

Transportation Impact Study

PROPOSED RESIDENTIAL DEVELOPMENT

3575 KANEFF CRESCENT
CITY OF MISSISSAUGA, ONTARIO

April 2022
Project No: NT-19-174

520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

Phone: 905-503-2563
www.nexttrans.ca



NextEng Consulting Group Inc.

April 8, 2022

Kaneff Properties Limited
8501 Mississauga Road
Brampton, ON L6Y 5G8

**Re: Transportation Impact Study
 Proposed Residential Development
 3575 Kaneff Crescent, City of Mississauga, ON
 Our Project No. NT-19-174**

Nexttrans Consulting Engineers (a Division of NextEng Consulting Group Inc.) is pleased to present the enclosed Transportation Impact Study and Parking Justification for the above noted site in support of Official Plan Amendment and Zoning By-law Amendment Applications.

The subject property is located at 3575 Kaneff Crescent, in the City of Mississauga. The subject site is bounded by Mississauga Valley Boulevard to the east, Elm Drive East to the south, Kaneff Crescent to the north, Obelisk Way to the west. The subject site is currently occupied by the parking lot. The proposed development consists of a 33-storey residential building with a total of 322 dwelling unit. A total of 298 vehicle parking spaces and 64 bicycle parking spaces will be provided.

The transportation study concludes that the proposed development can adequately be accommodated by the existing transportation network, excellent existing Miway Service services, as well as the recommended Transportation Demand Management measures and incentives recommended in this report.

We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

Nexttrans Consulting Engineers

A Division of NextEng Consulting Group Inc.

Prepared by:



Sam Nguyen, Dipl.
Transportation Analyst

Approved by:



Richard Pernicky, MITE
Principal

Issues and Revisions Registry

Identification	Date	Description of issued and/or revision
Final Report	April 8, 2022	For submission

EXECUTIVE SUMMARY

Nexttrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained by Kaneff Properties Limited (the 'Client') to undertake a Transportation Impact Study and Parking Justification Study in support of Official Plan and Zoning By-law Amendment Applications for a proposed residential development. The subject property is located at 3575 Kaneff Crescent and bounded by Mississauga Valley Boulevard to the east, Elm Drive East to the south, Kaneff Crescent to the north, Obelisk Way to the west.

Proposed Development

The site is currently occupied by a parking lot. The redevelopment proposal includes a 33-storey residential building with a total of 322 dwelling units. The proposed development will provide four levels underground parking garage a total of 236 vehicle parking spaces and off-site 64 visitor parking spaces. A total of 64 bicycle spaces will also be provided.

Proposed Development Access

As part of the proposed development, the access to building will be full movement via Obelisk Way.

Capacity Analysis

The proposed development is expected to generate:

- 229 total two-way trips (48 inbound and 181 outbound) and 190 total two-way trips (112 inbound and 78 outbound) during the morning and afternoon peak hours, respectively;
- 108 total two-way auto trips (23 inbound and 85 outbound) and 95 total two-way auto trips (56 inbound and 39 outbound) during the morning and afternoon peak hours, respectively;
- 73 total two-way transit trips (15 inbound and 58 outbound) and 19 total two-way transit trips (11 inbound and 8 outbound) during the morning and afternoon peak hours, respectively;
- 16 total two-way active trips (3 inbound and 13 outbound) and 32 total two-way active trips (19 inbound and 13 outbound) during the morning and afternoon peak hours, respectively;
- 32 total two-way carpooling/ paid rideshare trips (7 inbound and 25 outbound) and 44 total two-way active trips (26 inbound and 18 outbound) during the morning and afternoon peak hours, respectively;

Auto Mode Assessment

Under the existing, future background and future total conditions, the intersection operation capacity analysis indicates that all intersections considered are expected to operate at acceptable levels of service. No improvements are required under these horizon years.

The analysis indicates that the proposed access via Obelisk Way is expected to operate at acceptable levels of service with minimal delays or queues. No improvement to the existing road network is required to accommodate the proposed development.

Active Transportation Mode Assessment

Walking

Currently, there are sidewalks located on both sides of the Mississauga Valley Boulevard, Kaneff Crescent, Obelisk Way and Elm Drive East in the vicinity of the proposed development.

Since the proposed development will utilize the sidewalks on Kaneff Crescent and Mississauga Valley Boulevard, no improvements are necessary to accommodate the proposed development. Appropriate suggestions will be provided in later sections of the report that will speak to the pedestrian requirement as part of the proposed development.

Cycling

Currently, there are two dedicated cycling routes in the general area:

- Dedicated north-south bicycle lanes along Mississauga Valley Boulevard;
- Dedicated east-west bicycle lanes along Elm Drive East.

It is Nextrans' opinion that the study area is well served by existing cycling facilities. To continue to support the modal split and transportation demand management incentives for the area, it is recommended that, at the minimum, the proposed development provides 56 bicycle parking spaces.

Transit Mode Assessment

The area is currently well serviced by the existing Miway transit network. The proposed development is located adjacent to MiWay Bus Routes 8 Cawthra, 53 Kennedy and 3 Bloor. It is NexTrans' opinion that the proposed development will contribute a healthy transit ridership for the existing Miway Transit system in the area

The transit passenger demands generated by the proposed development per transit vehicle is very low (at most 4 passenger per transit vehicle per hour). As such, the proposed development impact on transit service is negligible and no improvements are required.

In reality, some of passengers could be bunched together during the peak 15 minutes, instead of spreading during the entire peak hour. Even if this is the case, our estimates indicate that the demand per vehicle is extremely low and can be accommodated without the need for additional transit vehicles or improvements during both the morning and afternoon peak periods.

Vehicle Parking Review

Based on the City of Mississauga By-Law 0225-2007 Part 3 – Parking, Loading and Stacking Lane Regulations, a total of 468 parking spaces are required for the proposed development. It is our understanding that the proposed development provides 298 vehicle parking spaces (including 234 parking spaces for resident and 64 parking spaces for visitor) or in rate of 0.73 spaces/ unit for resident and 0.20 spaces/unit for visitor parking, this presenting a technical shortfall of 168 parking spaces (~36% reduction).

Currently, there is no requirements for bicycle parking for the proposed development. However, it is our understanding that the proposed development will provide 64 bicycle parking spaces, in order to encourage residents to take alternative modes of transportation to and from the proposed development.

Transportation Demand Management Measures and Incentives

The TDM measures and incentives related to the proposed development have been assessed and recommended in Section 9 of this report to support active transportation and transit, to meet the objectives and requirements of the City of Mississauga transportation policies.

Loading Requirement

The proposed development will use the private garbage pick up and a loading space is provided for garbage pick up that will meet the City's By-Law requirement. AutoTURN software was used to demonstrate the turning movement requirements for garbage pick-up, delivery and passenger vehicles at the proposed access via Obelisk Way, the proposed loading and internal circulation to the underground parking.

Study Conclusions and Recommendations

Based on the assessment, our report recommends that:

- The proposed development implements the TDM measures and incentives identified in this report to support active transportation and transit and to reduce the numbers of single-occupant-vehicle trips to and from the proposed development;
- The proposed development provides direct shared pedestrian and cycling connections from the proposed development building entrances directly to public streets, where appropriate;
- The proposed development considers reduce 36% of required parking supply (or 0.93 spaces/unit) to support TDM and transit;
- No additional physical improvements for the area at this time under the future background and future total conditions.

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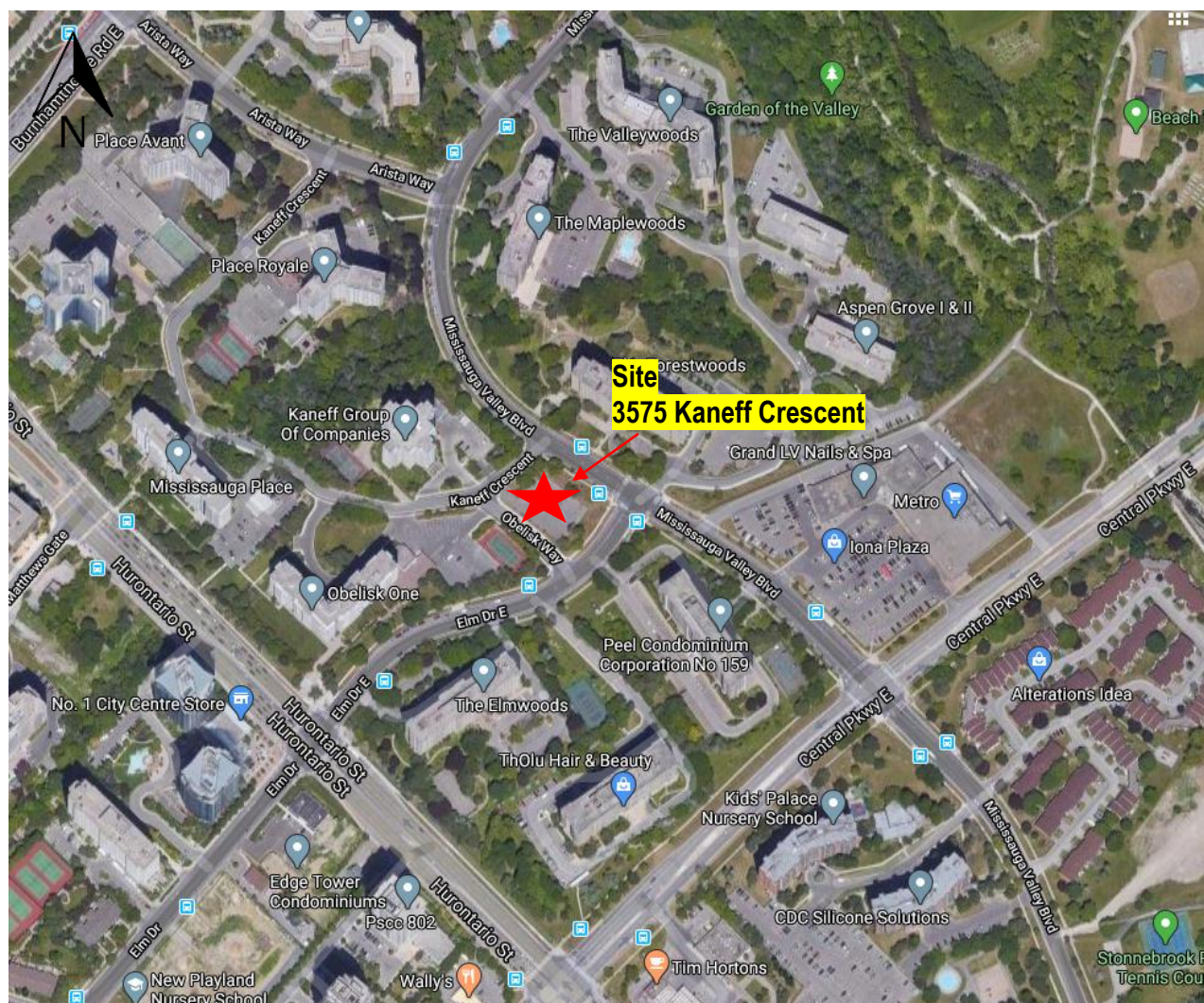
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1.0 INTRODUCTION

Nexttrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained by Kaneff Properties Limited (the 'Client') to undertake a Transportation Impact Study and Parking Justification Study in support of Official Plan and Zoning By-law Amendment Applications for a proposed residential development. The subject property is located at 3575 Kaneff Crescent and bounded by Mississauga Valley Boulevard to the east, Elm Drive East to the south, Kaneff Crescent to the north, Obelisk Way to the west.

The location of the proposed development is illustrated in **Figure 1**.

Figure 1 – Proposed Development Location



Source: Google Map

The site is currently occupied by a parking lot. The redevelopment proposal includes a 33-storey apartment building with a total of 322 dwelling units. As part of the proposed development, the access to building will be full movement via Obelisk Way. The proposed development will provide four levels underground parking garage a total of 236 vehicle parking spaces for tenant and off-site 64 parking spaces for visitor. A total of 64 bicycle spaces will also be provided.

Figure 2 illustrates the proposed development site plan.

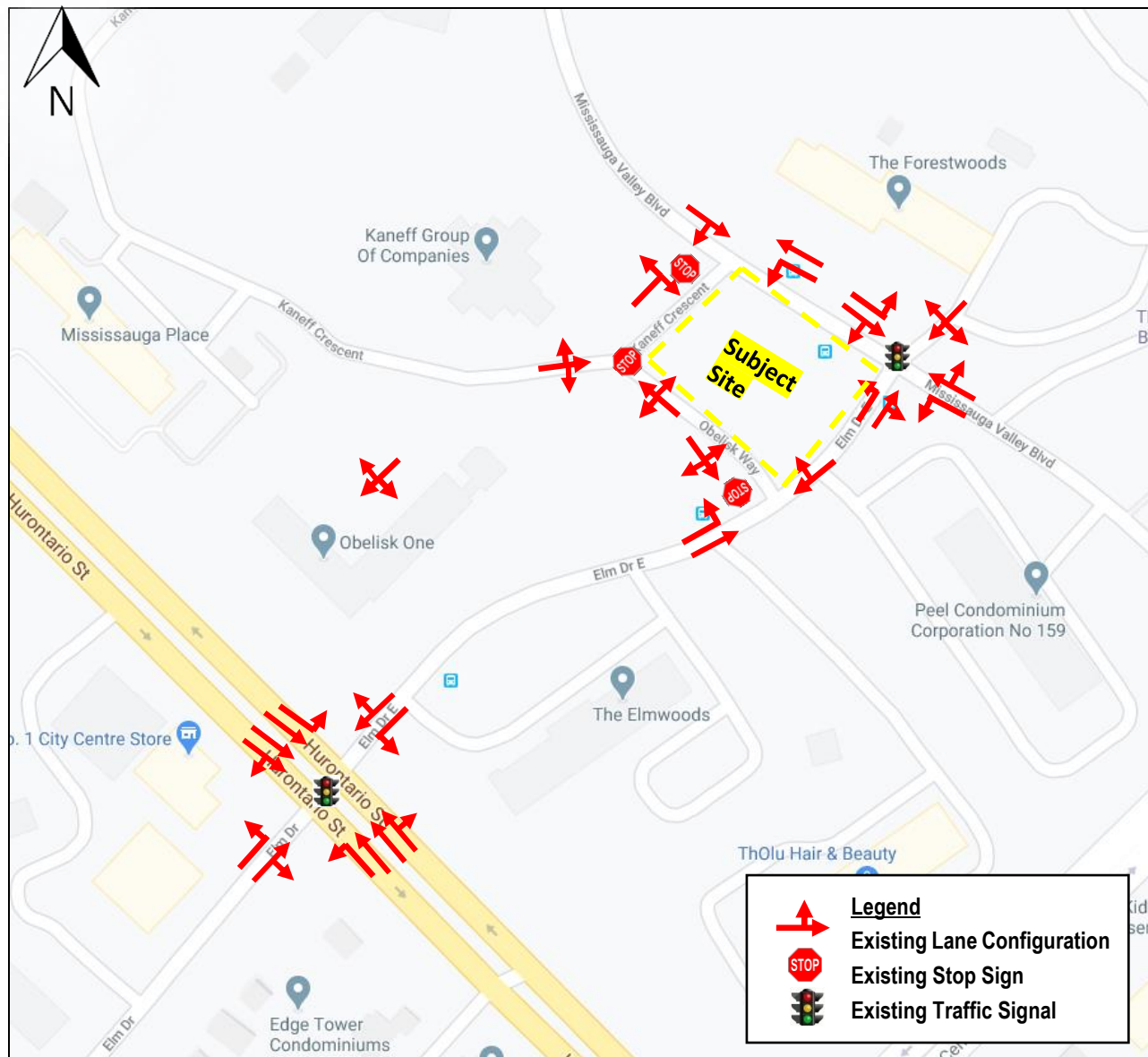
2.1. Existing Road Network

- **Mississauga Valley Boulevard:** is a north-south minor collector road under the jurisdiction of the City of Mississauga. It has three lane cross sections and maintains a posted speed of 40 km/h in the vicinity of the subject site.
- **Kaneff Crescent:** is an east-west local road under the jurisdiction of the City of Mississauga. It has two lanes cross sections and maintain a posted speed of 40 km/h in the vicinity of the subject site.
- **Obelisk Way:** is a north-south local road under the jurisdiction of the City of Mississauga. It has two lane cross section and maintain an unposted speed of 40 km/h in the vicinity of the subject site.
- **Elm Drive East:** is an east-west minor collector road under the jurisdiction of the City of Mississauga. It has three lane cross sections and maintains an unposted speed of 40 km/h in the vicinity of the subject site.
- **Hurontario Street:** is a north-south arterial road under the jurisdiction of the City or Mississauga. It has six-lane cross sections and maintain a posted speed of 60 km/h in the vicinity of the subject site.

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Kaneff Crescent, which will minimize the number of turning movement conflicts and potential accidents on Kaneff Crescent.

Figure 3 – Existing Lane Configuration and Traffic Control

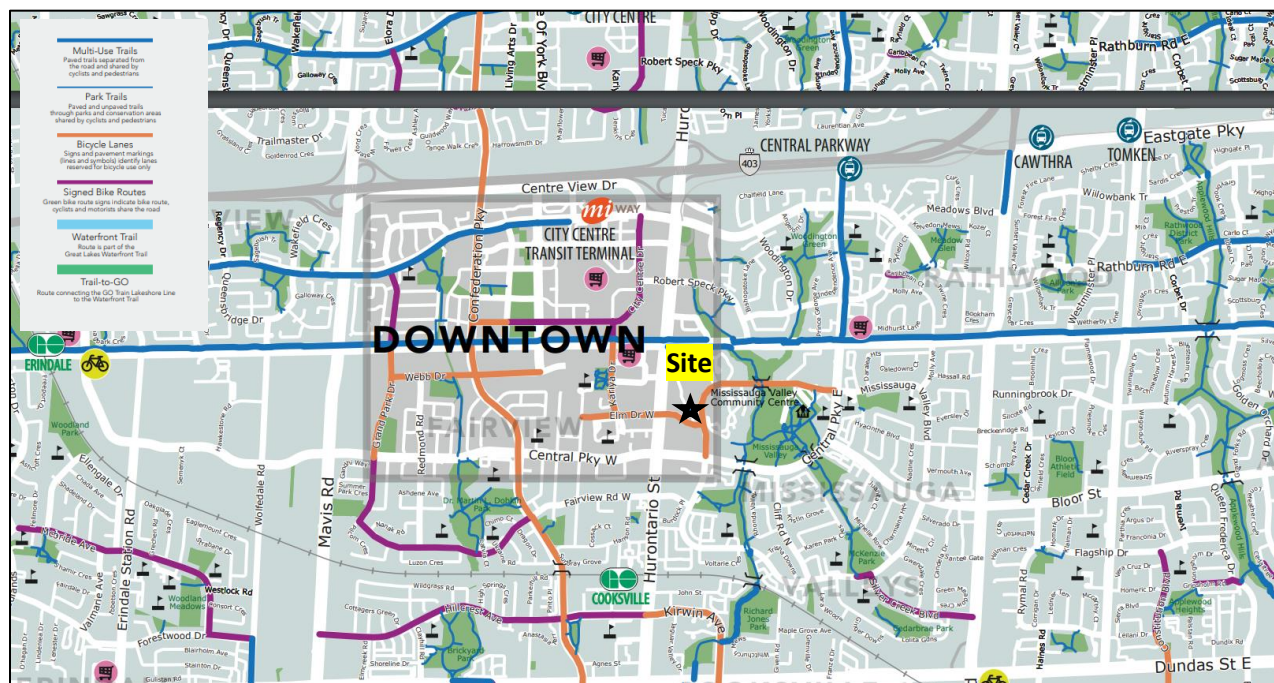


Source: Google Map

2.2. Existing Active Transportation Network

Figure 4 illustrates the existing active transportation network in the study area.

Figure 4 – Existing Active Transportation Network in the Study Area



Source: Mississauga Cycling Map 2018

2.3. Existing Active Transportation Assessment

Sidewalk

Currently, there are sidewalks located on both sides of the Mississauga Valley Boulevard, Kaneff Crescent, Obelisk Way and Elm Drive East in the vicinity of the proposed development.

Since the proposed development will utilize the sidewalks on Kaneff Crescent and Mississauga Valley Boulevard, no improvements are necessary to accommodate the proposed development. Appropriate suggestions will be provided in later sections of the report that will speak to the pedestrian requirement as part of the proposed development.

Bicycle Facility

Currently, there are two dedicated cycling routes in the general area:

- Dedicated north-south bicycle lanes along Mississauga Valley Boulevard;
- Dedicated east-west bicycle lanes along Elm Drive East.

It is Nextrans' opinion that cycling facilities could be improved in the area, as part of the future City capital projects or cycling initiatives. These types of projects are beyond the scope of the proposed development.

