070	214
Total			Total	1284 spaces
Accessible Spaces	34	1 space + 3% of total		

Included in TOTAL above

BICYCLE & STORAGE LOCKERS

Bicycle Zone 1

					Required	Provided
Residential						
Long-Term	0.6/unit	0.6	x	1,070	642	701
Short-Term	0.05/unit	0.05	x	1,070	50	67
Retail (Long-Term)	0.15 spaces per 100m2	0.15	x	3,321.00	5	5
Retail (Short-Term)	0.25 spaces per 100m2	0.2	x	3,321.00	7	7
TOTAL					704	780

TOTAL	Required	Provided
Class A (Long-Term)	647	706
Class B (Short-Term)	60	74

Storage Lockers

Total Locker/Storage Provided: 1757

LOADING

			Required	Provided
Residential				
BUILDING A	> 30 Dwelling Units	Type G	1	1
BUILDING B	> 30 Dwelling Units	Type C & G	1	1
Retail 3,321.00 sm		Type C & G	2	2
BUILDING C 1554 sm				
BUIDLING D 1766.5 sm				
TOTAL			4	4

*One per apartment containing minimum of 30 dwelling units

VEHICULAR PARKING LOCATION

Parking Space Location

Provided			
Level	RESIDENTIAL	Shared Visitor/Retail	TOTAL
Surface	X	27	27
P1	296	187	483
P2	499	X	499
P2	332	X	332
TOTAL	1127	214	1341
EV Parking Spaces	20% of Total Residential Parking Spaces		214
	10% of Shared Visitor/Retail Parking Spaces		21

AMENITY SPACE

Residential		Required	Provided
TOTAL Res Amenity	5.0sm/dwelling unit	5,350.00 sm	3,958.50 sm
Total Interior Amenity	min. 2 sm/dwelling unit	2,140.00 sm	1,879.70 sm
Required Indoor Amenity Deducted from Gross Floor Area			
Building A			912.8 sm
Building B			966.9 sm
Building C			0 sm
Building D			0 sm
Total Outdoor Amenity	min. 3 sm/dwelling unit	3,210.00 sm	2078.80 sm
Bulding A			755.3 sm
Building B			1323.5 sm
Building C			0 sm
Biulding D			0

NOTES

RGFA Exclusions assumed above:
*as per By-law 0225-2007, C4-14 Zone Gross Floor Area is reduced by;

any part of the building used for mechanical floor area, stairwells, elevators, motor vehicle parking, bicycle parking, storage lockers, below-grade storage, any enclosed area used for the collection or storage of disposable or recyclable waste generated within the building, common facilities for the use of the residents of the building, a day care and amenity area

***NRGFA** as per By-law - 0225-2007, C4-14 Zone, NRGFA excludes the following;

(1) any part of the building, structure or part thereof used for mechanical floor area; (2) areas of stairwells, washrooms or elevators; (3) any enclosed area used for the collection or storage of disposable or recyclable waste generated within the building or structure or part thereof; (4) any part of the building or structure or part thereof above or below established grade used for motor vehicle parking or the provision of loading spaces; (5) any part of the building, structure or part thereof below established grade used for storage incidental to other uses in the building, structure or part thereof or provided and reserved for the personal needs of the occupants of the building, structure or part thereof including lunch rooms, lounges or fitness rooms; (6) accessory outdoor tank. (0379-2009)

3 A101 Project Statistics
SCALE: N/A

G:\17125-579 to 603 lakeshore rd e\Drawings\Arch\CAD\2022-06-29 rezoning package\17125 - A100- stats- context.dwg, 2022-07-12 4:31pm

REZONING REVISION

REVISION RECORD

2022-07-11 REZONING APPLICATION

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
901 King Street West, Suite 701 Toronto, ON M5V 3H5
t 416 598 1240 www.bdpquadrangle.com