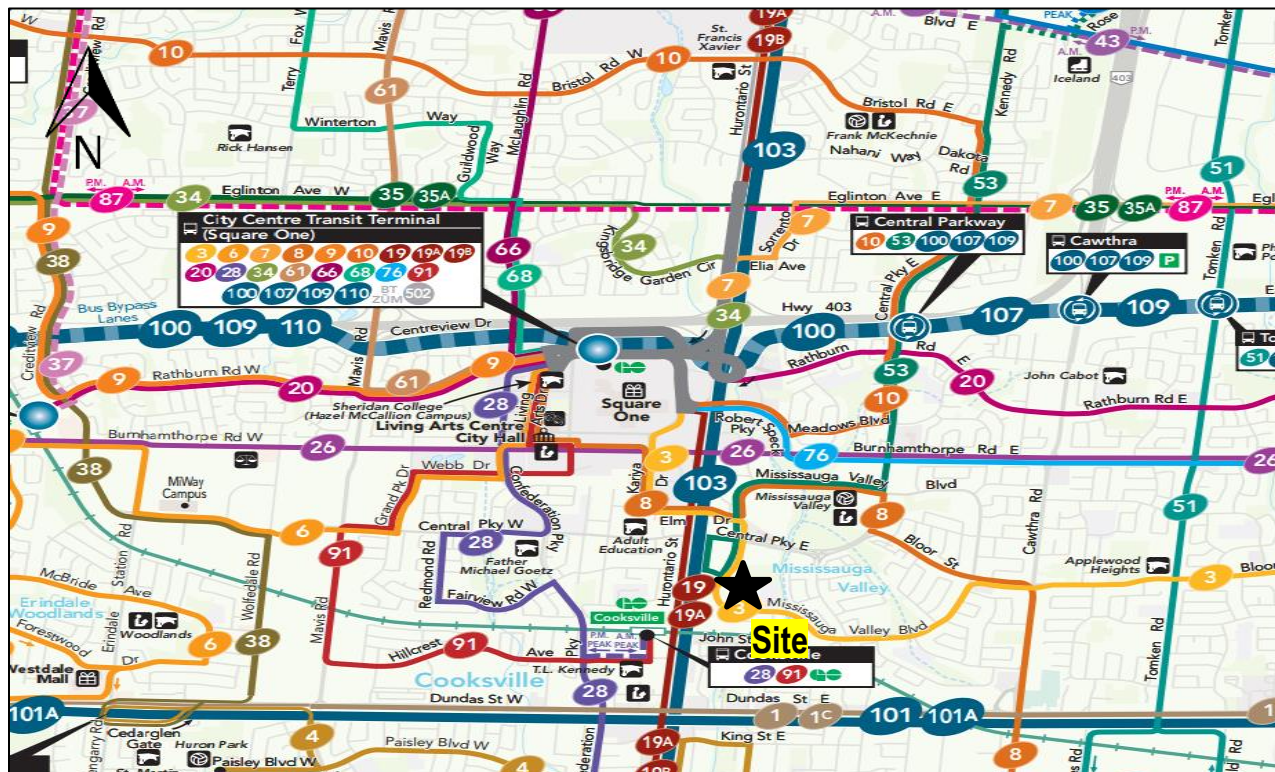
2.4. Existing MiWay System

The area is currently well serviced by the existing Miway transit network. The proposed development is located adjacent to MiWay Bus Routes 8 Cawthra, 53 Kennedy, 3 Bloor, about 300 m to the Miway Bus Route 2 Hurontario, 103 Hurontario Express, 302 Philip Pocock-Bloor West (School Route), GO Bus Route 21 Milton at Hurontario Street and Elm Drive East. It is NexTrans' opinion that the proposed development will contribute a healthy transit ridership for the existing Miway Transit system in the area. The existing transit network in the area is illustrated in **Figure 5**.

The proposed development is located about 1 km from City Centre Transit Terminal, which is part of Mississauga Transitway project that delivers 18 kilometers of dedicated busway. The City Centre Transit Terminal is linked to other 11 stations from Winston Churchill Boulevard to Renforth Drive. The proposed development also located about 500 m to

Hurontario St and Burnhamthorpe Road intersection which will be Burnhamthorpe Stop, as part of Hurontario Light Rail (LRT) project that expected to complete on 2024. The Hurontario LRT will delivers 18 kilometres of dedicated bus lane with 19 stops, linking local transit like MiWay, Brampton Transit, Zum and Mississauga Transitway at Square One, in between Brampton and Mississauga.

Figure 5 – Existing Transit Network in the Area



Source: MiWay Route Map

Below are the bus route descriptions based on the information provided on the Mississauga Transit Website (<https://web.mississauga.ca/miway-transit/>):

- MiWay Bus Route 8 Cawthra** - The 8 Cawthra bus route operates generally in a north-south direction between City Centre Transit Terminal Platform J and Port Credit GO Station Platform 8. This route operates all day, every day and the service frequency are about 10 minutes during the peak periods.
- MiWay Bus Route 3 Bloor** - The 3 Bloor bus route operates generally in an east-west direction between TTC Islington Subway Station and City Centre Transit Terminal Drop Off. This route operates all day, every day and the service frequency are about 10 minutes during the peak periods.
- MiWay Bus Route 53 Kennedy** - The 53 Kennedy bus route operates generally in a north-south direction between Hurontario & 407 Park and Ride Platform A and Hurontario Street at Central Parkway East. This route operates all day, every day and the service frequency are about 20 minutes during the peak periods.
- MiWay Bus Route 2 Hurontario** - The 2 Hurontario bus route operates generally in north-south direction between City Centre Transit Terminal and Port Credit GO Station. This route operates all days, everyday and the service frequency are about 10 minutes during peak periods. The 2 Hurontario will replace the former 19 Hurontario bus route due to Hurontario LRT construction on Hurontario Street.
- MiWay Bus Route 103 Hurontario Express** - The 103 Hurontario bus route operates generally in north-south direction between Brampton Gateway Terminal and Port Credit GO Station Platform 5. The route operates all days, everyday and the service frequency are about 20 minutes.

2.3. Existing Traffic Volumes

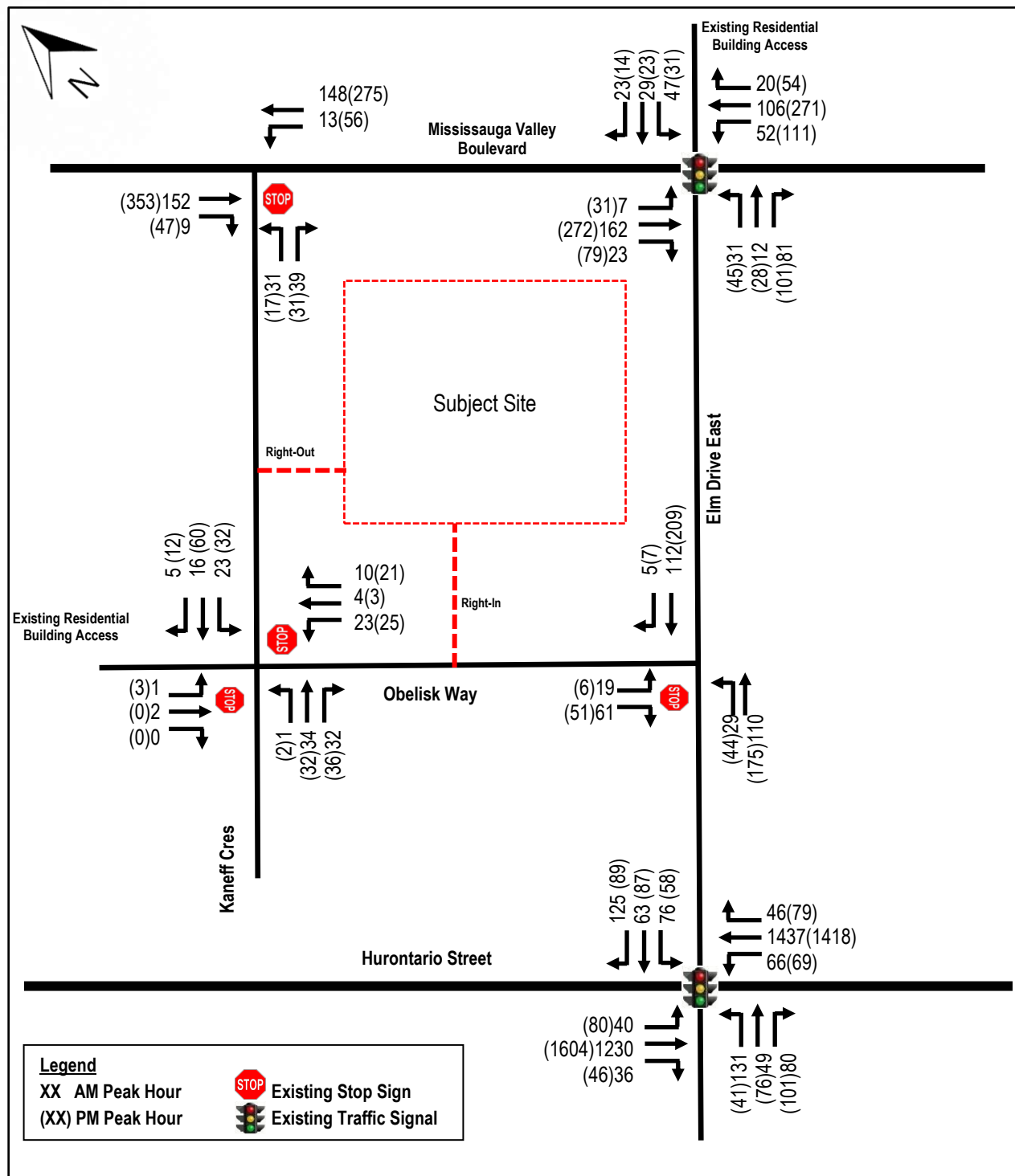
Existing traffic volumes at the study area intersections were undertaken by Spectrum during the morning (7:00 a.m. to 10:00 a.m.) and afternoon (4:00 p.m. to 7:00 p.m.) peak periods for following intersections:

- Hurontario Street and Elm Drive: Thursday, March 05, 2020
- Elm Drive East and Mississauga Valley Blvd: Tuesday, February 04, 2020
- Kaneff Cres and Mississauga Valley Blvd: Tuesday, February 04, 2020
- Kaneff Cres and Obelisk Way: Tuesday, February 04, 2020
- Obelisk Way and Elm Drive East: Tuesday, February 04, 2020

Turning movement counts are summarized in **Appendix A**.

The signal timing plans for the signalized intersections were obtained from the City of Mississauga and incorporated into the analysis. The existing volumes are illustrated in **Figure 6**.

Figure 6 – Existing Traffic Volumes



2.4. Existing Traffic Assessment

The existing volumes in **Figure 6** were analyzed using Synchro Version 9 software. The methodology of the software follows the procedures described and outlined in the Highway Capacity Manual, HCM 2000, published by the Transportation Research Board. The detailed results are provided in **Appendix B** and summarized in **Table 1**.

Table 1 – Existing Levels of Service for Signalized Intersections

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mississauga Valley Boulevard and Elm Drive East (signalized)	Overall	B (0.34)	11.2		B (0.50)	11.5	
	EB – L	B (0.20)	15.3	7.8	B (0.30)	18.9	12.6
	EB – TR	B (0.12)	14.8	9.8	B (0.22)	18.1	15.2
	WB – LTR	B (0.31)	14.1	15.3	B (0.24)	16.6	14.5
	NB – L	A (0.10)	5.2	4.4	A (0.21)	5.0	8.4
	NB – TR	A (0.14)	5.3	10.7	A (0.34)	5.5	28.7
	SB – L	B (0.02)	10.9	2.6	B (0.10)	10.3	6.6
	SB – TR	B (0.42)	12.8	25.2	B (0.64)	14.9	49.8
Hurontario Street and Elm Drive East (signalized)	Overall	B (0.65)	15.3		B (0.66)	15.6	
	EB – L	C (0.58)	25.2	30.7	C (0.23)	22.0	11.9
	EB – TR	C (0.20)	20.4	17.2	C (0.40)	23.1	25.7
	WB – L	C (0.32)	21.4	18.8	C (0.32)	22.7	15.4
	WB – TR	C (0.28)	20.9	21.4	C (0.45)	23.5	28.3
	NB – L	A (0.32)	8.9	9.1	A (0.32)	9.3	7.3
	NB – TR	B (0.70)	14.4	95.2	B (0.73)	14.8	78.0
	SB – L	A (0.23)	10.0	6.2	A (0.33)	8.3	8.2
Elm Drive East and Obelisk Way (unsignalized)	EB – LT	A (0.02)	9.5	0.5	A (0.02)	7.5	0.5
	SB – LR	A (0.10)	7.5	2.5	A (0.10)	9.8	2.6
Obelisk Way and Kaneff Cres (unsignalized)	EB – LTR	A (0.00)	0.1	0.0	A (0.00)	0.2	0.0
	WB – LTR	A (0.02)	4.0	0.4	A (0.02)	2.4	0.5
	NB – LTR	A (0.05)	9.6	1.2	B (0.07)	10.0	1.7
	SB – LTR	B (0.00)	10.0	0.1	B (0.00)	10.7	0.1
Mississauga Valley Boulevard and Kaneff Crescent (unsignalized)	EB – LR	B (0.10)	10.0	2.4	B (0.09)	11.9	2.3
	NB – LT	A (0.01)	7.6	0.2	A (0.05)	8.4	1.3

Based on the intersection capacity analysis, under the existing traffic conditions, all the intersections considered are currently operating at acceptable levels of service. No improvement is required at this time.

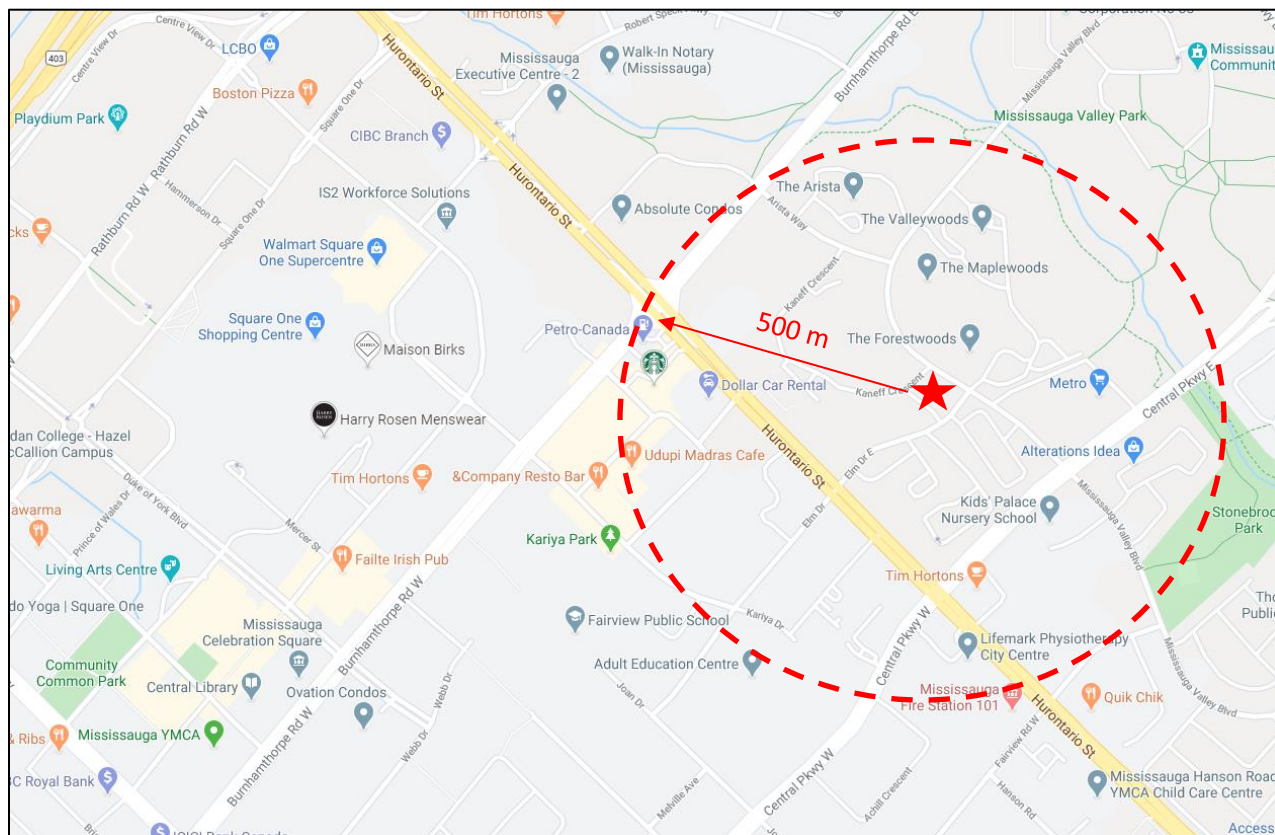
3.0 TRANSPORTATION PLANNING CONTEXT IN THE AREA

3.1. Land Use Context

NexTrans has conducted a comprehensive review of the area. To the west of the subject site, Hurontario Street is an important corridor that has several institutions such as Square One Shopping Center, Sheridan College-Hazel McCallion Campus among other healthcare institutions. There are significant retail, restaurants and service establishments within walking and cycling distance to the proposed development. Amenities within a 500-m radius (approximately 8-minute walk) include Metro, Money Mart, Banks and Square One Shopping Center and others. The active transportation facilities such as sidewalks and bike lanes on Mississauga Valley Boulevard. **Figure 7** illustrates the amenities within a 500-m radius.

It is NexTrans' opinion that the proposed development is located at a great location from a transportation planning perspective and proper parking supply management will encourage residents to take transit and active transportation instead of driving single-occupant-vehicles.

Figure 7 – Amenity Within 500m Radius



Sources: Google Maps

3.2. Transportation Planning Context

As indicated in Section 2.4, the area is currently well serviced by the existing MiWay transit network. The proposed development is located adjacent to MiWay Bus Routes 8 Cawthra, 53 Kennedy, 3 Bloor, about 300 m to the Miway Bus Route 2 Hurontario, 103 Hurontario Express, 302 Philip Pocock-Bloor West (School Route), GO Bus Route 21 Milton at Hurontario Street and Elm Drive East. It should be noted that the Hurontario LRT project are expected to complete on fall 2024, that will contribute new 18-kilometre dedicated bus lane with 19 bus stops from Brampton to Mississauga and all connection in between. The proposed development is located about 800 m (less then 10-minute walk) to the Burnhamthorpe Station at the Hurontario Street and Burnhamthorpe Road intersection. It is NexTrans' opinion that the proposed development will contribute a healthy transit ridership for the existing Mississauga transit system in the area. **Figure 8** illustrates the Hurontario LRT map.

The area is currently well serviced by a sufficient network of sidewalks, with sidewalks are available on both sides of Mississauga Valley Boulevard, Kaneff Crescent, Obelisk Way and Elm Drive East. There are dedicated bicycle lanes on Mississauga Valley Boulevard and Elm Drive East.

As part of this Study, NexTrans will provide appropriate recommendations that the proposed development can implement to continue positively to the area and community.

Figure 8 – Hurontario LRT Map



Source: metrolinx.com/en/greaterregion/projects/hurontario-lrt.aspx

4.0 FUTURE BACKGROUND CONDITIONS

4.1. Analysis Horizon

For the purposes of this assessment, it is assumed that the proposed development will be fully built-out by 2023. As such, a five-year horizon (2028) after the entire building process of the proposed development has been carried out for the study analysis.

4.2. Future Background Corridor Growth

A general growth rate of 2.0% compounded was applied to all the movements on Mississauga Valley Boulevard and Elm Drive East to represent traffic growth from beyond the study area. It is our opinion that the proposed development will have negligible impact to the unsignalized intersection with no more than 2% of traffic volumes added to the existing traffic conditions. Based on the information provided by the City of Mississauga staff, the growth rate for the Hurontario

Street from 2020 to 2023 will be -30% on northbound and -31% on southbound during AM peak hour, and -28% on northbound and -30% on southbound during PM peak hour, respectively. These rate for Hurontario Street represents a one-time total change, and the changes in travel patterns as a result of LRT implementation. As such, for the conservative analysis, no corridor growth will be reflected in the analysis.

4.3. Background Development Applications

Based on the City of Mississauga development portal website, there are multiple background developments in the study area, however NexTrans has contacted the City Planners and there isn't available information of the background developments. As such, no background development will be considered in this assessment. The corresponded with the City Planner can be found in **Appendix E**.

4.4. Future Background Traffic Assessment

The estimated 2028 future background traffic volumes are illustrated in **Figure 9**, and were analyzed using Synchro Version 9 software. The detailed calculations are provided in **Appendix E** and summarized in **Table 2**.

Figure 9 – 2028 Future Background Traffic Volumes

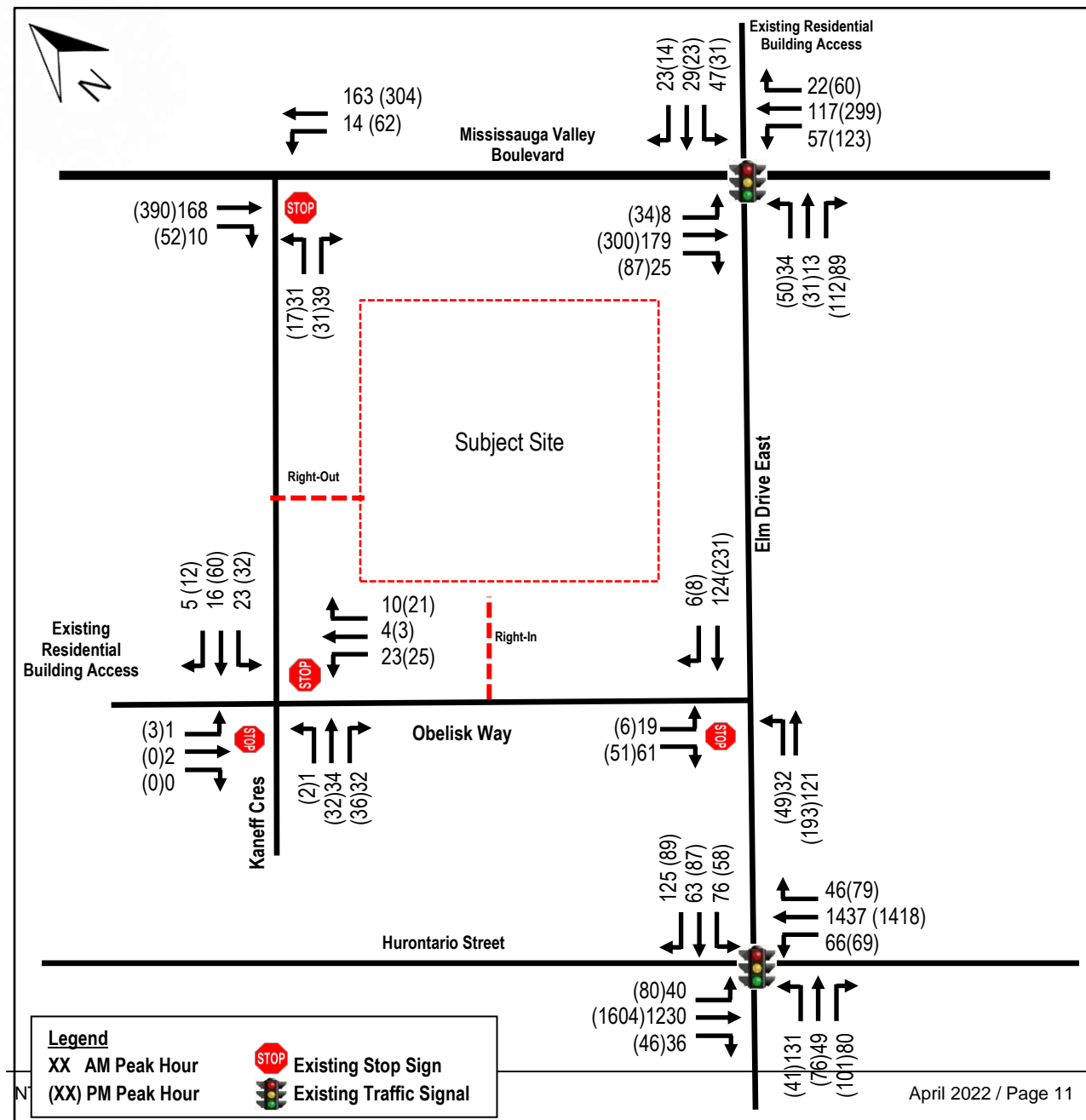


Table 2 – 2028 Future Background Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mississauga Valley Boulevard and Elm Drive East (signalized)	Overall	B (0.36)	11.2		B (0.51)	11.6	
	EB – L	B (0.16)	15.2	8.2	B (0.32)	19.0	13.5
	EB – TR	B (0.14)	15.2	10.5	B (0.24)	18.2	16.3
	WB – LTR	B (0.32)	14.5	15.6	B (0.24)	16.6	14.5
	NB – L	A (0.11)	5.2	4.8	A (0.23)	5.2	9.5
	NB – TR	A (0.16)	5.3	11.8	A (0.38)	5.8	32.9
	SB – L	B (0.03)	10.7	2.8	B (0.11)	10.5	7.1
	SB – TR	B (0.45)	12.8	28.0	B (0.64)	15.2	50.6
Hurontario Street and Elm Drive (signalized)	Overall	C (0.85)	29.0		D (0.86)	38.3	
	EB – L	C (0.60)	27.0	30.7	C (0.22)	22.0	12.0
	EB – TR	C (0.21)	21.4	17.2	C (0.40)	23.0	26.0
	WB – L	C (0.33)	22.4	18.8	C (0.31)	22.7	15.6
	WB – TR	C (0.28)	21.9	21.4	C (0.45)	23.4	28.6
	NB – L	C (0.50)	30.8	20.8	C (0.48)	28.2	19.9
	NB – TR	C (0.97)	32.8	188.0	C (0.96)	27.9	156.3
	SB – L	D (0.63)	48.0	14.2	C (0.55)	30.3	22.3
Elm Drive East and Obelisk Way (unsignalized)	EB – LT	A (0.02)	7.6	0.6	A (0.04)	7.9	1.0
	SB – LR	A (0.11)	9.9	2.7	B (0.09)	10.5	2.1
Obelisk Way and Kaneff Cres (unsignalized)	EB – LTR	A (0.00)	0.1	0.0	A (0.00)	0.2	0.0
	WB – LTR	A (0.02)	4.0	0.4	A (0.02)	2.4	0.5
	NB – LTR	A (0.05)	9.6	1.2	B (0.07)	10.0	1.7
	SB – LTR	B (0.00)	10.0	0.1	B (0.00)	10.7	0.1
Mississauga Valley Boulevard and Kaneff Crescent (unsignalized)	EB – LR	B (0.10)	10.2	2.5	B (0.10)	12.3	2.4
	NB – LT	A (0.01)	7.6	0.3	A (0.06)	8.5	1.5

Under the future background conditions, similar to the existing conditions, the intersection operation capacity analysis indicates that all intersections considered are expected to continue operating at acceptable levels of service. It should be noted that the lane configurations for Hurontario Street was provided by City of Mississauga's staff to respect the Hurontario LRT project that expected to complete on Fall 2024, was applied to this horizon year assessment. The lane reduction on Hurontario from three through lanes in each direction to two through, and left turn lanes will be protective only. As such, no physical improvement is required at this horizon year, due to the change of Hurontario LTR.