579, 619 Lakeshore Road East and 1022, 1028 Caven Street

17125	N/A	AR	KVE
PROJECT	SCALE	DRAWN	REVIEWED

Context Plan and Statistics

A100

Existing 14 Storey Apartment Building

Existing 4 Storey Dwellings

Existing 4 Storey Dwellings

Existing 4 Storey Dwellings

Existing 2 Storey Dwelling

Existing 2 Storey Dwelling

Existing 2 Storey Dwelling

Existing 2 Storey Dwelling

Existing 2 Storey Dwelling

Existing 2 Semi-Detached Storey Dwelling

PROPERTY LINE

4.5m LANDSCAPE BUFFER

PRIVATE PATIOS

BUILDING A
16 STOREY
RESIDENTIAL TOWER

GROUND FLOOR FFE = 82.10

AVERAGE GRADE = 82.18

BUILDING HEIGHT = 52.72m

134.45 TOFR

6TH FLOOR ROOF

102.00 TOFR

BUILDING B
16 STOREY
RESIDENTIAL TOWER
WEST

GROUND FLOOR FFE = 82.10

AVERAGE GRADE = 82.05

BUILDING HEIGHT = 52.85m

134.45 TOFR

BUILDING B
16 STOREY
RESIDENTIAL TOWER
EAST

GROUND FLOOR FFE = 82.10

AVERAGE GRADE = 82.05

BUILDING HEIGHT = 52.85m

134.45 TOFR

RETAIL GROUND LEVEL ROOF

89.36 TOFR

BUILDING C
6 STOREY RESIDENTIAL

GROUND FLOOR FFE = 81.96

AVERAGE GRADE = 81.53

BUILDING HEIGHT = 24.23m

105.31 TOFR

5 STOREY

101.36 TOFR

BUILDING D
6 STOREY RESIDENTIAL

GROUND FLOOR FFE = 81.80

AVERAGE GRADE = 81.71

BUILDING HEIGHT = 24.05m

105.31 TOFR

PROPOSED PRIVATE DRIVEWAY

DROP-OFF

Proposed Pedestrian Path

ramp

STORM SEWER EASEMENT

ROW ACCESS EASEMENT

PROPOSED PRIVATE DRIVEWAY

PROPOSED LAY-BY PARKING

27 SHARED VISITOR/RETAIL PARKING SPACES

3.0m LANDSCAPE BUFFER

PROPERTY LINE

Caven Street

Lakeshore Road East

LAGOON STREET

DAWSON STREET

PROPOSED SIAMESE CONNECTION

FIRE HYDRANT

±123.09M HYDRANT TO SIAMESE CONNECTION

±139.59M HYDRANT TO SIAMESE CONNECTION

FIRE ROUTE / CENTERLINE OF STREET

EXTENT OF BELOW GRADE PARKING GARAGE

OUTLINE OF GROUND FLOOR

EXTERIOR OF FIRE ROUTES TO THE BUILDING

PARKING NOTES:

1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
   - 2600mm WIDE X 5200mm LONG (NO SIDES OBSTRUCTED)
   - 2900mm WIDE X 5200mm LONG (ONE SIDE OBSTRUCTED)
   - 3200mm WIDE X 5200mm LONG (TWO SIDES OBSTRUCTED)

2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 7000mm UNLESS OTHERWISE NOTED.

3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

- R — RESIDENTIAL PARKING SPACE
- V — VISITOR PARKING SPACE
- RET — RETAIL PARKING SPACE
- BIKE/STORAGE LOCKER (1830x915)
- BIKE PARKING (STACKED - 3900x610)
- BIKE PARKING (HORIZONTAL - 1800X600)
- BIKE PARKING (VERTICAL - 1200x600)
- PAINTED LINES

2600 x 5200 — TYPICAL

2900 (2600+300) x 5200 — ONE SIDE OBSTRUCTED

2600 x 5200 — FUTURE EMVS CHARGING STATION (Rough-In Only)

3650 x 5200 — ACCESSIBLE

3650 1500 x 5200 — ACCESSIBLE - TYPE A

2700 1500 x 5200 — ACCESSIBLE - TYPE B

LEGEND

- BUILDING ENTRANCE (PRIMARY)
- BUILDING ENTRANCE (SECONDARY)
- BUILDING EXIT
- PARKING ENTRANCE
- LOADING ENTRANCE
- 000.00 — PROPOSED GRADE
- (000.00) — EXISTING GRADE
- 000.00 TOFR — TOP OF FINISHED ROOF
- PROPERTY LINE
- FIRE ROUTE
- SETBACK/ EASEMENT LINE
- LINE OF BUILDING
- LINE OF BUILDING AT GRADE
- LINE OF BUILDING BELOW GRADE

REZONING REVISION

REVISION RECORD

2022-07-11 REZONING APPLICATION

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579, 619 Lakeshore Road East and 1022, 1028 Caven Street

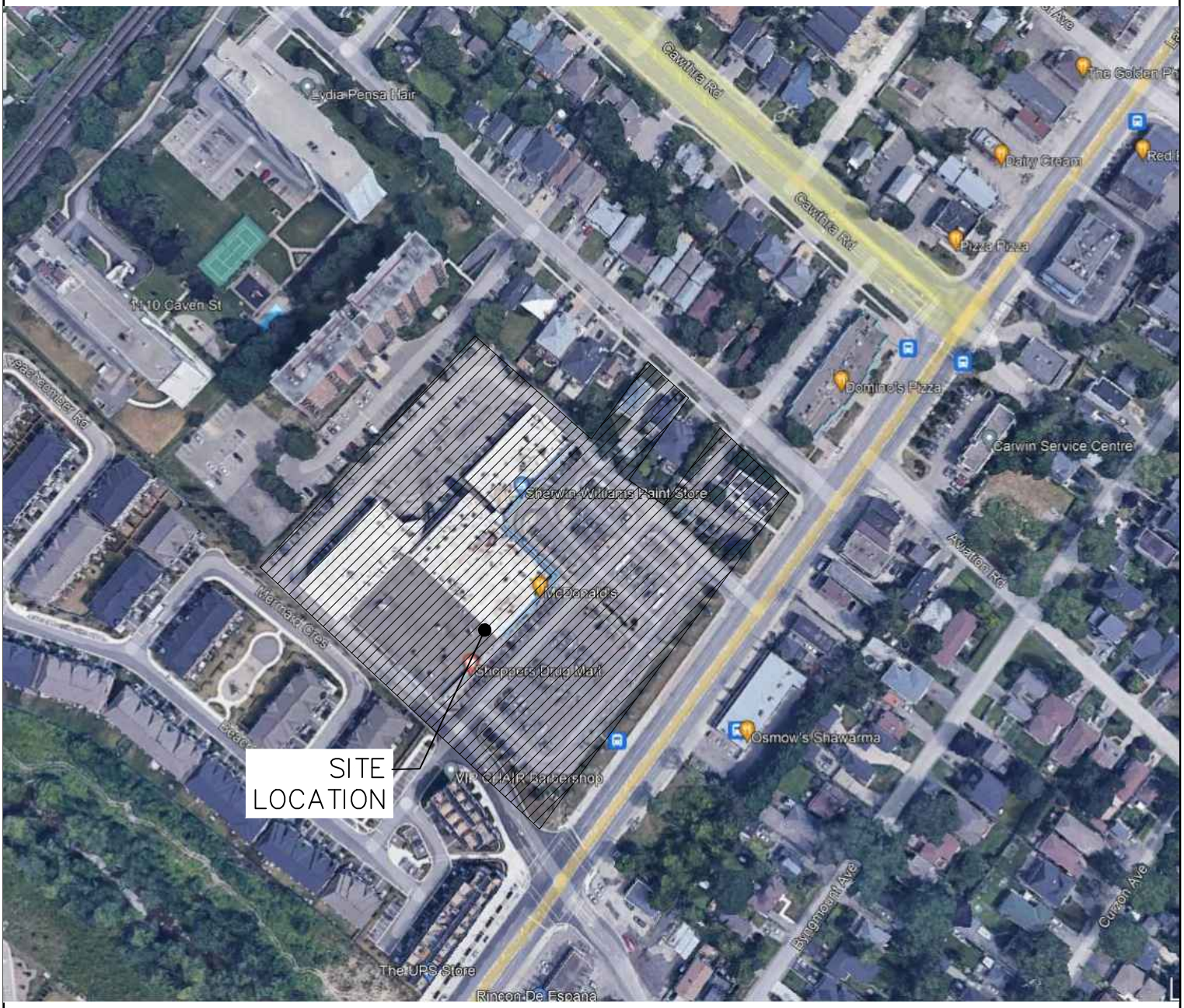
17125 PROJECT | 1:250 SCALE | AR DRAWN | KVE REVIEWED