5.0 SITE TRAFFIC

5.1. Proposed Development

As indicated, the redevelopment proposal includes a 33-storey residential building with 322 dwelling units.

The 2016 Transportation Tomorrow Survey (TTS) and the Trip Generation Manual, 10th Edition published by the Institute of Transportation Engineers (ITE) were reviewed to estimate the modal split, trip distribution and trip generation for the proposed development.

5.2. Modes of Travel Assessment in the Area

Table 3 summarizes the travel mode split information, based on the review of the 2016 Transportation Tomorrow Survey data, for traffic zones 3863. The detailed analysis and TTS data extraction are included in **Appendix F**.

Table 3 – Modes of Travel based on 2016 TTS Data for Traffic Zones 3863

Time	Trips Made by Traffic Zones 3863					
	Auto Driver	Auto Passenger	Taxi/Paid Ride Share	Transit	Cycle	Walk
AM Peak Period (6:00-9:00 AM)	47%	12%	2%	32%	0%	7%
PM Peak Period (3:00-6:00 PM)	50%	23%	0%	10%	0%	17%

Based on the information outlines in the table above, the predominant modes of travel to and from the area are non-auto modes (walking, cycling, transit and carpooling), which account to nearly 53% during the morning peak periods and 50% during the afternoon peak periods.

5.3. Site Trip Generation

For the purposes of this assessment, the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE) was reviewed to estimate the site generated trips. Based on our review, the selected corresponding land use code is “Multifamily Housing High-Rise Dense-Multi Use” Land Use Code (LUC) 222. **Table 4** summarizes the site trip generation estimate for the current development proposal based on the ITE trip rates using fitted curve equations, where appropriate.

The proposed development is expected to generate:

- 229 total two-way trips (48 inbound and 181 outbound) and 190 total two-way trips (112 inbound and 78 outbound) during the morning and afternoon peak hours, respectively;
- 108 total two-way auto trips (23 inbound and 85 outbound) and 95 total two-way auto trips (56 inbound and 39 outbound) during the morning and afternoon peak hours, respectively;
- 73 total two-way transit trips (15 inbound and 58 outbound) and 19 total two-way transit trips (11 inbound and 8 outbound) during the morning and afternoon peak hours, respectively;
- 16 total two-way active trips (3 inbound and 13 outbound) and 32 total two-way active trips (19 inbound and 13 outbound) during the morning and afternoon peak hours, respectively;
- 32 total two-way carpooling/ paid rideshare trips (7 inbound and 25 outbound) and 44 total two-way active trips (26 inbound and 18 outbound) during the morning and afternoon peak hours, respectively;

Table 4 – Site Total Trip Generation for Proposed Development

LUC	Magnitude (unit)	Parameter	Modal Split		Morning Peak			Afternoon Peak		
			AM	PM	IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (High-rise) (LUC 222) Dense Multi-use Urban	322	Total trips	100%	100%	48	181	229	112	78	190
		Transit Trips	32%	10%	15	58	73	11	8	19
		Walking Trips	7%	17%	3	13	16	19	13	32
		Cycling Trips	0%	0%	0	0	0	0	0	0
		Auto Passenger	14%	23%	7	25	32	26	18	44
		Auto Trips	47%	50%	23	85	108	56	39	95

5.4. Site Trip Distribution and Assignment

The 2016 Transportation Tomorrow Survey (TTS) data was reviewed for traffic zones 3863 in order to estimate the general trip distribution for the proposed development. **Table 5** summarizes the planning district/traffic zones distribution based on the 2016 TTS data.

Table 5 – Trip Distribution for Residential Component

Mode	Toronto	York Region	Peel Region	Halton Region & West	Total
Auto	18%	4%	73%	5%	100%
Transit	38%	0%	61%	1%	100%

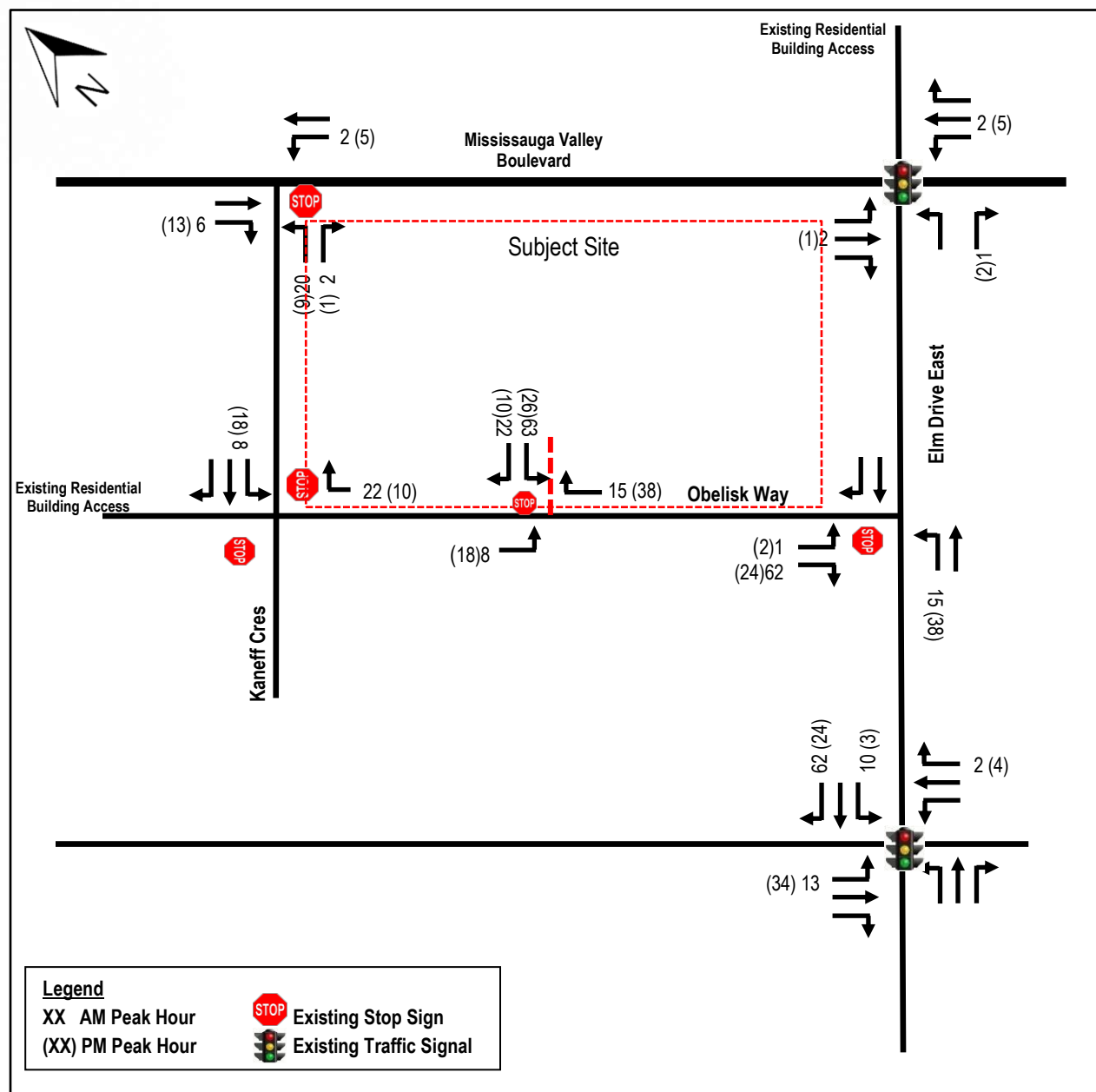
Table 6 summarizes the site trip assignment based on the 2016 TTS and existing transportation network in the area for the residential component of proposed development.

Table 6 – Site Trip Distribution

General Direction of Travel (To/From)	Auto	Transit
North	24%	15%
South	16%	16%
East	38%	53%
West	22%	16%
Total	100%	100%

Figure 9 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 TTS information, existing turning restrictions, as well as existing intersection operations and capacity constraints.

Figure 10 – Site Generated Traffic Volumes



6.0 FUTURE TOTAL TRAFFIC CONDITIONS

6.1. Future Total Traffic Assessment for Auto Mode

The estimated future total traffic volumes (future background traffic volumes plus site generated traffic volumes) are illustrated in **Figure 10**, and were analyzed using Synchro Version 9 software. The detailed calculations are provided in **Appendix G** and summarized in **Table 7**.

The future total traffic volumes are illustrated in **Figure 10**, based on the layering of **Figure 9** and **Figure 8**.

Figure 11 –2028 Future Total Traffic Volumes

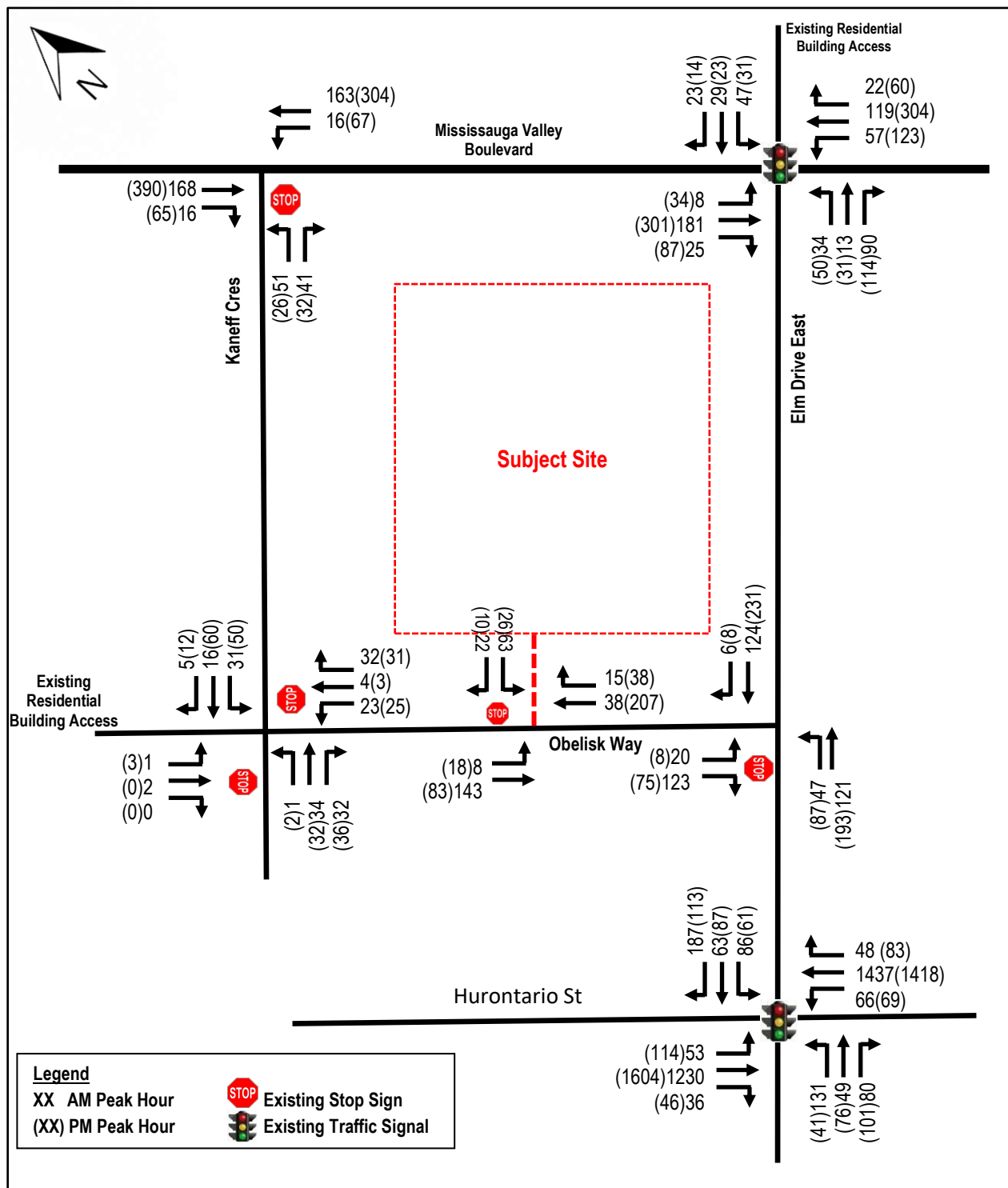


Table 7 – 2028 Future Total Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mississauga Valley Boulevard and Elm Drive East (signalized)	Overall	B (0.40)	11.6		B (0.53)	11.9	
	EB – L	B (0.17)	15.9	8.8	B (0.33)	18.7	13.5
	EB – TR	B (0.14)	15.8	11.1	B (0.25)	18.5	16.3
	WB – LTR	B (0.33)	15.2	17.0	B (0.25)	16.9	14.5
	NB – L	A (0.11)	5.0	4.8	A (0.24)	4.9	9.5
	NB – TR	A (0.15)	5.1	12.0	A (0.37)	5.4	33.5
	SB – L	B (0.03)	10.5	2.7	B (0.10)	10.0	7.1
	SB – TR	B (0.51)	13.1	33.2	B (0.67)	12.8	57.7
Huronario Street and Elm Drive (signalized)	Overall	C (0.83)	23.6		C (0.87)	22.8	
	EB – L	C (0.65)	29.3	31.8	C (0.23)	22.8	11.9
	EB – TR	C (0.20)	20.9	17.0	C (0.40)	23.8	25.6
	WB – L	C (0.35)	22.2	20.6	C (0.33)	23.6	16.1
	WB – TR	C (0.32)	21.7	23.6	C (0.49)	24.7	30.5
	NB – L	C (0.50)	30.9	21.3	C (0.49)	29.6	20.4
	NB – TR	C (0.94)	26.8	183.0	D (0.99)	35.1	164.0
	SB – L	D (0.55)	35.0	18.0	C (0.63)	33.0	37.7
Elm Drive East and Obelisk Way (unsignalized)	EB – LT	A (0.02)	7.5	0.4	A (0.07)	8.0	1.8
	SB – LR	A (0.11)	9.9	2.7	B (0.13)	10.8	3.3
Obelisk Way and Kaneff Cres (unsignalized)	EB – LTR	A (0.00)	0.1	0.0	A (0.00)	0.2	0.0
	WB – LTR	A (0.02)	4.6	0.5	A (0.04)	3.2	0.9
	NB – LTR	A (0.08)	9.6	1.8	B (0.08)	10.1	2.1
	SB – LTR	B (0.00)	10.3	0.1	B (0.01)	11.3	0.1
Mississauga Valley Boulevard and Kaneff Crescent (unsignalized)	EB – LR	B (0.13)	10.5	3.4	B (0.12)	12.8	3.1
	NB – LT	A (0.01)	7.7	0.3	A (0.07)	8.6	1.7
Obelisk Way and Access	WB – LR	A (0.11)	10.0	2.9	B (0.05)	10.2	1.3
	SB – LT	A (0.01)	0.4	0.1	A (0.02)	1.5	0.4

Under the future total conditions, similar to the existing and future background conditions, the intersection operation capacity analysis indicates that all intersections considered are expected to operate at acceptable levels of service. No improvements are required under this horizon year.

The analysis indicates that the proposed access onto Obelisk Way is expected to operate at acceptable levels of service with minimal delays or queues. No improvement to the existing road network is required to accommodate the proposed development.

6.2. Active Transportation Mode Assessment

Sidewalk

Currently, there are sidewalks located on both sides of the Hurontario Mississauga Valley Boulevard, Kaneff Crescent, Obelisk Way and Elm Drive East in the vicinity of the proposed development.

Since the proposed development will utilize the sidewalks on Kaneff Crescent and Mississauga Valley Boulevard, no improvements are necessary to accommodate the proposed development. Appropriate suggestions will be provided in later sections of the report that will speak to the pedestrian requirement as part of the proposed development.

Bicycle Facility

Currently, there are two dedicated cycling routes in the general area:

- Dedicated north-south bicycle lanes along Mississauga Valley Boulevard;
- Dedicated east-west bicycle lanes along Elm Drive East.

It is Nextrans' opinion that cycling facilities could be improved in the area, as part of the future City capital projects or cycling initiatives. These types of projects are beyond the scope of the proposed development. To continue to support the modal split and transportation demand management incentives for the area, it is recommended that, at the minimum, the proposed development meet the City's bicycle parking requirements.

6.3. Transit Mode Assessment

As indicated, the proposed development is expected to generate 73 new two-way transit trips (15 inbound and 58 outbound) and 19 new two-way transit trips (11 inbound and 8 outbound) during the morning and afternoon peak hours, respectively.

Table 8 summarizes the transit trip assignments based on the transit trip generation and distribution estimated from the 2016 Transportation Tomorrow Survey data.

Table 8 – Site Transit Trip Assignment

Transit Route	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Total Transit Trips	15	58	73	11	8	19
8 Cawthra Northbound	1	4	5	1	1	2
8 Cawthra Southbound	1	4	5	1	1	2
3 Bloor Eastbound	8	26	34	6	5	11
3 Bloor Westbound	3	16	19	1	1	2
53 Kennedy Northbound	1	4	5	1	0	1
53 Kennedy Southbound	1	4	5	1	0	1

Nextrans has reviewed the existing transit schedules for the Miway Bus Route during the weekday morning and afternoon peak hours. **Table 9** summarizes the existing Miway bus route frequency. It should be noted that the numbers of transit vehicles per hour were calculated using the 60 minutes divided by the vehicle headway based on the latest schedules available on Miway Website (<https://web.mississauga.ca/miway-transit/>).

Table 9 – Transit Service Frequency

Transit Route	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Headway	No. transit veh/hr	Headway	No. transit veh/hr
8 Cawthra Northbound	10 mins	6	10 mins	6
8 Cawthra Southbound	10 mins	6	10 mins	6
3 Bloor Eastbound	10 mins	6	10 mins	6
3 Bloor Westbound	10 mins	6	10 mins	6
53 Kennedy Northbound	20 mins	3	20 mins	3
53 Kennedy Southbound	20 mins	3	20 mins	3

Table 10 summarizes the future transit passenger demand from the proposed development per each transit vehicle during the morning and afternoon peak hours. The numbers of passenger demand per transit vehicle was calculated by

using the total peak hour passenger demand generated by the proposed development divided by the numbers of transit vehicles per hour.

Table 10 – Future Transit Passenger Demand from the Proposed Development

Transit Route	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
8 Cawthra Northbound	0.2 pass/veh	0.7 pass/veh	0.2 pass/veh	0.8 pass/veh
8 Cawthra Southbound	0.1 pass/veh	0.7 pass/veh	0.2 pass/veh	0.2 pass/veh
3 Bloor Eastbound	1.3 pass/veh	4.3 pass/veh	0.8 pass/veh	1.5 pass/veh
3 Bloor Westbound	0.3 pass/veh	1.3 pass/veh	0.2 pass/veh	0.3 pass/veh
53 Kennedy Northbound	0.3 pass/veh	0.3 pass/veh	0.3 pass/veh	0 pass/veh
53 Kennedy Southbound	0.3 pass/veh	0.3 pass/veh	0.3 pass/veh	0 pass/veh

As indicated in Table 10, the transit passenger demands generated by the proposed development per transit vehicle is very low (at most 4 passenger per transit vehicle per hour). As such, the proposed development impact on transit service is negligible and no improvements are required.