Site Plan

A101

Figures

N



Legend

= SUBJECT LANDS

Project

579–603 LAKESHORE ROAD EAST

Drawing

SITE LOCATION

CROZIER CONSULTING ENGINEERS

211 YONGE STREET
SUITE 600
TORONTO, ON, M5B 1M4
416-477-3392 T
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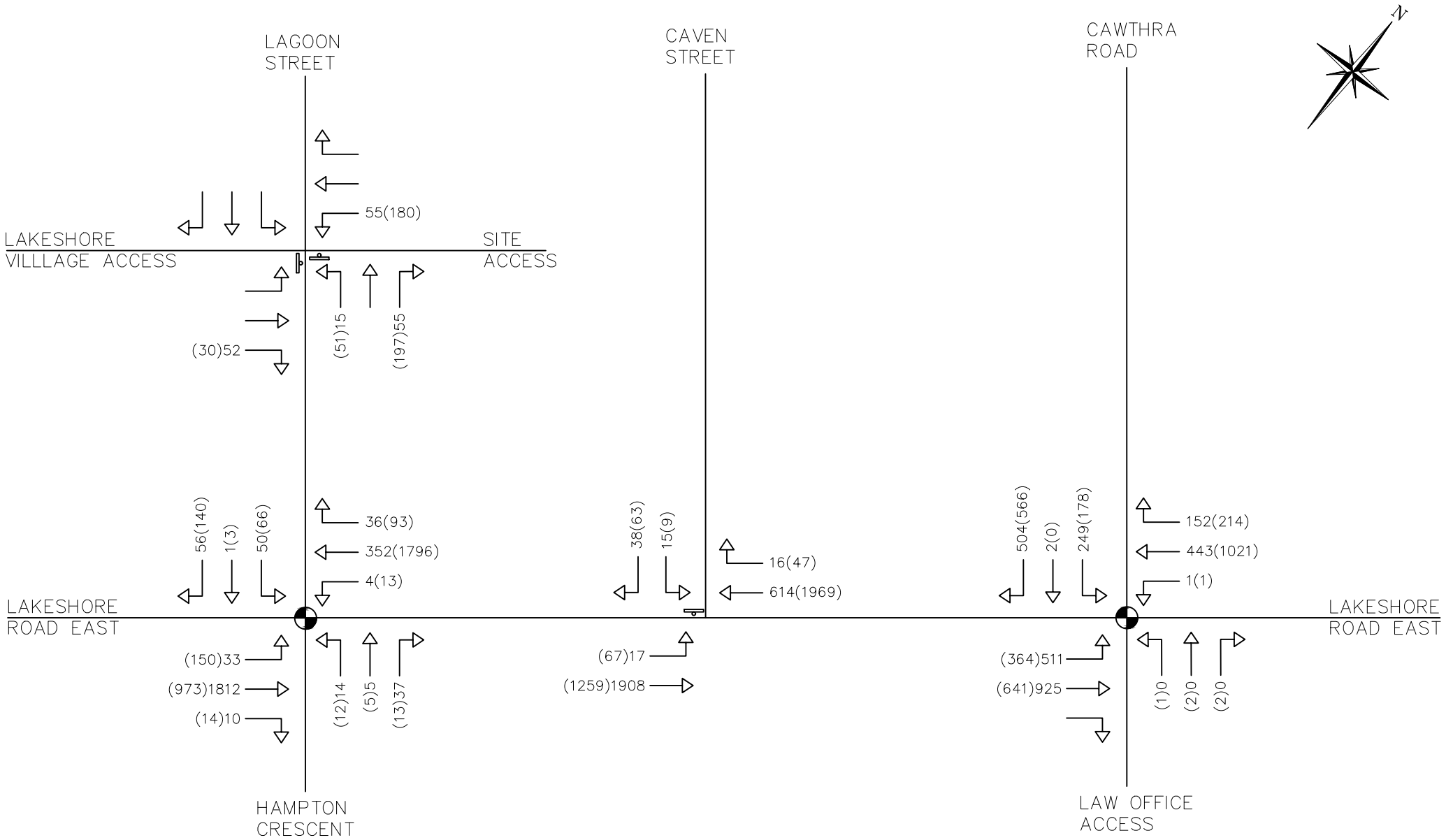
Drawn By	Design By	Project
T.K.	H.N.	1876–5866

Scale	Date	Check By	Drawing
N.T.S.	08/23/2022	H.N.	FIG. 2



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) WEEKDAY A.M. (WEEKDAY P.M.) PEAK HOUR VOLUMES