In reality, some of passengers could be bunched together during the peak 15 minutes, instead of spreading during the entire peak hour. Even if this is the case, our estimates indicate that the demand per vehicle is extremely low and can be accommodated without the need for additional transit vehicles or improvements during both the morning and afternoon peak periods.

7.0 SITE PLAN REVIEW

7.1. Loading Requirement

As indicated, the redevelopment proposal consists of total 322 rental dwelling unit

The City of Mississauga By-Law Part 3 – Parking, Loading and Stacking Lane Regulations (Revised: 2017 November 30) was reviewed to determine the loading requirement for the proposed development. Based on the current City's By-law, the proposed development will require one loading space that have an obstructed rectangular area with a minimum width of 3.5 m and a minimum length of 9.0m.

AutoTURN software was used (Garbage Truck) to generate vehicular turning templates to confirm and demonstrate the accessibility for the required loading space. **Figure 12** illustrates the turning movement templates for passenger vehicles and Garbage truck.

7.2. Driveway Location and Configuration

Under the existing condition, a full moves access is provided onto Kaneff Crescent. The redevelopment proposal will provide one full movement access via Obelisk Way. The analysis indicates that the proposed access onto Obelisk Way is expected to operate at acceptable levels of service with minimal delays or queues.

8.0 PARKING ASSESSMENT

8.1. Vehicle Parking Requirement

The City of Mississauga By-Law 0225-2007 Part 3 – Parking, Loading and Stacking Lane Regulations (Revised: 2017 November 30) is applied to the proposed development. The parking requirement and supply for the proposed development is summarized in **Table 11**.

Table 11 – City of Mississauga By-Law Vehicle Parking Requirements

Type	No. of Unit	Parking Rates	Parking Requirement	Parking Provided	Difference
Residential – Rental	192 units (one bedroom)	1.18 spaces/unit	227	234	-168
	128 units (two bedroom)	1.36 spaces/unit	174		
	2 units (three bedroom)	1.50 spaces/unit	3		
	282 units	0.20 visitor spaces/unit	64	64	0
Total			468	298	-168

Based on the City of Mississauga By-Law 0225-2007 Part 3 – Parking, Loading and Stacking Lane Regulations, a total of 468 parking spaces are required for the proposed development. It is our understanding that the proposed development provides 298 vehicle parking spaces (including 234 parking spaces for resident and 64 parking spaces for visitor) or in rate of 0.73 spaces/ unit for resident and 0.20 spaces/unit for visitor parking, this presenting a technical shortfall of 168 resident parking spaces (~36% reduction).

Given that the proposed development is well-served by existing active transportation network, Mississauga Transit service, future Hurontario LRT and its proximity to all the amenities in the area. It is NexTrans' opinion that the parking rates for the proposed development can and shall be reduced to support transit and TDM measures in order to reduce the numbers of single-occupant-vehicle trips to and from the proposed development.

8.1.1. Recommend Parking Rates for the Proposed Development

The recommended parking rates for the proposed development to support alternative and sustainable modes of transportation are summarized in **Table 12** below, based on the following justifications:

1. Proposed development context;
2. Existing mode share;
3. Proxy Site Survey;
4. ITE Parking Generation Manual 5th Edition;
5. Household demographic in the area;
6. Existing Mississauga Transit Service;
7. Available On-Street Parking and Carshare Locations in the Area
8. Neighbourhood Context; and
9. Transportation Demand Management.

Table 12 – Recommended Parking Rates for the Proposed Development

Type	No of Unit	Ratio	Required
Residential Uses	322 units	0.73 space per unit	234 spaces
Visitor Use		0.20 space per unit	64 spaces
Total Parking Required		0.93 spaces per unit	298 spaces

Based on the recommended parking rates noted above, the proposed development will require 298 parking spaces or in rate of 0.93 spaces per dwelling unit. The detail justifications for the proposed reduction and provision for shared parking are outlined the sections below.

8.1.2. Proposed Development Context

As indicated, the redevelopment proposed includes a 33-storey residential building with 322 dwelling units.

Based on NexTrans comprehensive review of the study area, it is evident that there is wide range of different types of land uses currently exist in this area such as mid-rise, high-rise residential, grocery store (Metro), medical offices and pharmacies, schools, churches, employment, banks, restaurant and retail commercial. There are high-rise apartment buildings located immediately north, south, east and west of the site. It should be noted that the site is located approximately 1 km from Square One Shopping Center, or less than 15-minute walk, and approximately 100m from Iona Plaza, or less than 2-minute walk.

8.1.3. Existing Mode Share

NexTrans has conducted a review of the existing mode share based the review of the 2016 Transportation Tomorrow Survey data, for traffic zone 3863. **Table 13** summarizes the mode of travel for the traffic zone 3863 and the detailed analysis and TTS data extraction are included in **Appendix F**.

Table 13 – Modes of Travel based on 2016 TTS Data for Traffic Zones 3863

Time	Trips Made by Traffic Zones 3863					
	Auto Driver	Auto Passenger	Taxi/Paid Ride Share	Transit	Cycle	Walk
AM Peak Period (6:00-9:00 AM)	47%	12%	2%	32%	0%	7%
PM Peak Period (3:00-6:00 PM)	50%	23%	0%	10%	0%	17%

Based on the information outlines in the table above, the predominant modes of travel to and from the area are non-auto modes (walking, cycling, transit and carpooling), which account to nearly 53% during the morning peak periods and 50% during the afternoon peak periods. It is NexTrans' opinion that if vehicle parking is not provided, residents will make smart and more sustainable choice.

8.1.4. Proxy Site Survey

NexTrans has conducted a proxy site survey at 1485 Williamsport Drive, in the City of Mississauga. This site has similar number of dwelling units, and located adjacent to Miway Bus Route 3 Bloor, as well as the surround context such as school, restaurants, bank, grocery and Rockwood Mall. the surveys were conducted on Friday, April 21th, 2017 from 5:00 pm to 10:00 pm and Sunday, April 23th, 2017 from 2:00 pm to 8:00 pm. **Table 14** summarizes the site characteristics.

Table 14 – Proxy Site Descriptions

Site Location	Description	Numbers of Units	Parking Supply	Parking Rate
1485 Williamsport Drive	Residential Apartment	264 units (occupied)	147 tenant spaces and 8 visitor spaces	0.56 spaces/unit for tenant 0.03 spaces/unit for visitor
Total			155 parking spaces	0.59 spaces/unit

Table 15 and 16 summarize the 1485 Williamsport Drive survey results.

Table 15 – 1485 Williamsport Drive (Friday April 21, 2017)

Friday April 21, 2017 (5:00 pm to 10:00 pm)					
1485 Williamsport Drive					
Time	Spaces Available: 155		Occupied Unit: 264		
	Visitor	Tenant	Total	Utilization	Parking Rate
5:00 pm	2	60	62	40%	0.23
5:30 pm	1	62	63	40%	0.24
6:00 pm	3	71	74	47%	0.28
6:30 pm	3	79	83	53%	0.31
7:00 pm	3	71	74	47%	0.28
7:30 pm	2	74	76	49%	0.29
8:00 pm	2	78	80	51%	0.30
8:30 pm	2	78	80	51%	0.30
9:00 pm	4	73	77	49%	0.29
9:30 pm	4	78	82	53%	0.31
10:00 pm	3	77	80	51%	0.30

Table 16 – 1485 Williamsport Drive (Sunday April 23, 2017)

Sunday April 23, 2017 (2:00 pm to 8:00 pm)					
1485 Williamsport Drive					
Time	Spaces Available: 155		Occupied Unit: 264		
	Visitor	Tenant	Total	Utilization	Parking Rate
2:00 pm	4	69	73	47%	0.28
2:30 pm	4	72	76	49%	0.29
3:00 pm	4	71	75	48%	0.28
3:30 pm	3	71	74	48%	0.28
4:00 pm	3	68	71	46%	0.27
4:30 pm	5	70	73	47%	0.28
5:00 pm	4	72	77	50%	0.29
5:30 pm	4	72	76	49%	0.29
6:00 pm	4	71	75	48%	0.28
6:30 pm	4	69	73	47%	0.28
7:00 pm	5	67	72	46%	0.27
7:30 pm	4	71	75	48%	0.28
8:00 pm	3	79	82	53%	0.31

The parking utilization survey results indicate that the maximum vehicle parking demand for 1485 Williamsport Drive is 0.31 spaces/ dwelling unit. This is consistent with this recommended parking rate and findings of this Study. In case of the survey was in 2017, the result might not be consistent with the present, the parking rate of the proxy site if all the parking spaces are occupied is 0.59 spaces per dwelling unit.

As such, it is NexTrans' opinion that the proposed reduced rate of 0.73 spaces per dwelling unit for resident is reasonable and justified.

8.1.5. ITE Parking Generation Manual 5th Edition

The recommended parking rate were undertaken using the information in the Parking Generation Manual 5th Edition published by the Institute of Transportation Engineers (ITE). For the purposes of this assessment, the ITE Land Use Codes (LUC) "Multifamily Housing High-Rise Dense Multi-Use Urban (no nearby rail transit)" parking rate of 0.55 spaces per dwelling unit is recommended for the proposed development.

As such, it is NexTrans' opinion that the proposed rate of 073 spaces per dwelling unit for resident is reasonable and justified.

8.1.6. Household Demographic and Car Ownership

NexTrans also reviewed the vehicle ownership for the City of Mississauga Ward 4. **Table 17** summarizes the vehicle ownership based on the 2016 Transportation Tomorrow Survey Data, while the detailed extraction is included in **Appendix F**.

Table 17 - Vehicle Ownership for Ward 4 Based on 2016 TTS Data

Household Type			Household Size					Number of Available Vehicles				
House	Townhouse	Apartment	1	2	3	4	5+	0	1	2	3	4+
25%	11%	64%	24%	32%	18%	16%	11%	11%	51%	30%	6%	1%

As indicated in Table 18 above, there is a large percentage of apartment household in the area (79%), about 24% of a single person and 11% of households not own a car.

Parking management could help increase the number of households that does not own a car as parking management is the best Transportation Demand Management measure that helps reducing the number single-occupant-vehicle trips to and from the proposed development, which is consistent with the City of Mississauga Official Plan policies and sustainability objectives (indicated below).

8.1.7. City of Mississauga Official Plan (2015)

Over the last several decades, the City of Mississauga has relied on the public transit system such as Miway, Metrolinx, GO Transit and other modes of transportation. The integration of transportation and land use planning allows the City to enjoy its success today without widening or building more roads to accommodate population growth.

As indicate in Chapter 8: Create a Multi-Modal City of the Official Plan, future growth within Mississauga will be focused in the area which are well served by the existing public transit system, the existing road network and that have a number of properties with redevelopment potential. The growth areas are generally the locations where good transit access can be provided along bus and Go train stations.

The Official Plan also indicates that: *"The City will create a multi-modal transportation network for the movement of people and goods that supports more sustainable communities. The multi-modal transportation system is composed of the following modes of travel:*

- *Transit;*
- *Vehicular (e.g., cars and trucks);*
- *Active transportation (e.g., walking and cycling);*
- *Rail (passenger and freight); and*
- *Air travel (passenger and freight).*

While vehicle trips will continue to account for a significant share of the total trips, the length of these trips should shorten in response to the to the creation of mixed use nodes that support the daily needs of surrounding residential and business communities, and the share of auto trips will be reduced as opportunities to travel by transit, cycling and walking improve.”

Our review of the Official Plan Transportation Policies and directions indicate that there is a need to reduce automobile trips by managing parking in the City in order to reduce single-occupant-vehicle trips and to support other modes of transportation such as public transit and active transportation.

8.1.8. Existing Mississauga Transit Service

The subject site is located adjacent to Miway Bus Routes 8 Cawthra, 53 Kennedy and 3 Bloor, those routes will connect to the City Center Transit Terminal. The proposed development is located about 1 km from City Centre Transit Terminal, which is part of Mississauga Transitway project that delivers 18 kilometers of dedicated busway. The City Centre Transit Terminal is linked to other 11 stations from Winston Churchill Boulevard to Renforth Drive. The proposed development also located about 500 m to Hurontario St and Burnhamthorpe Road intersection which will be part of Hurontario Light Rail (LRT) project that expected to complete on 2024. The Hurontario LRT will delivers 18 kilometres of dedicated bus lane with 19 stops, linking local transit like MiWay, Brampton Transit, Zum and Mississauga Transitway at Square One, in between Brampton and Mississauga.

It is NexTrans opinion that the vehicle parking is required for the residents who need, of the proposed development, and this provision is necessary to support transit and TDM measures in order to eliminate the numbers of single-occupant-vehicle trips to and from the proposed development.

Figure 12 illustrates the Mississauga Transitway.

Figure 12 – Mississauga Transitway



Source: www.metrolinx.com/en/greaterregion/projects/hurontario-lrt.aspx

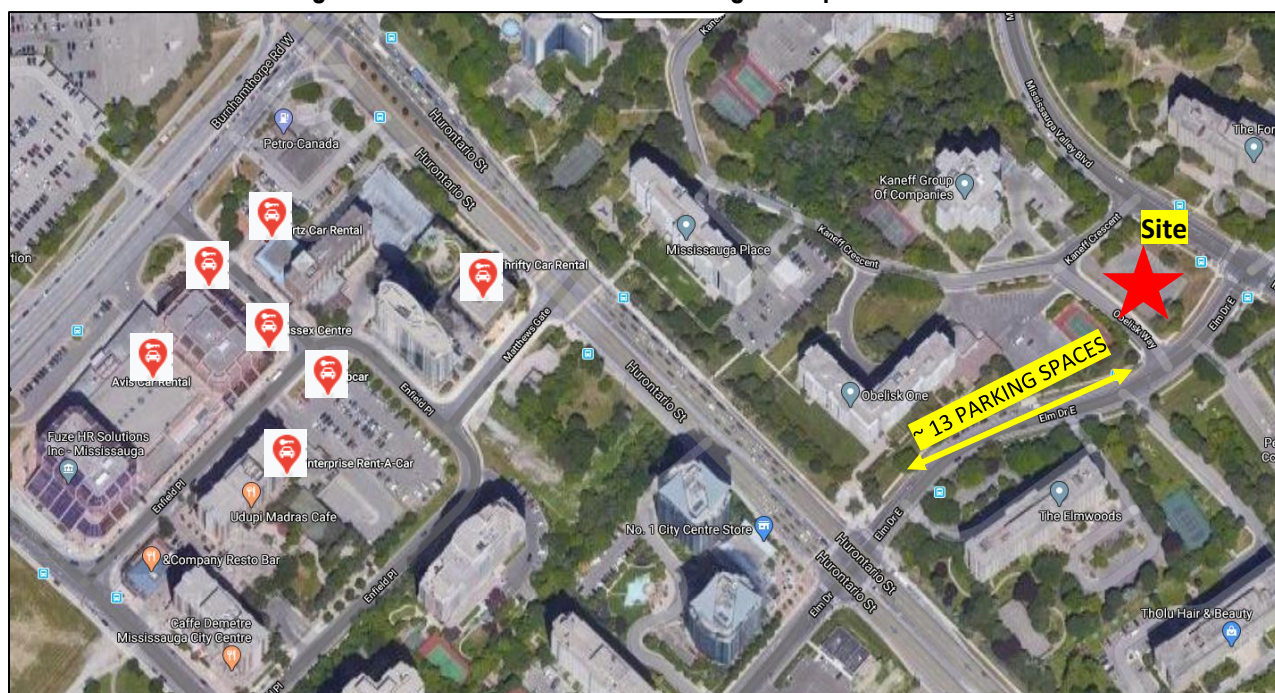
8.1.9. Available On-Street Parking and Car-share Locations in the Area

Currently, there are on-street parking along north side of Elm Drive East within a few minutes walk to the proposed development.

Carshare services or membership also play an important role in car ownership reduction. This helps minimizing the car ownership costs, as well as the numbers of auto trips to and from the proposed development. This is also a great option for the residents that only need to use the cars on the weekend for grocery shopping or for non-work-related trips. Based on NexTrans' review of the area, there are some available rental car services located within walking distance from the proposed development.

Figure 13 illustrates the Zipcar locations and on-street parking

Figure 13 – Available On-street Parking and Zipcar Locations



Source: Google Maps

8.1.10. Neighbourhood Context

Based on NexTrans comprehensive review of the study area, it is evident that there is a wide range of different types of land uses currently exist in this area such as high-rise, low-rise residential, grocery store (Metro), medical offices and pharmacies, schools, employment, banks, restaurant and retail commercial. It should be noted that the site is located approximately 1 km from Square One Shopping Center or less than 15-minute walk, and 100 m from Iona Plan that including Metro, or less than 2-minute walk.

Figure 14 illustrate the approximate walking distance (approximately 15-minute walk or less) to/from the proposed development.

8.1.11. Transportation Demand Management Measures

8.2. Bicycle Parking

9.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a co-ordinated series of actions aimed at maximizing the people moving capability of the transportation system. It is intended help reduce single-occupant auto use. Potential TDM measures may include but not limited to: TDM supportive land use, bicycle and pedestrian programs and facilities, public transit improvements, preferential treatments for buses and high occupancy vehicles (if applicable), ridesharing, and employee incentives.

Based on the review of the context of the proposed development in relation to the TDM requirements in the City of Mississauga Traffic Impact Study Guidelines, the following TDM measures and incentives are recommended for the proposed development, and summarizes in **Table 18**.

Table 18 – Recommended TDM Measures for the Proposed Development

Category	TDM Initiative suggested by NexTrans	Recommended Actions	Responsibility
Cycling	<ul style="list-style-type: none"> Visible, well-lit, short-term bicycle parking for visitors Secure, indoor bicycle parking storage spaces for tenants/residents Ensure development connects to bicycle network 	<ul style="list-style-type: none"> Provide 56 bicycle parking spaces including short-term and long-term 	<ul style="list-style-type: none"> Applicant
Walking	<ul style="list-style-type: none"> Safe, attractive and direct walkways for pedestrian linking building entrances with public sidewalks and with key destinations such as schools Enhanced pedestrian amenities on-site (benches, landscaping, lighting) 	<ul style="list-style-type: none"> Provide direct shared pedestrian and cycling connections from the proposed development to Mississauga Valley Boulevard and Elm Drive East 	<ul style="list-style-type: none"> Applicant
Transit	<ul style="list-style-type: none"> Enhanced walking routes between main building entrance(s) and transit stops/stations Bicycle parking located at or near transit stops 	<ul style="list-style-type: none"> Provide direct connections from the proposed development to the closest bus stop on Mississauga Valley Drive 	<ul style="list-style-type: none"> Applicant
Parking	<ul style="list-style-type: none"> Reduced minimum parking requirements based on proximity to transit and non-auto mode Shared parking with nearby developments or on-street spaces Unbundle parking costs from unit costs 	<ul style="list-style-type: none"> Consider unbundle parking rent with the unit; Reduced 36% of the parking supply to support TDM and transit 	<ul style="list-style-type: none"> Applicant
Information Brochure/Letter	<ul style="list-style-type: none"> Provide an information brochure/letter for each residential unit that including Mississauga Transit System (Miway) schedules, GO Transit, Cycling maps, and community maps 	<ul style="list-style-type: none"> Provide a brochure (or letter) to new residents that includes all website links to Mississauga Transit System (Miway) schedules, community maps and cycling maps. The information package can be distributed at the rental office. 	<ul style="list-style-type: none"> Applicant

10.0 CONCLUSIONS / FINDINGS

10.1. Study Conclusions

The findings and conclusions of the analysis are as follows:

- The proposed development is expected to generate:
 - 229 total two-way trips (48 inbound and 181 outbound) and 190 total two-way trips (112 inbound and 78 outbound) during the morning and afternoon peak hours, respectively;
 - 108 total two-way auto trips (23 inbound and 85 outbound) and 95 total two-way auto trips (56 inbound and 39 outbound) during the morning and afternoon peak hours, respectively;
 - 73 total two-way transit trips (15 inbound and 58 outbound) and 19 total two-way transit trips (11 inbound and 8 outbound) during the morning and afternoon peak hours, respectively;
 - 16 total two-way active trips (3 inbound and 13 outbound) and 32 total two-way active trips (19 inbound and 13 outbound) during the morning and afternoon peak hours, respectively;
 - 32 total two-way carpooling/ paid rideshare trips (7 inbound and 25 outbound) and 44 total two-way active trips (26 inbound and 18 outbound) during the morning and afternoon peak hours, respectively;
- Under the existing, future background and future total conditions, the intersection operation capacity analysis indicates that all intersections considered are expected to operate at acceptable levels of service. No improvements are required under these horizon years.
- The analysis indicates that the proposed access via Obelisk Way is expected to operate at acceptable levels of service with minimal delays or queues. No improvement to the existing road network is required to accommodate the proposed development.
- For the reasons noted above, it is our opinion that the existing transportation network is adequate and Nextrans does not recommend any additional physical improvements for the area at this time under the future total conditions.
- Based on the City of Mississauga By-Law 0225-2007 Part 3 – Parking, Loading and Stacking Lane Regulations, a total of 468 parking spaces are required for the proposed development. It is our understanding that the proposed development provides 298 vehicle parking spaces (including 234 parking spaces for resident and 64 parking spaces for visitor) or in rate of 0.73 spaces/ unit for resident and 0.20 spaces/unit for visitor parking, this presenting a technical shortfall of 168 parking spaces (~36% reduction).
- It is our understand that there are no current requirements for bicycle parking for the proposed development. However, it is our understanding that the proposed development will provide 64 bicycle parking spaces, in order to encourage residents to take alternative modes of transportation to and from the proposed development.
- The proposed development will use the private garbage pick up and a loading space is provided for garbage pick up that will meet the City's By-Law requirement. AutoTURN software was used to demonstrate the turning movement requirements for garbage pick-up, delivery and passenger vehicles at the proposed access via Obelisk Way, the proposed loading and internal circulation to the underground parking.

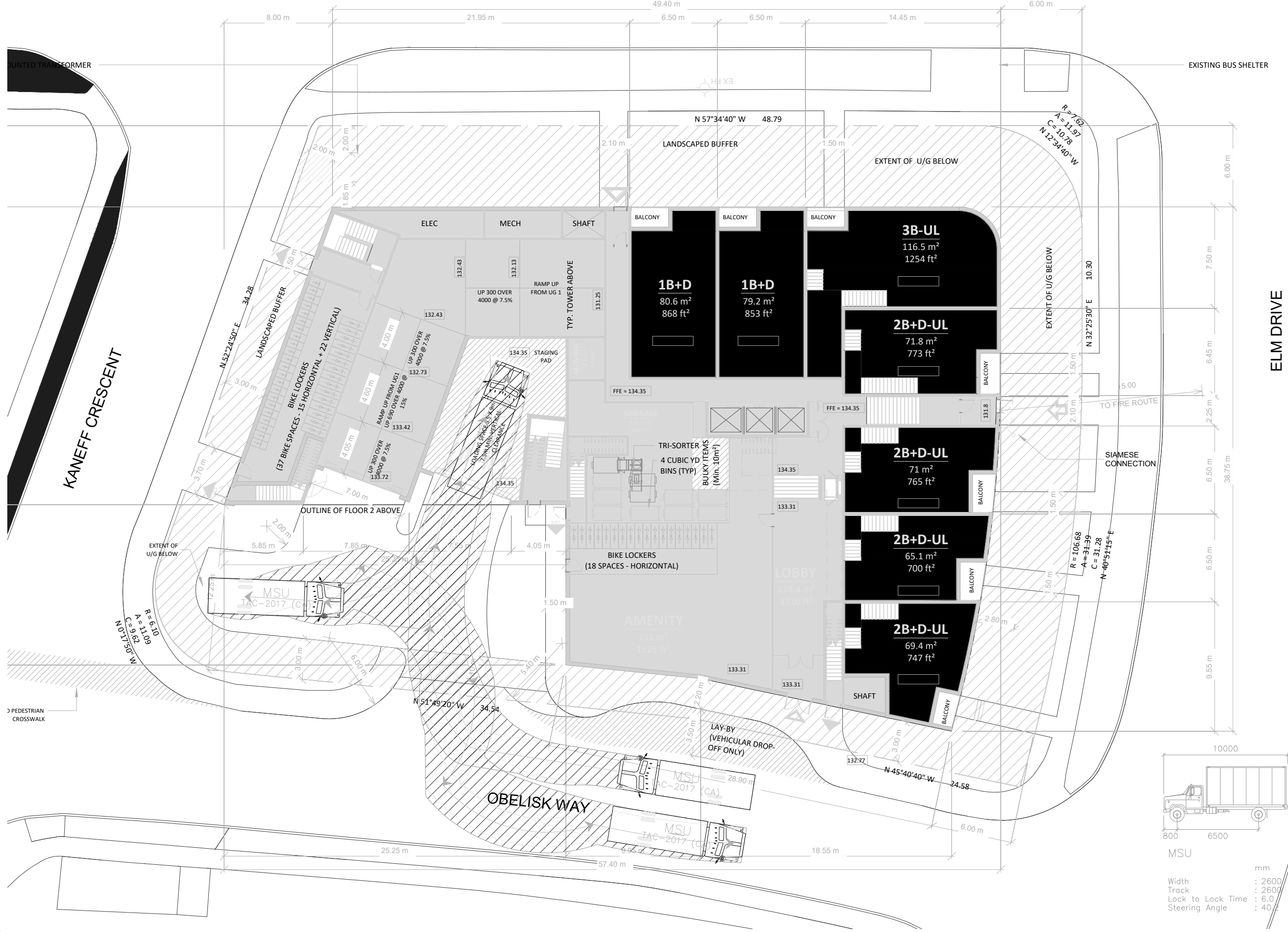
10.2. Study Recommendations

Based on the assessment, our report recommends that:

- The proposed development implements the TDM measures and incentives identified in this report to support active transportation and transit and to reduce the numbers of single-occupant-vehicle trips to and from the proposed development;
- The proposed development provides direct shared pedestrian and cycling connections from the proposed development building entrances directly to public streets, where appropriate;
- The proposed development considers reduce 36% of required parking supply (or 0.93 spaces/unit) to support TDM and transit;
- No additional physical improvements for the area at this time under the future background and future total conditions.

MISSISSAUGA VALLEY BOULEVARD

KEY PLAN



ELM DRIVE

BENCHMARK

REVISIONS				
NO.	REVISION	DATE	BY	CHKD.



nextrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
RESIDENTIAL DEVELOPMENT
3575 Kaneff Crescent
(City of Mississauga)

DRAWING TITLE:
AutoTURN Analysis
(MSU TAC-2017)

DESIGN BY: K.A.	DATE: April 5, 2022
CHECKED BY: R.P.	PROJECT NO. NT-19-174
DRAWN BY: K.A.	DRAWING NO. Figure 1
SCALE: NTS	

APPENDIX A

Existing Traffic Data



Turning Movement Count (1 . HURONTARIO ST & ELM DR)

Start Time	N Approach HURONTARIO ST						E Approach ELM DR						S Approach HURONTARIO ST						W Approach ELM DR						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total			
07:00:00	9	235	6	0	11	250	22	8	14	0	16	44	3	231	9	0	9	243	17	8	25	0	7	50	587		
07:15:00	2	222	7	0	10	231	25	4	8	0	11	37	8	305	6	0	5	319	14	6	26	0	6	46	633		
07:30:00	8	283	10	0	19	301	31	9	29	0	10	69	5	305	12	0	7	322	15	9	28	0	16	52	744		
07:45:00	6	319	8	0	17	333	32	14	24	0	11	70	8	361	11	0	9	380	21	15	33	0	15	69	852	2816	
08:00:00	10	377	10	1	11	398	25	16	11	0	11	52	9	400	13	0	7	422	24	7	37	0	6	68	940	3169	
08:15:00	9	296	11	0	13	316	33	9	24	0	12	66	17	335	16	0	8	368	19	13	39	0	9	71	821	3357	
08:30:00	11	238	11	2	14	262	35	24	17	0	6	76	12	341	26	0	9	379	16	14	22	0	8	52	769	3382	
08:45:00	18	252	14	0	8	284	18	16	14	0	12	48	11	387	20	0	25	418	17	15	35	0	14	67	817	3347	
09:00:00	14	227	17	1	11	259	17	21	10	0	13	48	5	348	24	0	4	377	15	8	33	0	8	56	740	3147	
09:15:00	11	224	11	0	12	246	20	18	9	0	10	47	10	301	17	0	14	328	10	12	25	0	13	47	668	2994	
09:30:00	8	230	9	2	15	249	13	9	8	0	13	30	9	314	14	0	5	337	13	10	12	0	6	35	651	2876	
09:45:00	8	253	18	0	14	279	16	15	12	0	1	43	11	251	12	0	9	274	15	11	25	0	5	51	647	2706	
BREAK																											
16:00:00	10	337	23	0	16	370	19	17	12	0	18	48	18	317	17	0	1	352	28	21	16	0	2	65	835		
16:15:00	8	396	19	0	12	423	16	19	5	0	13	40	16	337	20	0	4	373	41	19	10	0	6	70	906		
16:30:00	10	410	18	2	14	440	13	24	9	0	17	46	20	284	11	0	2	315	29	20	11	0	15	60	861		
16:45:00	14	398	20	2	20	434	21	26	8	0	14	55	23	303	15	0	10	341	30	20	11	0	11	61	891	3493	
17:00:00	21	460	17	3	10	501	17	19	16	0	10	52	18	289	18	0	6	325	23	23	13	0	14	59	937	3595	
17:15:00	8	404	27	0	13	439	20	28	15	0	24	63	18	304	25	0	8	347	31	14	6	0	11	51	900	3589	
17:30:00	20	410	22	0	19	452	23	21	16	0	26	60	13	347	8	0	9	368	31	21	10	0	12	62	942	3670	
17:45:00	9	383	14	1	19	407	30	23	13	0	19	66	28	316	21	0	10	365	17	18	7	0	21	42	880	3659	
18:00:00	6	400	18	1	16	425	21	24	15	0	17	60	20	370	18	0	14	408	27	19	13	0	20	59	952	3674	
18:15:00	11	411	26	1	12	449	15	19	14	0	21	48	18	385	22	0	7	425	26	18	11	0	12	55	977	3751	
18:30:00	10	371	23	2	14	406	26	21	15	0	8	62	18	340	20	0	12	378	26	25	21	0	19	72	918	3727	
18:45:00	10	328	16	1	10	355	14	23	10	0	19	47	15	322	16	0	4	353	25	17	7	0	15	49	804	3651	
Grand Total	251	7864	375	19	330	8509	522	427	328	0	332	1277	333	7793	391	0	198	8517	530	363	476	0	271	1369	19672	-	
Approach%	2.9%	92.4%	4.4%	0.2%		-	40.9%	33.4%	25.7%	0%		-	3.9%	91.5%	4.6%	0%		-	38.7%	26.5%	34.8%	0%		-	-	-	
Totals %	1.3%	40%	1.9%	0.1%		43.3%	2.7%	2.2%	1.7%	0%		6.5%	1.7%	39.6%	2%	0%		43.3%	2.7%	1.8%	2.4%	0%		7%	-	-	
Heavy	10	217	5	0		-	7	63	1	0		-	6	208	6	0		-	3	61	19	0		-	-	-	
Heavy %	4%	2.8%	1.3%	0%		-	1.3%	14.8%	0.3%	0%		-	1.8%	2.7%	1.5%	0%		-	0.6%	16.8%	4%	0%		-	-	-	
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	





Peak Hour: 07:45 AM - 08:45 AM Weather: Few Clouds (-2.64 °C)

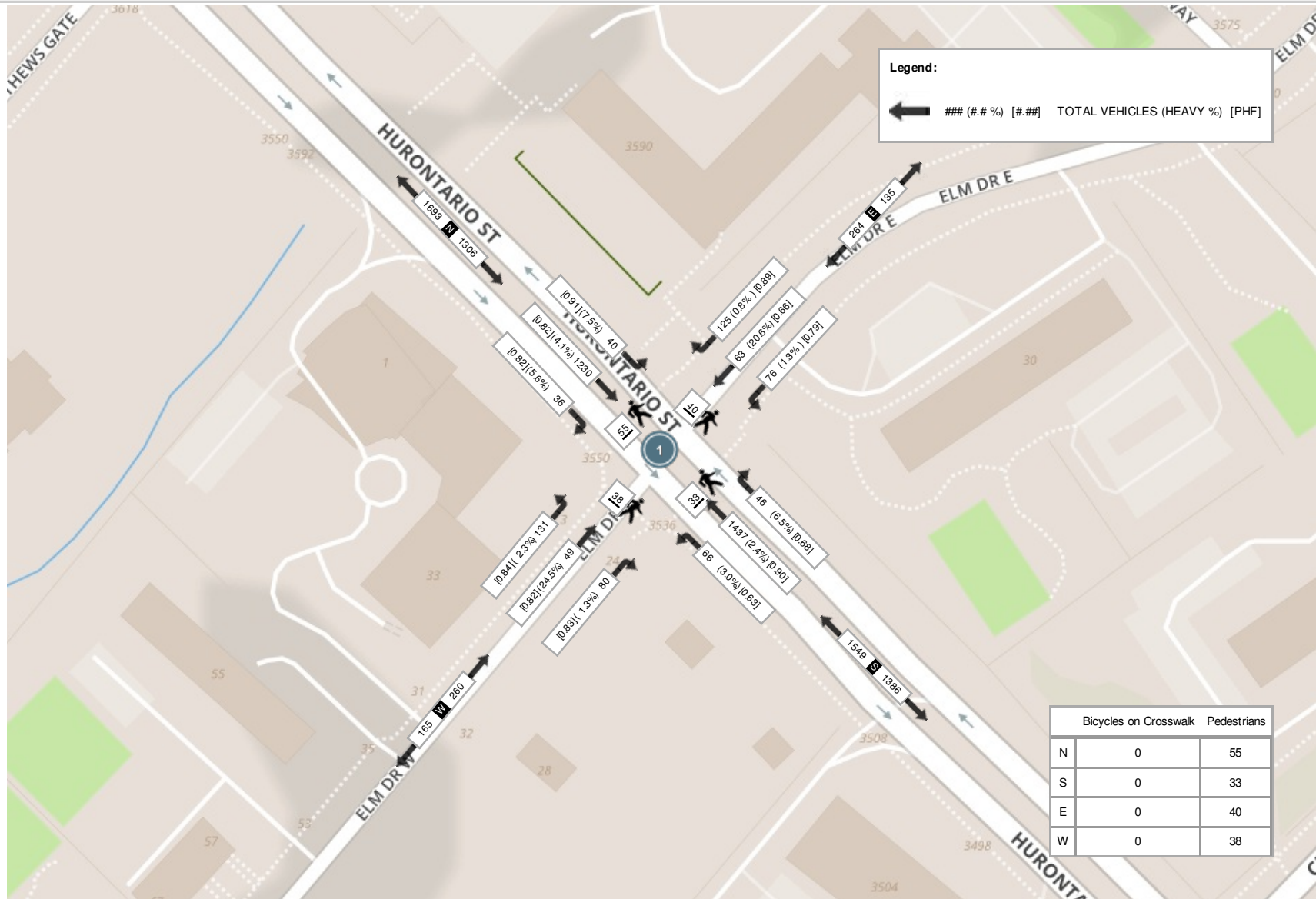
Start Time	N Approach HURONTARIO ST						E Approach ELM DR						S Approach HURONTARIO ST						W Approach ELM DR						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	6	319	8	0	17	333	32	14	24	0	11	70	8	361	11	0	9	380	21	15	33	0	15	69	852
08:00:00	10	377	10	1	11	398	25	16	11	0	11	52	9	400	13	0	7	422	24	7	37	0	6	68	940
08:15:00	9	296	11	0	13	316	33	9	24	0	12	66	17	335	16	0	8	368	19	13	39	0	9	71	821
08:30:00	11	238	11	2	14	262	35	24	17	0	6	76	12	341	26	0	9	379	16	14	22	0	8	52	769
Grand Total	36	1230	40	3	55	1309	125	63	76	0	40	264	46	1437	66	0	33	1549	80	49	131	0	38	260	3382
Approach%	2.8%	94%	3.1%	0.2%		-	47.3%	23.9%	28.8%	0%		-	3%	92.8%	4.3%	0%		-	30.8%	18.8%	50.4%	0%		-	-
Totals %	1.1%	36.4%	1.2%	0.1%		38.7%	3.7%	1.9%	2.2%	0%		7.8%	1.4%	42.5%	2%	0%		45.8%	2.4%	1.4%	3.9%	0%		7.7%	-
PHF	0.82	0.82	0.91	0.38		0.82	0.89	0.66	0.79	0		0.87	0.68	0.9	0.63	0		0.92	0.83	0.82	0.84	0		0.92	-
Heavy	2	50	3	0		55	1	13	1	0		15	3	35	2	0		40	1	12	3	0		16	-
Heavy %	5.6%	4.1%	7.5%	0%		4.2%	0.8%	20.6%	1.3%	0%		5.7%	6.5%	2.4%	3%	0%		2.6%	1.3%	24.5%	2.3%	0%		6.2%	-
Lights	34	1180	37	3		1254	124	50	75	0		249	43	1402	64	0		1509	79	36	128	0		243	-
Lights %	94.4%	95.9%	92.5%	100%		95.8%	99.2%	79.4%	98.7%	0%		94.3%	93.5%	97.6%	97%	0%		97.4%	98.8%	73.5%	97.7%	0%		93.5%	-
Single-Unit Trucks	1	18	0	0		19	0	0	0	0		0	0	9	0	0		9	0	0	1	0		1	-
Single-Unit Trucks %	2.8%	1.5%	0%	0%		1.5%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	0%	0%	0.8%	0%		0.4%	-
Buses	1	31	3	0		35	1	13	1	0		15	3	24	2	0		29	1	12	2	0		15	-
Buses %	2.8%	2.5%	7.5%	0%		2.7%	0.8%	20.6%	1.3%	0%		5.7%	6.5%	1.7%	3%	0%		1.9%	1.3%	24.5%	1.5%	0%		5.8%	-
Articulated Trucks	0	1	0	0		1	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	-
Articulated Trucks %	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	2%	0%	0%		0.4%	-
Pedestrians	-	-	-	-	55	-	-	-	-	-	40	-	-	-	-	-	33	-	-	-	-	-	38	-	-
Pedestrians%	-	-	-	-	33.1%	-	-	-	-	-	24.1%	-	-	-	-	-	19.9%	-	-	-	-	-	22.9%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



Peak Hour: 05:30 PM - 06:30 PM Weather: Scattered Clouds (5.31 °C)

Start Time	N Approach HURONTARIO ST						E Approach ELM DR						S Approach HURONTARIO ST						W Approach ELM DR						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:30:00	20	410	22	0	19	452	23	21	16	0	26	60	13	347	8	0	9	368	31	21	10	0	12	62	942
17:45:00	9	383	14	1	19	407	30	23	13	0	19	66	28	316	21	0	10	365	17	18	7	0	21	42	880
18:00:00	6	400	18	1	16	425	21	24	15	0	17	60	20	370	18	0	14	408	27	19	13	0	20	59	952
18:15:00	11	411	26	1	12	449	15	19	14	0	21	48	18	385	22	0	7	425	26	18	11	0	12	55	977
Grand Total	46	1604	80	3	66	1733	89	87	58	0	83	234	79	1418	69	0	40	1566	101	76	41	0	65	218	3751
Approach%	2.7%	92.6%	4.6%	0.2%	-	-	38%	37.2%	24.8%	0%	-	-	5%	90.5%	4.4%	0%	-	-	46.3%	34.9%	18.8%	0%	-	-	-
Totals %	1.2%	42.8%	2.1%	0.1%	-	46.2%	2.4%	2.3%	1.5%	0%	-	6.2%	2.1%	37.8%	1.8%	0%	-	41.7%	2.7%	2%	1.1%	0%	-	5.8%	-
PHF	0.58	0.98	0.77	0.75	-	0.96	0.74	0.91	0.91	0	-	0.89	0.71	0.92	0.78	0	-	0.92	0.81	0.9	0.79	0	-	0.88	-
Heavy	1	25	0	0	-	26	2	9	0	0	-	11	0	21	0	0	-	21	0	10	0	0	-	10	-
Heavy %	2.2%	1.6%	0%	0%	-	1.5%	2.2%	10.3%	0%	0%	-	4.7%	0%	1.5%	0%	0%	-	1.3%	0%	13.2%	0%	0%	-	4.6%	-
Lights	45	1579	80	3	-	1707	87	78	58	0	-	223	79	1397	69	0	-	1545	101	66	41	0	-	208	-
Lights %	97.8%	98.4%	100%	100%	-	98.5%	97.8%	89.7%	100%	0%	-	95.3%	100%	98.5%	100%	0%	-	98.7%	100%	86.8%	100%	0%	-	95.4%	-
Single-Unit Trucks	1	6	0	0	-	7	2	0	0	0	-	2	0	4	0	0	-	4	0	0	0	0	-	0	-
Single-Unit Trucks %	2.2%	0.4%	0%	0%	-	0.4%	2.2%	0%	0%	0%	-	0.9%	0%	0.3%	0%	0%	-	0.3%	0%	0%	0%	0%	-	0%	-
Buses	0	19	0	0	-	19	0	9	0	0	-	9	0	15	0	0	-	15	0	10	0	0	-	10	-
Buses %	0%	1.2%	0%	0%	-	1.1%	0%	10.3%	0%	0%	-	3.8%	0%	1.1%	0%	0%	-	1%	0%	13.2%	0%	0%	-	4.6%	-
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	-
Articulated Trucks %	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0.1%	0%	0%	-	0.1%	0%	0%	0%	0%	-	0%	-
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	-
Bicycles on Road %	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	-
Pedestrians	-	-	-	-	66	-	-	-	-	-	83	-	-	-	-	-	40	-	-	-	-	-	65	-	-
Pedestrians%	-	-	-	-	26%	-	-	-	-	-	32.7%	-	-	-	-	-	15.7%	-	-	-	-	-	25.6%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

Peak Hour: 07:45 AM - 08:45 AM Weather: Few Clouds (-2.64 °C)



Peak Hour: 05:30 PM - 06:30 PM Weather: Scattered Clouds (5.31 °C)





Turning Movement Count (4 . ELM DR E & MISSISSAUGA VALLEY BLVD)

Start Time	N Approach						E Approach						S Approach						W Approach						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
07:00:00	3	24	2	0	2	29	1	6	12	0	2	19	7	24	5	0	1	36	19	0	4	0	1	23	107		
07:15:00	3	23	1	0	5	27	6	5	6	0	2	17	1	26	5	0	2	32	14	2	4	0	1	20	96		
07:30:00	3	42	2	0	8	47	8	4	12	0	8	24	4	29	9	0	6	42	26	1	8	0	4	35	148		
07:45:00	3	35	2	0	8	40	4	6	13	0	8	23	2	22	7	0	6	31	14	2	13	0	7	29	123	474	
08:00:00	9	44	3	0	12	56	6	5	21	0	11	32	4	22	13	0	12	39	26	3	6	0	10	35	162	529	
08:15:00	6	45	1	0	4	52	5	8	8	0	1	21	9	21	13	0	7	43	13	2	10	0	5	25	141	574	
08:30:00	4	27	1	0	10	32	9	6	8	0	4	23	4	29	10	0	7	43	25	2	7	0	7	34	132	558	
08:45:00	4	46	2	0	8	52	3	10	10	0	6	23	3	34	16	0	1	53	17	5	8	0	10	30	158	593	
09:00:00	6	36	1	0	3	43	2	7	8	0	8	17	5	36	12	0	9	53	17	4	8	0	0	29	142	573	
09:15:00	6	35	1	0	7	42	1	4	13	0	12	18	7	35	13	0	7	55	22	3	4	0	0	29	144	576	
09:30:00	6	38	3	0	5	47	3	6	8	0	6	17	3	22	12	0	3	37	15	3	8	0	5	26	127	571	
09:45:00	5	29	2	0	6	36	3	2	5	0	4	10	3	26	9	0	6	38	11	3	6	0	8	20	104	517	
BREAK																											
16:00:00	8	64	9	0	7	81	4	5	6	0	11	15	14	50	23	0	12	87	26	3	10	0	9	39	222		
16:15:00	11	65	3	0	10	79	1	3	9	0	18	13	11	48	24	0	12	83	29	5	7	0	7	41	216		
16:30:00	16	65	4	0	6	85	4	0	7	0	19	11	11	42	34	0	10	87	28	3	5	0	9	36	219		
16:45:00	16	65	9	0	5	90	5	4	5	0	20	14	17	67	18	0	12	102	31	2	8	0	5	41	247	904	
17:00:00	11	67	11	0	8	89	2	3	13	0	10	18	9	64	31	0	15	104	27	4	7	0	11	38	249	931	
17:15:00	20	72	9	0	9	101	2	5	4	0	14	11	10	68	26	0	8	104	27	6	9	0	14	42	258	973	
17:30:00	20	63	6	0	7	89	3	8	7	0	24	18	18	69	18	0	8	105	24	9	12	0	5	45	257	1011	
17:45:00	28	70	5	0	15	103	7	7	7	0	21	21	17	70	36	0	15	123	23	9	17	0	11	49	296	1060	
18:00:00	11	56	4	0	14	71	3	4	11	0	16	18	16	56	29	0	9	101	13	5	7	0	9	25	215	1026	
18:15:00	10	50	6	0	9	66	3	4	9	0	15	16	15	71	21	0	7	107	25	6	11	0	8	42	231	999	
18:30:00	15	50	8	0	6	73	2	4	16	0	22	22	10	61	37	0	16	108	20	3	7	0	8	30	233	975	
18:45:00	14	41	7	0	7	62	1	3	6	0	12	10	5	35	22	0	10	62	20	4	14	0	4	38	172	851	
Grand Total	238	1152	102	0	181	1492	88	119	224	0	274	431	205	1027	443	0	201	1675	512	89	200	0	158	801	4399	-	
Approach%	16%	77.2%	6.8%	0%		-	20.4%	27.6%	52%	0%		-	12.2%	61.3%	26.4%	0%		-	63.9%	11.1%	25%	0%		-	-	-	
Totals %	5.4%	26.2%	2.3%	0%		33.9%	2%	2.7%	5.1%	0%		9.8%	4.7%	23.3%	10.1%	0%		38.1%	11.6%	2%	4.5%	0%		18.2%	-	-	
Heavy	26	29	0	0		-	0	2	1	0		-	2	24	39	0		-	48	3	21	0		-	-	-	
Heavy %	10.9%	2.5%	0%	0%		-	0%	1.7%	0.4%	0%		-	1%	2.3%	8.8%	0%		-	9.4%	3.4%	10.5%	0%		-	-	-	
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	



Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)

Start Time	N Approach						E Approach						S Approach						W Approach						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	9	44	3	0	12	56	6	5	21	0	11	32	4	22	13	0	12	39	26	3	6	0	10	35	162
08:15:00	6	45	1	0	4	52	5	8	8	0	1	21	9	21	13	0	7	43	13	2	10	0	5	25	141
08:30:00	4	27	1	0	10	32	9	6	8	0	4	23	4	29	10	0	7	43	25	2	7	0	7	34	132
08:45:00	4	46	2	0	8	52	3	10	10	0	6	23	3	34	16	0	1	53	17	5	8	0	10	30	158
Grand Total	23	162	7	0	34	192	23	29	47	0	22	99	20	106	52	0	27	178	81	12	31	0	32	124	593
Approach%	12%	84.4%	3.6%	0%		-	23.2%	29.3%	47.5%	0%		-	11.2%	59.6%	29.2%	0%		-	65.3%	9.7%	25%	0%		-	-
Totals %	3.9%	27.3%	1.2%	0%		32.4%	3.9%	4.9%	7.9%	0%		16.7%	3.4%	17.9%	8.8%	0%		30%	13.7%	2%	5.2%	0%		20.9%	-
PHF	0.64	0.88	0.58	0		0.86	0.64	0.73	0.56	0		0.77	0.56	0.78	0.81	0		0.84	0.78	0.6	0.78	0		0.89	-
Heavy	6	4	0	0		10	0	1	1	0		2	0	3	5	0		8	10	1	3	0		14	-
Heavy %	26.1%	2.5%	0%	0%		5.2%	0%	3.4%	2.1%	0%		2%	0%	2.8%	9.6%	0%		4.5%	12.3%	8.3%	9.7%	0%		11.3%	-
Lights	17	158	7	0		182	23	28	46	0		97	20	103	47	0		170	71	11	28	0		110	-
Lights %	73.9%	97.5%	100%	0%		94.8%	100%	96.6%	97.9%	0%		98%	100%	97.2%	90.4%	0%		95.5%	87.7%	91.7%	90.3%	0%		88.7%	-
Single-Unit Trucks	1	1	0	0		2	0	1	0	0		1	0	0	0	0		0	3	1	0	0		4	-
Single-Unit Trucks %	4.3%	0.6%	0%	0%		1%	0%	3.4%	0%	0%		1%	0%	0%	0%	0%		0%	3.7%	8.3%	0%	0%		3.2%	-
Buses	5	3	0	0		8	0	0	1	0		1	0	3	5	0		8	7	0	3	0		10	-
Buses %	21.7%	1.9%	0%	0%		4.2%	0%	0%	2.1%	0%		1%	0%	2.8%	9.6%	0%		4.5%	8.6%	0%	9.7%	0%		8.1%	-
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	34	-	-	-	-	-	22	-	-	-	-	-	27	-	-	-	-	-	32	-	-
Pedestrians%	-	-	-	-	29.6%	-	-	-	-	-	19.1%	-	-	-	-	-	23.5%	-	-	-	-	-	27.8%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (1.65 °C)

Start Time	N Approach						E Approach						S Approach						W Approach						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:00:00	11	67	11	0	8	89	2	3	13	0	10	18	9	64	31	0	15	104	27	4	7	0	11	38	249
17:15:00	20	72	9	0	9	101	2	5	4	0	14	11	10	68	26	0	8	104	27	6	9	0	14	42	258
17:30:00	20	63	6	0	7	89	3	8	7	0	24	18	18	69	18	0	8	105	24	9	12	0	5	45	257
17:45:00	28	70	5	0	15	103	7	7	7	0	21	21	17	70	36	0	15	123	23	9	17	0	11	49	296
Grand Total	79	272	31	0	39	382	14	23	31	0	69	68	54	271	111	0	46	436	101	28	45	0	41	174	1060
Approach%	20.7%	71.2%	8.1%	0%		-	20.6%	33.8%	45.6%	0%		-	12.4%	62.2%	25.5%	0%		-	58%	16.1%	25.9%	0%		-	-
Totals %	7.5%	25.7%	2.9%	0%		36%	1.3%	2.2%	2.9%	0%		6.4%	5.1%	25.6%	10.5%	0%		41.1%	9.5%	2.6%	4.2%	0%		16.4%	-
PHF	0.71	0.94	0.7	0		0.93	0.5	0.72	0.6	0		0.81	0.75	0.97	0.77	0		0.89	0.94	0.78	0.66	0		0.89	-
Heavy	4	4	0	0		8	0	0	0	0		0	0	2	6	0		8	6	0	3	0		9	-
Heavy %	5.1%	1.5%	0%	0%		2.1%	0%	0%	0%	0%		0%	0%	0.7%	5.4%	0%		1.8%	5.9%	0%	6.7%	0%		5.2%	-
Lights	75	267	31	0		373	14	23	31	0		68	54	268	105	0		427	94	28	42	0		164	-
Lights %	94.9%	98.2%	100%	0%		97.6%	100%	100%	100%	0%		100%	100%	98.9%	94.6%	0%		97.9%	93.1%	100%	93.3%	0%		94.3%	-
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Buses	4	4	0	0		8	0	0	0	0		0	0	2	6	0		8	6	0	3	0		9	-
Buses %	5.1%	1.5%	0%	0%		2.1%	0%	0%	0%	0%		0%	0%	0.7%	5.4%	0%		1.8%	5.9%	0%	6.7%	0%		5.2%	-
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	1	0	0	0		1	-
Bicycles on Road %	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.2%	1%	0%	0%	0%		0.6%	-
Pedestrians	-	-	-	-	39	-	-	-	-	-	69	-	-	-	-	-	46	-	-	-	-	-	41	-	-
Pedestrians%	-	-	-	-	20%	-	-	-	-	-	35.4%	-	-	-	-	-	23.6%	-	-	-	-	-	21%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (1.65 °C)





Turning Movement Count (1 . KANEFF CRES & MISSISSAUGA VALLEY BLVD)

Start Time	N Approach					S Approach					W Approach					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	2	20	0	2	22	22	7	0	0	29	9	8	0	3	17	68	
07:15:00	2	20	0	0	22	34	2	0	0	36	8	8	0	1	16	74	
07:30:00	1	36	0	0	37	30	4	0	1	34	10	10	0	5	20	91	
07:45:00	3	29	0	2	32	37	1	0	1	38	10	7	0	0	17	87	320
08:00:00	1	50	0	1	51	32	3	0	0	35	5	8	0	4	13	99	351
08:15:00	1	45	0	0	46	31	4	0	0	35	7	11	0	1	18	99	376
08:30:00	4	23	0	2	27	43	3	0	0	46	14	7	0	3	21	94	379
08:45:00	3	34	0	1	37	42	3	0	0	45	13	5	0	5	18	100	392
09:00:00	2	38	0	0	40	43	3	0	2	46	4	5	0	2	9	95	388
09:15:00	1	35	0	2	36	33	7	0	0	40	7	7	0	1	14	90	379
09:30:00	2	42	0	0	44	29	3	0	1	32	5	1	0	5	6	82	367
09:45:00	2	26	0	0	28	32	4	0	0	36	10	3	0	4	13	77	344
BREAK																	
16:00:00	7	77	0	2	84	54	10	0	1	64	2	2	0	3	4	152	
16:15:00	14	75	0	1	89	50	5	0	1	55	8	5	0	2	13	157	
16:30:00	14	71	0	0	85	45	7	0	1	52	11	1	0	6	12	149	
16:45:00	15	84	0	2	99	67	12	0	0	79	8	2	0	6	10	188	646
17:00:00	11	75	0	1	86	58	16	0	0	74	11	3	0	6	14	174	668
17:15:00	13	97	0	0	110	65	13	0	0	78	5	6	0	4	11	199	710
17:30:00	10	84	0	0	94	74	11	0	1	85	6	2	0	0	8	187	748
17:45:00	13	97	0	2	110	78	16	0	2	94	9	6	0	7	15	219	779
18:00:00	12	59	0	1	71	45	20	0	2	65	6	4	0	7	10	146	751
18:15:00	15	65	0	0	80	72	13	0	0	85	7	3	0	10	10	175	727
18:30:00	21	57	0	0	78	54	16	0	1	70	10	4	0	3	14	162	702



18:45:00	11	53	0	1	64	41	9	0	0	50	11	4	0	2	15	129	612
Grand Total	180	1292	0	20	1472	1111	192	0	14	1303	196	122	0	90	318	3093	-
Approach%	12.2%	87.8%	0%		-	85.3%	14.7%	0%		-	61.6%	38.4%	0%		-	-	-
Totals %	5.8%	41.8%	0%		47.6%	35.9%	6.2%	0%		42.1%	6.3%	3.9%	0%		10.3%	-	-
Heavy	1	54	0		-	45	1	0		-	2	2	0		-	-	-
Heavy %	0.6%	4.2%	0%		-	4.1%	0.5%	0%		-	1%	1.6%	0%		-	-	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	-	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)

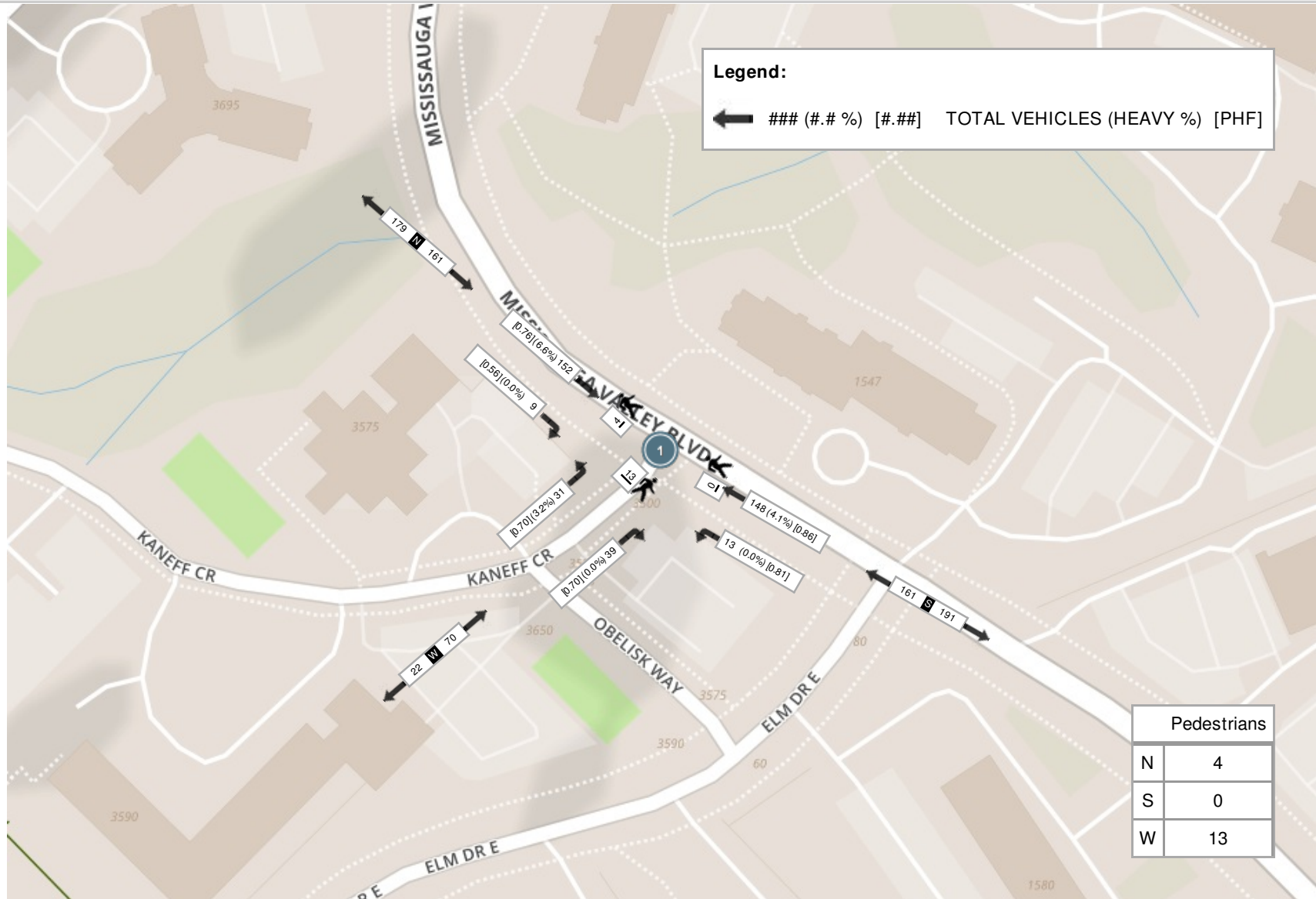
Start Time	N Approach					S Approach					W Approach					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
08:00:00	1	50	0	1	51	32	3	0	0	35	5	8	0	4	13	99
08:15:00	1	45	0	0	46	31	4	0	0	35	7	11	0	1	18	99
08:30:00	4	23	0	2	27	43	3	0	0	46	14	7	0	3	21	94
08:45:00	3	34	0	1	37	42	3	0	0	45	13	5	0	5	18	100
Grand Total	9	152	0	4	161	148	13	0	0	161	39	31	0	13	70	392
Approach%	5.6%	94.4%	0%		-	91.9%	8.1%	0%		-	55.7%	44.3%	0%		-	-
Totals %	2.3%	38.8%	0%		41.1%	37.8%	3.3%	0%		41.1%	9.9%	7.9%	0%		17.9%	-
PHF	0.56	0.76	0		0.79	0.86	0.81	0		0.88	0.7	0.7	0		0.83	-
Heavy	0	10	0		10	6	0	0		6	0	1	0		1	-
Heavy %	0%	6.6%	0%		6.2%	4.1%	0%	0%		3.7%	0%	3.2%	0%		1.4%	-
Lights	9	142	0		151	142	13	0		155	39	30	0		69	-
Lights %	100%	93.4%	0%		93.8%	95.9%	100%	0%		96.3%	100%	96.8%	0%		98.6%	-
Single-Unit Trucks	0	2	0		2	0	0	0		0	0	0	0		0	-
Single-Unit Trucks %	0%	1.3%	0%		1.2%	0%	0%	0%		0%	0%	0%	0%		0%	-
Buses	0	8	0		8	6	0	0		6	0	1	0		1	-
Buses %	0%	5.3%	0%		5%	4.1%	0%	0%		3.7%	0%	3.2%	0%		1.4%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	4	-	-	-	-	0	-	-	-	-	13	-	-
Pedestrians%	-	-	-	23.5%		-	-	-	0%		-	-	-	76.5%		-



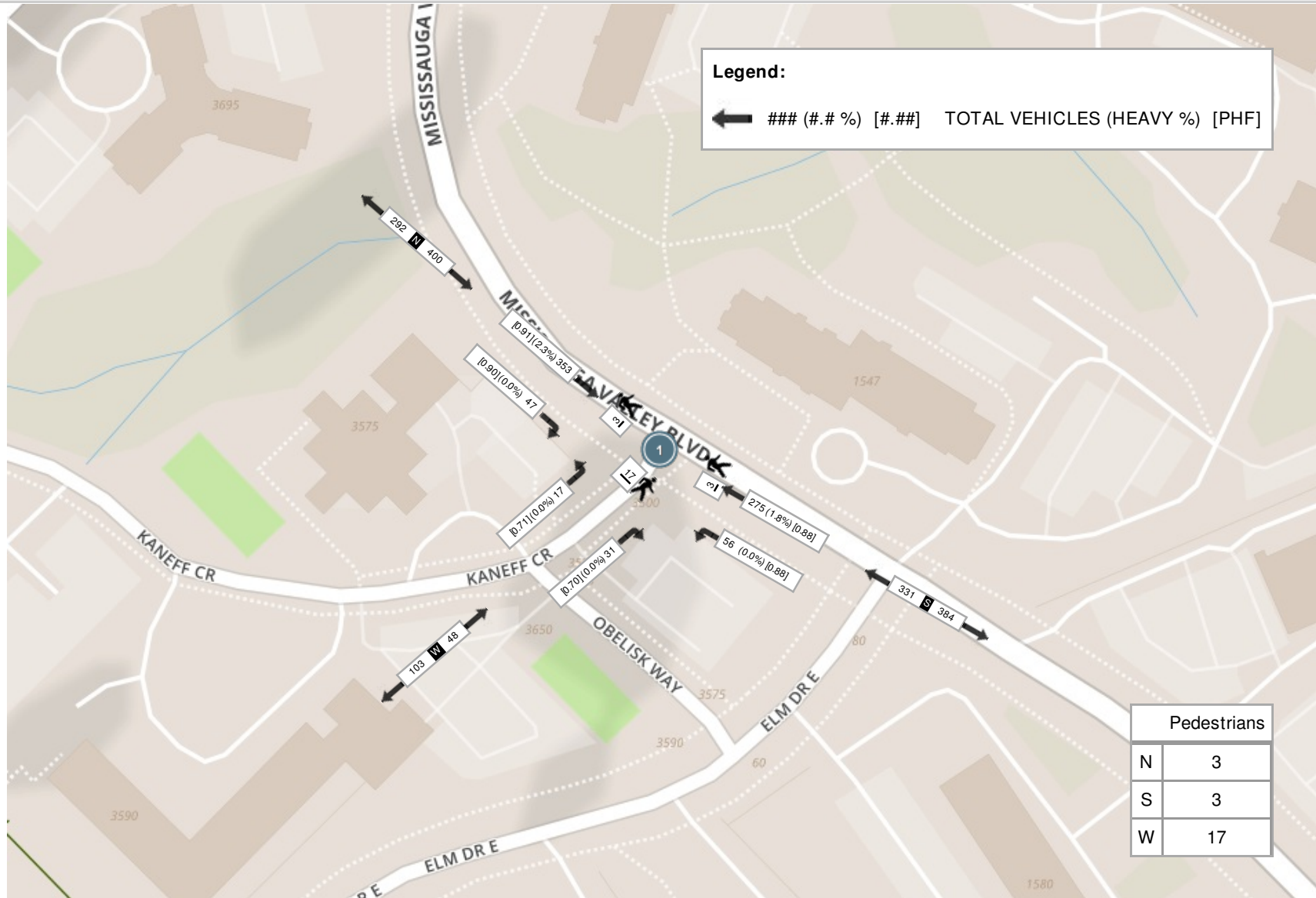
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (1.65 °C)

Start Time	N Approach					S Approach					W Approach					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
17:00:00	11	75	0	1	86	58	16	0	0	74	11	3	0	6	14	174
17:15:00	13	97	0	0	110	65	13	0	0	78	5	6	0	4	11	199
17:30:00	10	84	0	0	94	74	11	0	1	85	6	2	0	0	8	187
17:45:00	13	97	0	2	110	78	16	0	2	94	9	6	0	7	15	219
Grand Total	47	353	0	3	400	275	56	0	3	331	31	17	0	17	48	779
Approach%	11.8%	88.3%	0%		-	83.1%	16.9%	0%		-	64.6%	35.4%	0%		-	-
Totals %	6%	45.3%	0%		51.3%	35.3%	7.2%	0%		42.5%	4%	2.2%	0%		6.2%	-
PHF	0.9	0.91	0		0.91	0.88	0.88	0		0.88	0.7	0.71	0		0.8	-
Heavy	0	8	0		8	5	0	0		5	0	0	0		0	-
Heavy %	0%	2.3%	0%		2%	1.8%	0%	0%		1.5%	0%	0%	0%		0%	-
Lights	47	344	0		391	269	56	0		325	31	17	0		48	-
Lights %	100%	97.5%	0%		97.8%	97.8%	100%	0%		98.2%	100%	100%	0%		100%	-
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Buses	0	8	0		8	5	0	0		5	0	0	0		0	-
Buses %	0%	2.3%	0%		2%	1.8%	0%	0%		1.5%	0%	0%	0%		0%	-
Bicycles on Road	0	1	0		1	1	0	0		1	0	0	0		0	-
Bicycles on Road %	0%	0.3%	0%		0.3%	0.4%	0%	0%		0.3%	0%	0%	0%		0%	-
Pedestrians	-	-	-	3	-	-	-	-	3	-	-	-	-	17	-	-
Pedestrians%	-	-	-	13%	-	-	-	-	13%	-	-	-	-	73.9%	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (1.65 °C)





Turning Movement Count (2 . KANEFF CRES & OBELISK WAY)