Project

579–603 LAKESHORE ROAD EAST

Drawing

2021 EXISTING TRAFFIC VOLUMES

CROZIER CONSULTING ENGINEERS

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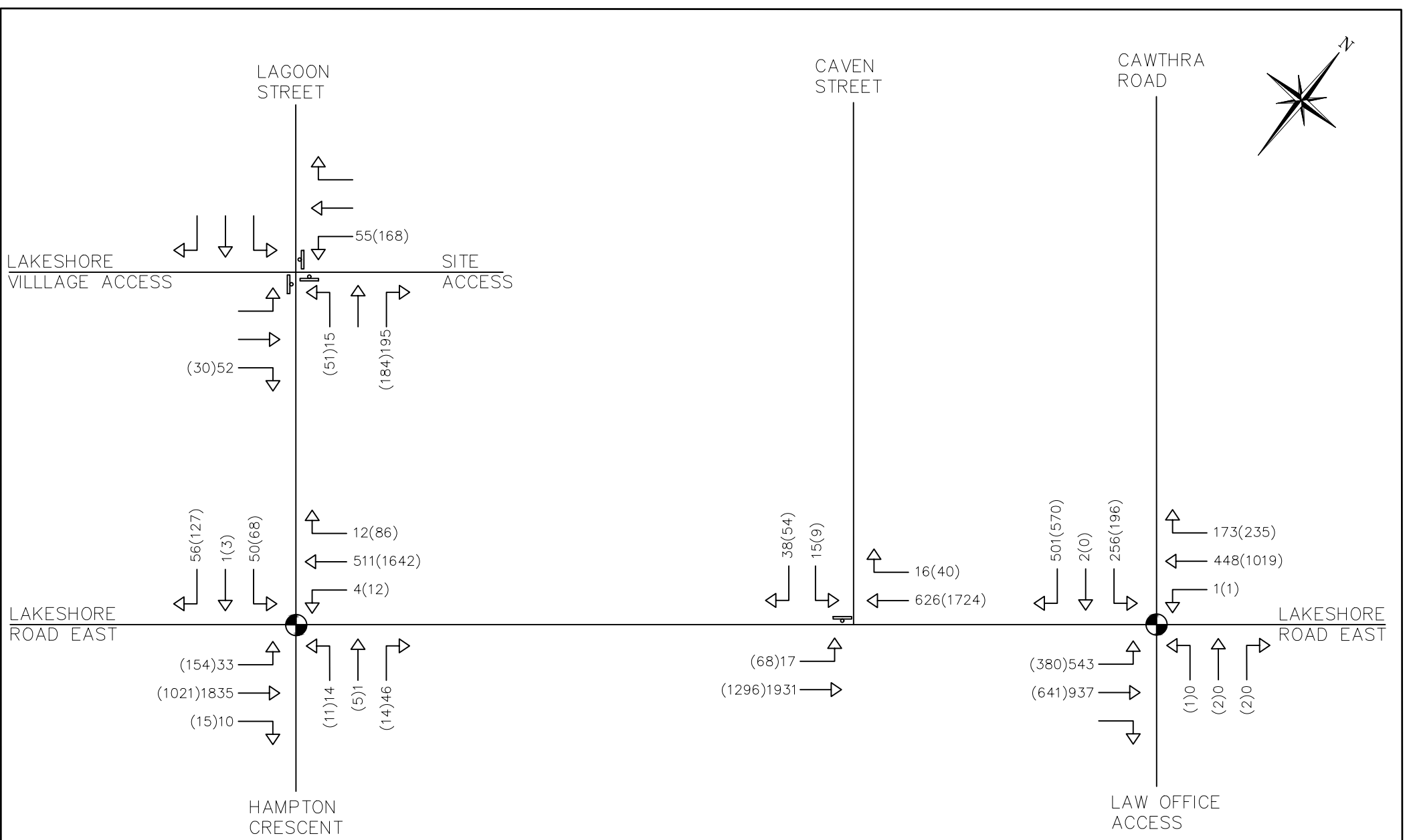
Drawn By	Design By	Project
T.K.	H.N.	1876–5866

Scale	Date	Check By	Drawing
N.T.S.	08/23/2022	H.N.	FIG. 3



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) WEEKDAY A.M. (WEEKDAY P.M.) PEAK HOUR VOLUMES