Start Time	N Approach						E Approach						S Approach						W Approach						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	0	0	0	0	0	0	2	6	3	0	0	11	5	0	2	1	0	8	5	6	0	0	0	11	30	
07:15:00	0	0	0	0	1	0	1	3	0	0	1	4	2	2	1	0	1	5	12	7	0	0	3	19	28	
07:30:00	0	0	0	0	4	0	2	4	2	0	1	8	4	1	2	0	0	7	9	10	1	0	3	20	35	
07:45:00	0	1	1	0	2	2	3	2	4	0	1	9	3	1	7	0	4	11	6	11	0	0	8	17	39	132
08:00:00	0	1	0	0	9	1	1	2	9	0	6	12	1	0	5	0	0	6	11	8	0	0	0	19	38	140
08:15:00	0	0	0	0	2	0	0	8	5	0	1	13	4	2	7	0	0	13	7	3	1	0	2	11	37	149
08:30:00	0	0	0	0	2	0	1	4	5	0	2	10	2	1	4	1	0	8	8	12	0	0	0	20	38	152
08:45:00	0	0	0	0	2	0	0	4	7	0	1	11	5	1	3	0	1	9	3	8	0	0	2	11	31	144
09:00:00	0	1	0	0	0	1	2	3	3	0	0	8	2	0	1	0	2	3	3	5	0	0	0	8	20	126
09:15:00	0	0	0	0	2	0	2	3	1	0	0	6	3	1	4	0	0	8	5	7	0	0	0	12	26	115
09:30:00	0	2	0	0	0	2	0	3	2	0	0	5	1	0	3	0	1	4	4	5	0	0	1	9	20	97
09:45:00	0	0	0	0	4	0	0	7	3	0	1	10	3	0	2	0	3	5	2	7	0	0	0	9	24	90
BREAK																										
16:00:00	0	0	0	0	3	0	1	7	4	1	1	13	3	0	4	0	1	7	5	3	0	0	1	8	28	
16:15:00	0	0	0	0	8	0	1	5	8	0	5	14	3	1	8	0	2	12	10	8	0	0	2	18	44	
16:30:00	0	0	1	0	2	1	1	7	4	0	2	12	0	0	6	0	1	6	9	10	0	0	0	19	38	
16:45:00	0	0	2	0	3	2	1	11	9	0	3	21	5	0	9	0	0	14	10	6	0	0	0	16	53	163
17:00:00	0	1	0	0	4	1	2	14	7	0	2	23	3	1	2	0	1	6	5	9	0	0	5	14	44	179
17:15:00	0	0	0	0	5	0	1	11	12	0	5	24	5	1	4	0	3	10	8	10	0	0	1	18	52	187
17:30:00	0	0	0	0	3	0	1	9	7	0	1	17	3	0	7	0	3	10	6	6	2	0	3	14	41	190
17:45:00	0	0	0	0	7	0	4	14	3	0	5	21	4	2	4	0	2	10	7	9	0	0	5	16	47	184
18:00:00	0	0	0	0	2	0	3	17	10	0	1	30	7	1	8	0	5	16	6	6	1	0	3	13	59	199
18:15:00	0	0	1	0	6	1	3	12	12	0	2	27	7	0	6	0	1	13	14	4	0	0	5	18	59	206
18:30:00	0	0	2	0	4	2	2	17	7	0	2	26	3	0	7	0	3	10	9	13	1	0	2	23	61	226
18:45:00	0	0	2	0	3	2	2	7	7	0	1	16	5	1	3	0	1	9	8	8	0	0	1	16	43	222
Grand Total	0	6	9	0	78	15	36	180	134	1	44	351	83	16	109	2	35	210	172	181	6	0	47	359	935	-
Approach%	0%	40%	60%	0%	-	-	10.3%	51.3%	38.2%	0.3%	-	-	39.5%	7.6%	51.9%	1%	-	-	47.9%	50.4%	1.7%	0%	-	-	-	-
Totals %	0%	0.6%	1%	0%	-	1.6%	3.9%	19.3%	14.3%	0.1%	-	37.5%	8.9%	1.7%	11.7%	0.2%	-	22.5%	18.4%	19.4%	0.6%	0%	-	38.4%	-	-
Heavy	0	1	0	0	-	-	0	0	0	0	-	-	0	1	0	0	-	-	1	4	0	0	-	-	-	-
Heavy %	0%	16.7%	0%	0%	-	-	0%	0%	0%	0%	-	-	0%	6.3%	0%	0%	-	-	0.6%	2.2%	0%	0%	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (1 °C)

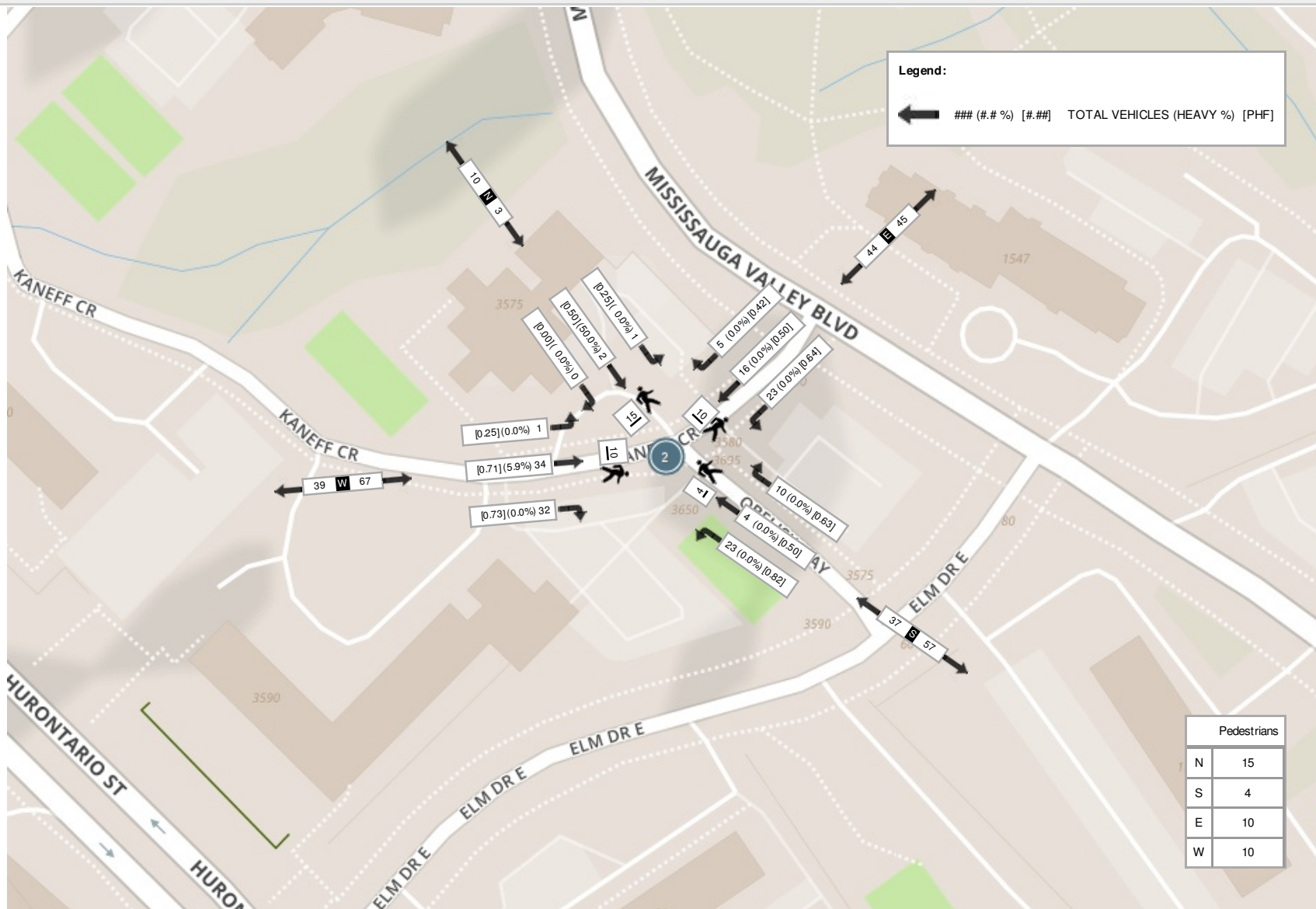
Start Time	N Approach						E Approach						S Approach						W Approach						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	0	1	1	0	2	2	3	2	4	0	1	9	3	1	7	0	4	11	6	11	0	0	8	17	39
08:00:00	0	1	0	0	9	1	1	2	9	0	6	12	1	0	5	0	0	6	11	8	0	0	0	19	38
08:15:00	0	0	0	0	2	0	0	8	5	0	1	13	4	2	7	0	0	13	7	3	1	0	2	11	37
08:30:00	0	0	0	0	2	0	1	4	5	0	2	10	2	1	4	1	0	8	8	12	0	0	0	20	38
Grand Total	0	2	1	0	15	3	5	16	23	0	10	44	10	4	23	1	4	38	32	34	1	0	10	67	152
Approach%	0%	66.7%	33.3%	0%	-	-	11.4%	36.4%	52.3%	0%	-	-	26.3%	10.5%	60.5%	2.6%	-	-	47.8%	50.7%	1.5%	0%	-	-	-
Totals %	0%	1.3%	0.7%	0%	2%	2%	3.3%	10.5%	15.1%	0%	28.9%	28.9%	6.6%	2.6%	15.1%	0.7%	25%	25%	21.1%	22.4%	0.7%	0%	44.1%	44.1%	-
PHF	0	0.5	0.25	0	0.38	0.38	0.42	0.5	0.64	0	0.85	0.85	0.63	0.5	0.82	0.25	0.73	0.73	0.71	0.25	0	0.84	0.84	0.84	-
Heavy	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	-
Heavy %	0%	50%	0%	0%	33.3%	33.3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5.9%	0%	0%	3%	3%	-
Lights	0	1	1	0	2	2	5	16	23	0	44	44	10	4	23	1	38	38	32	32	1	0	65	65	-
Lights %	0%	50%	100%	0%	66.7%	66.7%	100%	100%	100%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94.1%	100%	0%	97%	97%	-
Single-Unit Trucks	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Single-Unit Trucks %	0%	50%	0%	0%	33.3%	33.3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	-
Buses %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5.9%	0%	0%	3%	3%	-
Pedestrians	-	-	-	-	15	-	-	-	-	-	10	-	-	-	-	-	4	-	-	-	-	-	10	-	-
Pedestrians%	-	-	-	-	38.5%	-	-	-	-	-	25.6%	-	-	-	-	-	10.3%	-	-	-	-	-	25.6%	-	-



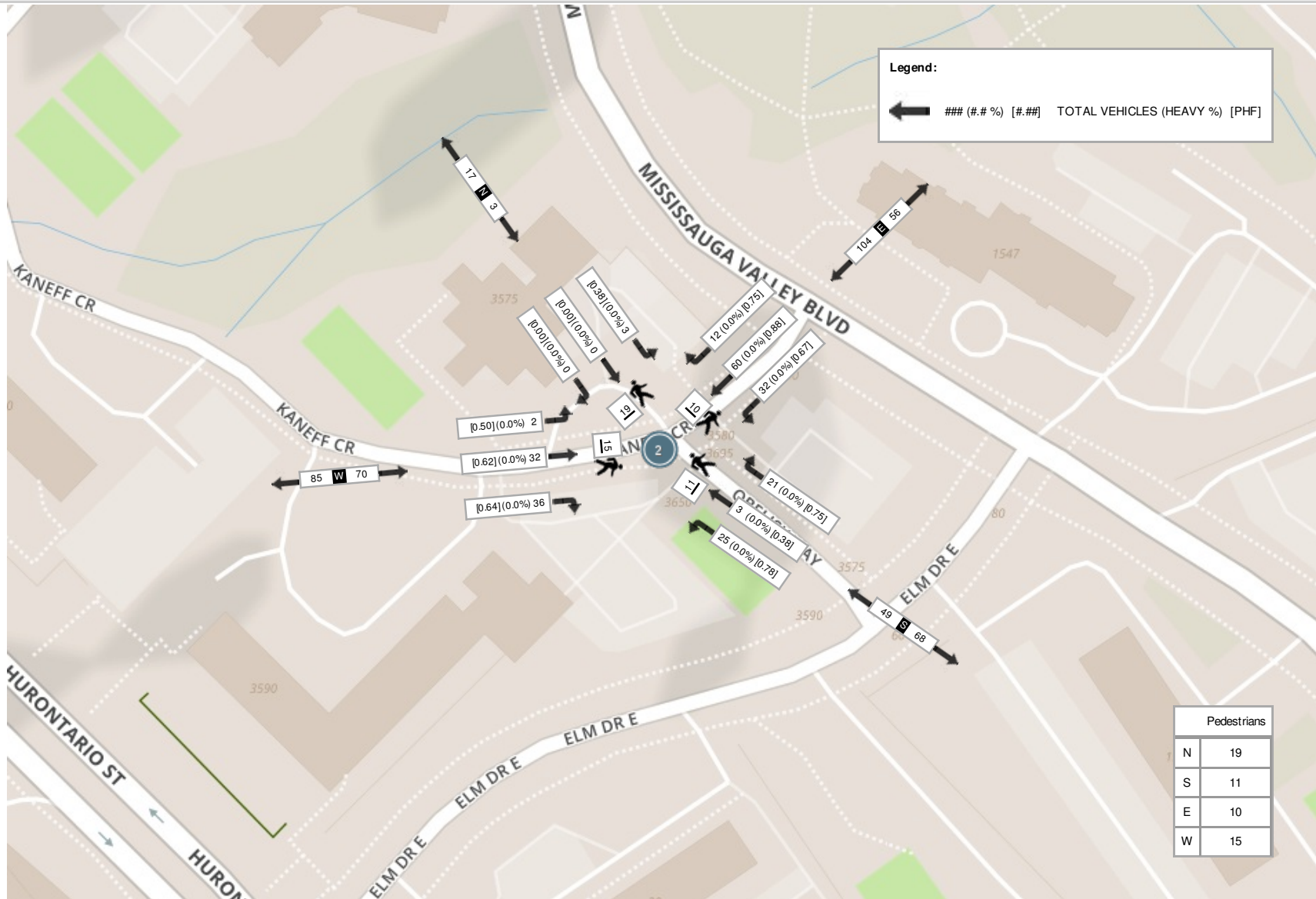
Peak Hour: 05:45 PM - 06:45 PM Weather: Overcast Clouds (1.65 °C)

Start Time	N Approach						E Approach						S Approach						W Approach						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:45:00	0	0	0	0	7	0	4	14	3	0	5	21	4	2	4	0	2	10	7	9	0	0	5	16	47
18:00:00	0	0	0	0	2	0	3	17	10	0	1	30	7	1	8	0	5	16	6	6	1	0	3	13	59
18:15:00	0	0	1	0	6	1	3	12	12	0	2	27	7	0	6	0	1	13	14	4	0	0	5	18	59
18:30:00	0	0	2	0	4	2	2	17	7	0	2	26	3	0	7	0	3	10	9	13	1	0	2	23	61
Grand Total	0	0	3	0	19	3	12	60	32	0	10	104	21	3	25	0	11	49	36	32	2	0	15	70	226
Approach%	0%	0%	100%	0%	-	-	11.5%	57.7%	30.8%	0%	-	-	42.9%	6.1%	51%	0%	-	-	51.4%	45.7%	2.9%	0%	-	-	-
Totals %	0%	0%	1.3%	0%	1.3%	1.3%	5.3%	26.5%	14.2%	0%	46%	46%	9.3%	1.3%	11.1%	0%	21.7%	21.7%	15.9%	14.2%	0.9%	0%	31%	31%	-
PHF	0	0	0.38	0	0.38	0.38	0.75	0.88	0.67	0	0.87	0.87	0.75	0.38	0.78	0	0.77	0.77	0.64	0.62	0.5	0	0.76	0.76	-
Heavy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Heavy %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
Lights	0	0	3	0	3	3	12	60	32	0	104	104	21	3	25	0	49	49	36	32	2	0	70	70	-
Lights %	0%	0%	100%	0%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%	0%	100%	100%	-
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Buses %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
Pedestrians	-	-	-	-	19	-	-	-	-	-	10	-	-	-	-	-	11	-	-	-	-	-	15	-	-
Pedestrians%	-	-	-	-	34.5%	-	-	-	-	-	18.2%	-	-	-	-	-	20%	-	-	-	-	-	27.3%	-	-

Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (1 °C)



Peak Hour: 05:45 PM - 06:45 PM Weather: Overcast Clouds (1.65 °C)





Turning Movement Count (3 . OBELISK WAY & ELM DR E)

Start Time	N Approach					E Approach					W Approach					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	15	4	0	4	19	1	15	0	0	16	18	4	0	3	22	57	
07:15:00	15	4	0	4	19	0	15	0	0	15	17	5	0	3	22	56	
07:30:00	18	3	0	5	21	1	18	0	0	19	32	4	0	3	36	76	
07:45:00	21	4	0	13	25	4	17	0	0	21	27	6	0	4	33	79	268
08:00:00	20	4	0	10	24	1	29	0	1	30	30	6	0	2	36	90	301
08:15:00	17	3	0	2	20	1	28	0	1	29	21	11	0	0	32	81	326
08:30:00	11	7	0	7	18	1	26	0	1	27	29	7	0	0	36	81	331
08:45:00	13	5	0	9	18	2	29	0	0	31	30	5	0	1	35	84	336
09:00:00	11	2	0	2	13	1	26	0	0	27	30	2	0	0	32	72	318
09:15:00	9	3	0	7	12	0	23	0	0	23	27	7	0	0	34	69	306
09:30:00	8	0	0	4	8	1	27	0	1	28	25	1	0	1	26	62	287
09:45:00	8	0	0	7	8	2	18	0	1	20	23	4	0	1	27	55	258
BREAK																	
16:00:00	6	1	0	8	7	2	39	0	0	41	39	9	0	3	48	96	
16:15:00	14	1	0	1	15	1	43	0	0	44	38	13	0	0	51	110	
16:30:00	14	4	0	5	18	3	49	0	0	52	36	11	1	0	48	118	
16:45:00	11	4	0	4	15	0	35	0	1	35	41	15	0	0	56	106	430
17:00:00	12	0	0	5	12	1	45	0	0	46	42	8	0	0	50	108	442
17:15:00	16	1	0	6	17	2	47	0	1	49	41	13	0	0	54	120	452
17:30:00	9	4	0	1	13	2	48	0	0	50	45	13	0	0	58	121	455
17:45:00	14	1	0	15	15	2	69	0	3	71	47	10	0	3	57	143	492
18:00:00	13	3	0	10	16	1	42	0	1	43	26	18	0	3	44	103	487
18:15:00	20	1	0	6	21	2	35	0	0	37	42	11	0	2	53	111	478
18:30:00	12	2	0	6	14	3	48	0	0	51	29	11	0	3	40	105	462



18:45:00	9	1	0	7	10	1	42	0	1	43	39	9	0	0	48	101	420
Grand Total	316	62	0	148	378	35	813	0	12	848	774	203	1	32	978	2204	-
Approach%	83.6%	16.4%	0%	-	-	4.1%	95.9%	0%	-	-	79.1%	20.8%	0.1%	-	-	-	-
Totals %	14.3%	2.8%	0%	-	17.2%	1.6%	36.9%	0%	-	38.5%	35.1%	9.2%	0%	-	44.4%	-	-
Heavy	2	1	0	-	-	0	66	0	-	-	69	1	0	-	-	-	-
Heavy %	0.6%	1.6%	0%	-	-	0%	8.1%	0%	-	-	8.9%	0.5%	0%	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)

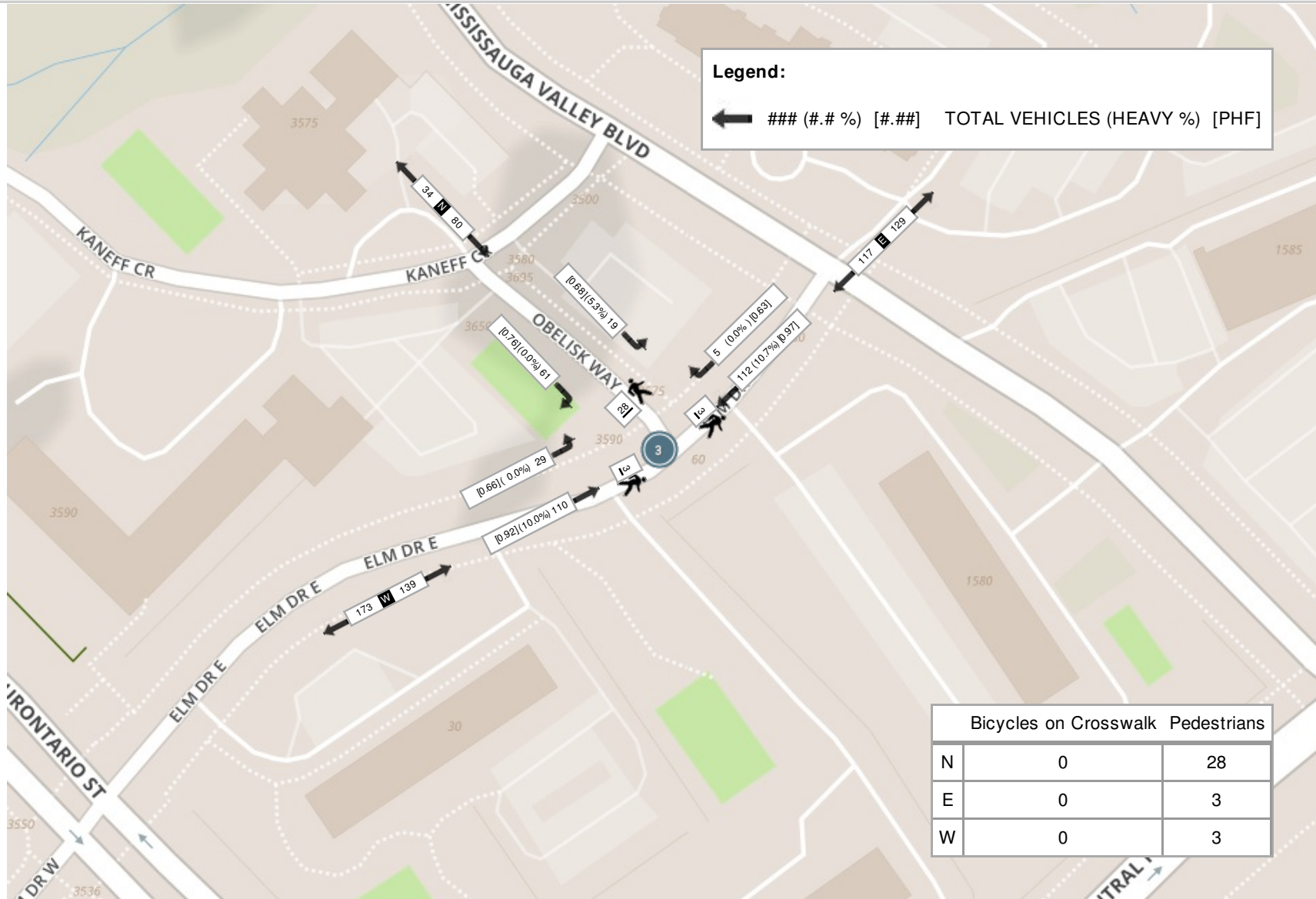
Start Time	N Approach					E Approach					W Approach					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	20	4	0	10	24	1	29	0	1	30	30	6	0	2	36	90
08:15:00	17	3	0	2	20	1	28	0	1	29	21	11	0	0	32	81
08:30:00	11	7	0	7	18	1	26	0	1	27	29	7	0	0	36	81
08:45:00	13	5	0	9	18	2	29	0	0	31	30	5	0	1	35	84
Grand Total	61	19	0	28	80	5	112	0	3	117	110	29	0	3	139	336
Approach%	76.3%	23.8%	0%		-	4.3%	95.7%	0%		-	79.1%	20.9%	0%		-	-
Totals %	18.2%	5.7%	0%		23.8%	1.5%	33.3%	0%		34.8%	32.7%	8.6%	0%		41.4%	-
PHF	0.76	0.68	0		0.83	0.63	0.97	0		0.94	0.92	0.66	0		0.97	-
Heavy	0	1	0		1	0	12	0		12	11	0	0		11	-
Heavy %	0%	5.3%	0%		1.3%	0%	10.7%	0%		10.3%	10%	0%	0%		7.9%	-
Lights	61	18	0		79	5	100	0		105	99	29	0		128	-
Lights %	100%	94.7%	0%		98.8%	100%	89.3%	0%		89.7%	90%	100%	0%		92.1%	-
Single-Unit Trucks	0	1	0		1	0	2	0		2	1	0	0		1	-
Single-Unit Trucks %	0%	5.3%	0%		1.3%	0%	1.8%	0%		1.7%	0.9%	0%	0%		0.7%	-
Buses	0	0	0		0	0	10	0		10	10	0	0		10	-
Buses %	0%	0%	0%		0%	0%	8.9%	0%		8.5%	9.1%	0%	0%		7.2%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	28	-	-	-	-	3	-	-	-	-	3	-	-
Pedestrians%	-	-	-	82.4%	-	-	-	-	8.8%	-	-	-	-	8.8%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-