Project

579–603 LAKESHORE ROAD EAST

Drawing

2026 FUTURE BACKGROUND VOLUMES

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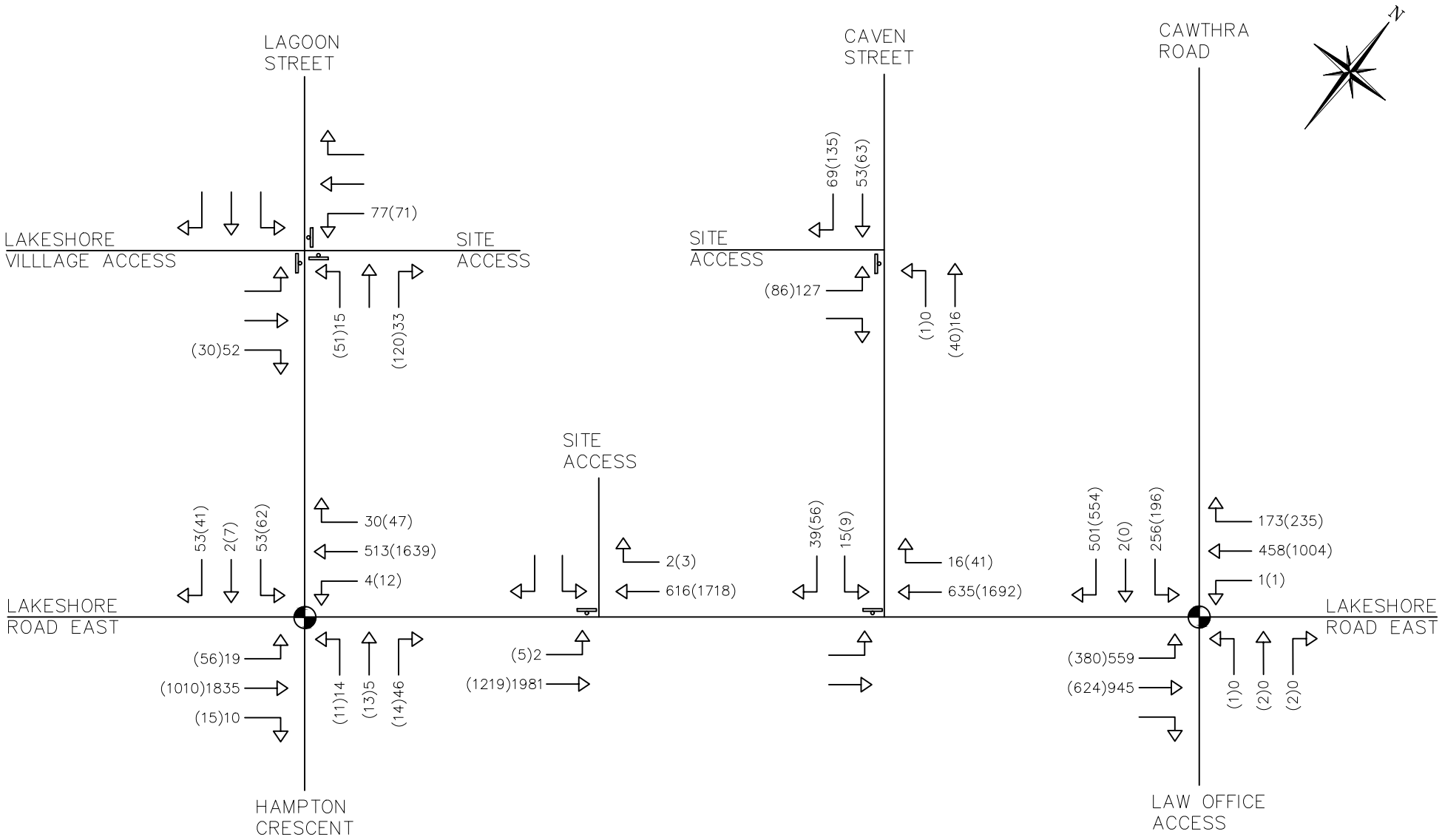
Drawn By	Design By	Project
T.K.	H.N.	1876–5866

Scale	Date	Check By	Drawing
N.T.S.	08/23/2022	H.N.	FIG. 4



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) WEEKDAY A.M. (WEEKDAY P.M.) PEAK HOUR VOLUMES

Project

579–603 LAKESHORE ROAD EAST

Drawing

2026 FUTURE TOTAL VOLUMES

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Drawn By	Design By	Project
T.K.	H.N.	1876–5866

Scale	Date	Check By	Drawing
N.T.S.	08/23/2022	H.N.	FIG. 5