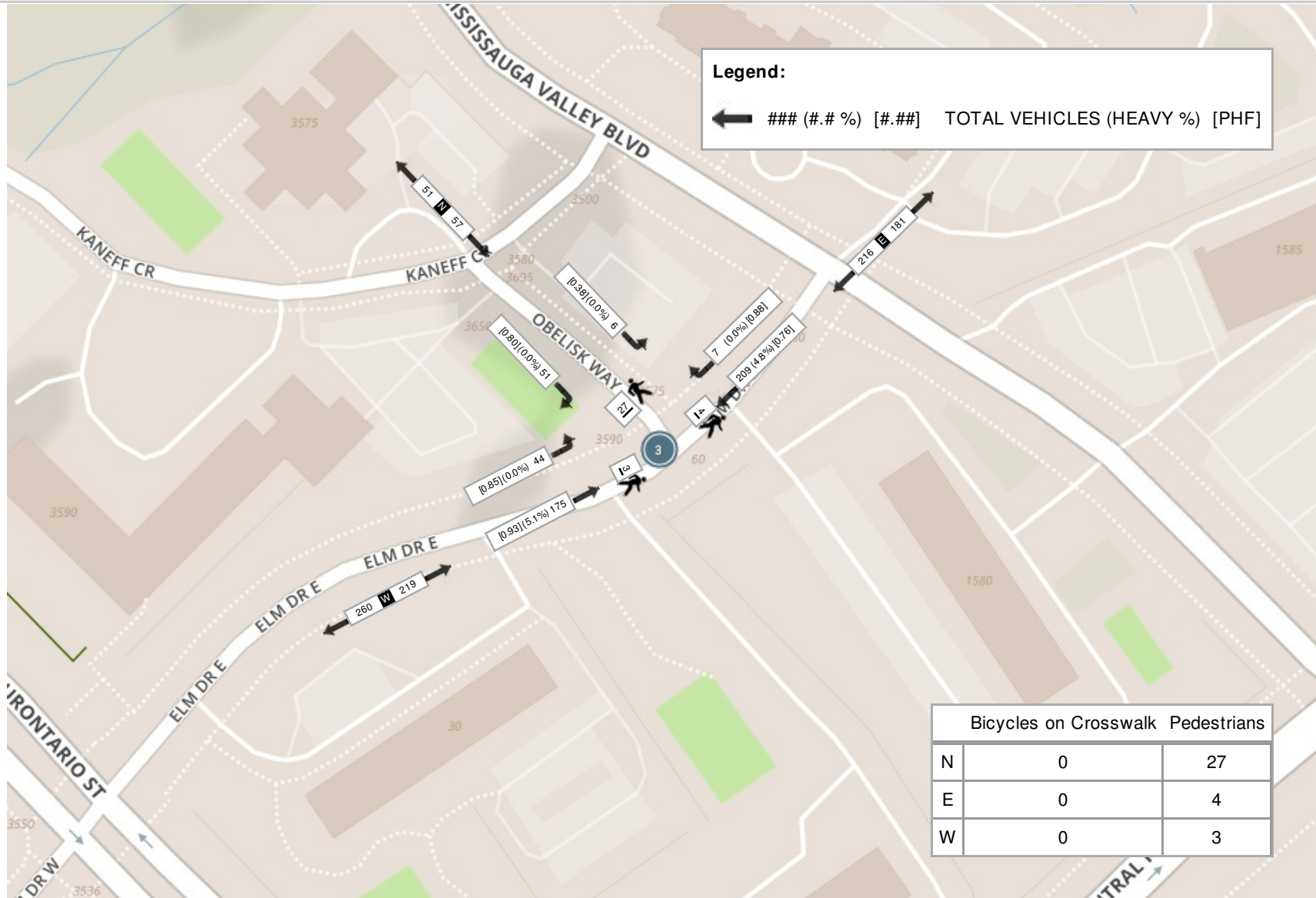
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (1.65 °C)

Start Time	N Approach					E Approach					W Approach					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
17:00:00	12	0	0	5	12	1	45	0	0	46	42	8	0	0	50	108
17:15:00	16	1	0	6	17	2	47	0	1	49	41	13	0	0	54	120
17:30:00	9	4	0	1	13	2	48	0	0	50	45	13	0	0	58	121
17:45:00	14	1	0	15	15	2	69	0	3	71	47	10	0	3	57	143
Grand Total	51	6	0	27	57	7	209	0	4	216	175	44	0	3	219	492
Approach%	89.5%	10.5%	0%		-	3.2%	96.8%	0%		-	79.9%	20.1%	0%		-	-
Totals %	10.4%	1.2%	0%		11.6%	1.4%	42.5%	0%		43.9%	35.6%	8.9%	0%		44.5%	-
PHF	0.8	0.38	0		0.84	0.88	0.76	0		0.76	0.93	0.85	0		0.94	-
Heavy	0	0	0		0	0	10	0		10	9	0	0		9	-
Heavy %	0%	0%	0%		0%	0%	4.8%	0%		4.6%	5.1%	0%	0%		4.1%	-
Lights	51	6	0		57	7	199	0		206	165	44	0		209	-
Lights %	100%	100%	0%		100%	100%	95.2%	0%		95.4%	94.3%	100%	0%		95.4%	-
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Buses	0	0	0		0	0	10	0		10	9	0	0		9	-
Buses %	0%	0%	0%		0%	0%	4.8%	0%		4.6%	5.1%	0%	0%		4.1%	-
Bicycles on Road	0	0	0		0	0	0	0		0	1	0	0		1	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0.6%	0%	0%		0.5%	-
Pedestrians	-	-	-	27	-	-	-	-	4	-	-	-	-	3	-	-
Pedestrians%	-	-	-	79.4%	-	-	-	-	11.8%	-	-	-	-	8.8%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (1.65 °C)



Signal Timing Report

Runtime: 2020-03-04 13:16:40

Device: 2108

Region: Mississauga

Signal ID: 2108

Location: HURONTARIO STREET E at Elm Street

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	9	0	15	0	9	0	15
Ped Clear	Sec	0	13	0	22	0	13	0	22
Min Green	Sec	5	8	0	8	5	8	0	8
Passage	Sec	2.0	3.0	0.0	3.0	2.0	3.0	0.0	3.0
Maximum 1	Sec	10	33	0	35	10	33	0	35
Maximum 2	Sec	10	33	0	35	10	33	0	35
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	4.0	0.0	3.0	0.0	4.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	phaseNotOn	redClear	other	phaseNotOn	phaseNotOn	redClear	other	phaseNotOn
[P2] Options	Bit	Enabled Non Lock Det	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In Walk	0	Enabled Non Lock Det Dual Entry	Enabled Non Lock Det	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In Walk	0	Enabled Non Lock Det Dual Entry
[P2] Ring	Ring	1	1	0	1	2	2	0	2
[P2] Concurrency	Phase (,)	(5,6)	(5,6)	()	(8)	(1,2)	(1,2)	()	(4)
Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	160	160	160	0	0	0	0	0
Offset	Sec	10	26	123	0	0	0	0	0
Split	Split	1	2	3	4	5	6	7	8
Sequence	Sequence	1	1	1	1	1	1	1	1
Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	phaseOmitted	none	none	none	phaseOmitted	none	none	none
Split 1 - Time	Sec	0	102	0	58	0	102	0	58
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	phaseOmitted	none	none	none	none	none	none	none
Split 2 - Time	Sec	0	101	0	59	13	88	0	59
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	13	89	0	58	27	75	0	58
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	123456789012345678901	123456789012345678901	123456789012345678901	1-----	-----7-----	-----0-----	-----8-----	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	--3-----	-----7-----	-----2-----	-----	-----	-----	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	3	6	9	15	19	0	0
Plan 1 Minute	Min	0	0	0	30	0	30	0	0
Plan 1 Action	Number	8	7	1	2	3	2	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	Special Func 1 Special Func 3

Signal Timing Report

Runtime: 2020-02-06 15:08:21

Device: 2116

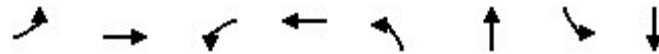
Region	Mississauga	Signal ID:	2116	Location:	MISSISSAUGA VALLEY BOULEVARD N at Elm Drive				
Phase	Units	1- NBL	2-NB/SB	3	4-EB-WB	5	6	7	8
Walk	Sec	0	9	0	9	0	0	0	0
Ped Clear	Sec	0	16	0	17	0	0	0	0
Min Green	Sec	5	8	0	8	0	0	0	0
Passage	Sec	2.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0
Maximum 1	Sec	10	15	0	30	0	0	0	0
Maximum 2	Sec	10	15	0	30	0	0	0	0
Yellow Change	Sec	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	3.0	0.0	2.5	0.0	0.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	phaseNotOn	redClear	other	phaseNotOn	other	other	other	other
[P2] Options	Bit	Enabled Non Lock Det	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Act Rest In Walk	0	Enabled Non Lock Det	0	0	0	0
[P2] Ring	Ring	1	1	0	1	0	0	0	0
[P2] Concurrency	Phase (,)	()	()	()	()	()	()	()	()
Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	0	0	0	0	0	0	0	0
Offset	Sec	0	0	0	0	0	0	0	0
Split	Split	1	2	3	4	5	6	7	8
Sequence	Sequence	1	1	1	1	1	1	1	1
Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	0	0	0	0	0	0	0	0
Split 1 - Coord	Enum	false	true	false	false	false	false	false	false
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	0	0	0	0	0	0	0	0
Split 2 - Coord	Enum	false	true	false	false	false	false	false	false
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	0	0	0	0	0	0	0	0
Split 3 - Coord	Enum	false	true	false	false	false	false	false	false
TB Schedule	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J-----	-F-----	---A-----	---M-----	-----J----
Day of Week	Bit	-MTWTF-	S-----	-----S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	123456789012345678901	123456789012345678901	123456789012345678901	1-----7-----	-----7-----	-----0-----	-----8-----	1-----
Day Plan	Number	1	3	2	3	3	3	3	3
TB Dayplan	Units	1	2	3	4	5	6	7	8
Plan 1 Hour	Hour	0	3	0	0	0	0	0	0
Plan 1 Minute	Min	0	0	0	0	0	0	0	0
Plan 1 Action	Number	8	7	0	0	0	0	0	0
Plan 2 Hour	Hour	0	3	0	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	7	0	0	0	0	0	0
Plan 3 Hour	Hour	0	3	0	0	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	7	0	0	0	0	0	0
TB Action	Units	1	2	3	4	5	6	7	8
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Free	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

APPENDIX B

Existing Traffic Level of Service Calculations

Queues
1: Hurontario St & Elm Drive E

Existing AM
3/10/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	142	140	83	204	72	1612	43	1376
Act Effect Green (s)	13.1	13.1	13.1	13.1	35.1	28.5	34.2	26.5
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.58	0.47	0.57	0.44
v/c Ratio	0.56	0.32	0.31	0.44	0.23	0.68	0.14	0.62
Control Delay	31.2	11.6	23.9	11.4	7.9	16.5	7.2	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	11.6	23.9	11.4	7.9	16.5	7.2	16.3
LOS	C	B	C	B	A	B	A	B
Approach Delay		21.5		15.0		16.1		16.1
Approach LOS		C		B		B		B
Queue Length 50th (m)	15.3	5.2	8.4	6.7	2.9	40.2	1.7	46.5
Queue Length 95th (m)	30.7	17.2	18.8	21.4	9.1	#95.2	6.2	73.1
Internal Link Dist (m)		217.5		214.8		169.2		328.4
Turn Bay Length (m)	22.5		41.0		28.0		69.0	
Base Capacity (vph)	725	1077	769	1088	326	2364	330	2204
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	0.20	0.13	0.11	0.19	0.22	0.68	0.13	0.62

Intersection Summary

Cycle Length: 88

Actuated Cycle Length: 60.4

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 73.7%

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.

HCM Signalized Intersection Capacity Analysis

1: Hurontario St & Elm Drive E

Existing AM

3/10/2020





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	49	80	76	63	125	66	1437	46	40	1230	36
Future Volume (vph)	131	49	80	76	63	125	66	1437	46	40	1230	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.91		1.00	0.90		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1670		1750	1658		1750	5005		1750	5007	
Flt Permitted	0.63	1.00		0.67	1.00		0.14	1.00		0.15	1.00	
Satd. Flow (perm)	1160	1670		1230	1658		259	5005		272	5007	
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)	142	53	87	83	68	136	72	1562	50	43	1337	39
RTOR Reduction (vph)	0	69	0	0	107	0	0	3	0	0	3	0
Lane Group Flow (vph)	142	71	0	83	97	0	72	1609	0	43	1373	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.2	13.2		13.2	13.2		32.3	28.5		29.5	27.1	
Effective Green, g (s)	13.2	13.2		13.2	13.2		32.3	28.5		29.5	27.1	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.52	0.46		0.48	0.44	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	246	354		261	352		225	2296		186	2185	
v/s Ratio Prot		0.04			0.06		c0.02	c0.32		0.01	0.27	
v/s Ratio Perm	c0.12			0.07			0.15			0.10		
v/c Ratio	0.58	0.20		0.32	0.28		0.32	0.70		0.23	0.63	
Uniform Delay, d1	21.9	20.1		20.6	20.4		8.1	13.4		9.4	13.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.3	0.3		0.7	0.4		0.8	1.0		0.6	0.6	
Delay (s)	25.2	20.4		21.4	20.9		8.9	14.4		10.0	14.2	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		22.8			21.0			14.2			14.0	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			15.3			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			62.1			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			73.7%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Mississauga Valley Blvd & Kaneff Cres

Existing AM
3/10/2020



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	39	13	148	152	9
Future Volume (Veh/h)	31	39	13	148	152	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	42	14	161	165	10
Pedestrians	4			13	13	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	0			1	1	
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				77		
pX, platoon unblocked						
vC, conflicting volume	376	187	179			
vC1, stage 1 conf vol	174					
vC2, stage 2 conf vol	202					
vCu, unblocked vol	376	187	179			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	95	99			
cM capacity (veh/h)	737	847	1404			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	76	14	161	175		
Volume Left	34	14	0	0		
Volume Right	42	0	0	10		
cSH	794	1404	1700	1700		
Volume to Capacity	0.10	0.01	0.09	0.10		
Queue Length 95th (m)	2.4	0.2	0.0	0.0		
Control Delay (s)	10.0	7.6	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	10.0	0.6		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			25.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

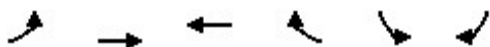
5: Obelisk Way & Kaneff Cres





Existing AM
3/10/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	34	32	23	16	5	23	4	10	1	2	0
Future Volume (Veh/h)	1	34	32	23	16	5	23	4	10	1	2	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			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)	1	37	35	25	17	5	25	4	11	1	2	0
Pedestrians	15			15			10			10		
Lane Width (m)	3.5			3.5			3.5			3.5		
Walking Speed (m/s)	1.1			1.1			1.1			1.1		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	32			82			152	148	80	164	164	44
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			82			152	148	80	164	164	44
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			97	99	99	100	100	100
cM capacity (veh/h)	1579			1515			779	721	965	755	707	1009
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	73	47	40	3								
Volume Left	1	25	25	1								
Volume Right	35	5	11	0								
cSH	1579	1515	816	723								
Volume to Capacity	0.00	0.02	0.05	0.00								
Queue Length 95th (m)	0.0	0.4	1.2	0.1								
Control Delay (s)	0.1	4.0	9.6	10.0								
Lane LOS	A	A	A	B								
Approach Delay (s)	0.1	4.0	9.6	10.0								
Approach LOS			A	B								
Intersection Summary												
Average Delay				3.8								
Intersection Capacity Utilization				24.3%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 6: Elm Drive E & Obelisk Way

Existing AM
3/10/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	110	112	5	19	61
Future Volume (Veh/h)	29	110	112	5	19	61
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)	32	120	122	5	21	66
Pedestrians		28	28		3	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		2	2		0	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh			2			
Upstream signal (m)		239	69			
pX, platoon unblocked						
vC, conflicting volume	130				340	156
vC1, stage 1 conf vol					128	
vC2, stage 2 conf vol					212	
vCu, unblocked vol	130				340	156
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	92
cM capacity (veh/h)	1464				732	871
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	32	120	127	87		
Volume Left	32	0	0	21		
Volume Right	0	0	5	66		
cSH	1464	1700	1700	833		
Volume to Capacity	0.02	0.07	0.07	0.10		
Queue Length 95th (m)	0.5	0.0	0.0	2.6		
Control Delay (s)	7.5	0.0	0.0	9.8		
Lane LOS	A			A		
Approach Delay (s)	1.6		0.0	9.8		
Approach LOS				A		
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization			25.7%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
7: Mississauga Valley Blvd & Elm Drive E

Existing AM
3/10/2020



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	101	108	57	137	8	201
Act Effect Green (s)	8.7	8.7	9.3	24.5	22.5	10.4	10.4
Actuated g/C Ratio	0.23	0.23	0.24	0.64	0.58	0.27	0.27
v/c Ratio	0.14	0.27	0.31	0.09	0.13	0.02	0.42
Control Delay	16.5	7.9	14.0	4.2	5.8	12.0	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	7.9	14.0	4.2	5.8	12.0	15.6
LOS	B	A	B	A	A	B	B
Approach Delay		10.0	14.0		5.4		15.5
Approach LOS		B	B		A		B
Queue Length 50th (m)	2.0	0.7	4.7	1.4	4.2	0.4	11.4
Queue Length 95th (m)	7.8	9.8	15.3	4.4	10.7	2.6	25.2
Internal Link Dist (m)		44.7	15.4		104.6		53.4
Turn Bay Length (m)	17.0			16.0		21.0	
Base Capacity (vph)	770	987	1024	685	1538	813	1179
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	0.04	0.10	0.11	0.08	0.09	0.01	0.17

Intersection Summary

Cycle Length: 74.5

Actuated Cycle Length: 38.5

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 11.1

Intersection LOS: B

Intersection Capacity Utilization 56.0%




















ICU Level of Service B

Analysis Period (min) 15

HCM Signalized Intersection Capacity Analysis

7: Mississauga Valley Blvd & Elm Drive E

Existing AM
3/10/2020





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	12	81	47	29	23	52	106	20	7	162	23
Future Volume (vph)	31	12	81	47	29	23	52	106	20	7	162	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.97	1.00			0.99		1.00	1.00		0.98	1.00	
Frt	1.00	0.87			0.97		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1573	1409			1717		1623	1777		1745	1746	
Flt Permitted	0.69	1.00			0.80		0.49	1.00		0.67	1.00	
Satd. Flow (perm)	1138	1409			1405		839	1777		1230	1746	
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)	34	13	88	51	32	25	57	115	22	8	176	25
RTOR Reduction (vph)	0	75	0	0	18	0	0	8	0	0	7	0
Lane Group Flow (vph)	34	26	0	0	90	0	57	129	0	8	194	0
Confl. Peds. (#/hr)	32		32	22		22			27	34		34
Heavy Vehicles (%)	10%	8%	12%	2%	3%	0%	10%	3%	0%	0%	2%	26%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	6.1	6.1			8.1		20.2	20.2		10.5	10.5	
Effective Green, g (s)	6.1	6.1			8.1		20.2	20.2		10.5	10.5	
Actuated g/C Ratio	0.15	0.15			0.20		0.51	0.51		0.26	0.26	
Clearance Time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	174	215			285		557	901		324	460	
v/s Ratio Prot		0.02					0.02	c0.07			c0.11	
v/s Ratio Perm	0.03				c0.06		0.03			0.01		
v/c Ratio	0.20	0.12			0.31		0.10	0.14		0.02	0.42	
Uniform Delay, d1	14.7	14.5			13.5		5.1	5.2		10.9	12.1	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3			0.6		0.1	0.1		0.0	0.6	
Delay (s)	15.3	14.8			14.1		5.2	5.3		10.9	12.8	
Level of Service	B	B			B		A	A		B	B	
Approach Delay (s)		14.9			14.1			5.3			12.7	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			39.8				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			56.0%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Mississauga Valley Blvd & Kaneff Cres

3/10/2020



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	31	56	275	353	47
Future Volume (Veh/h)	17	31	56	275	353	47
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	34	61	299	384	51
Pedestrians	3			17	17	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	0			2	2	
Right turn flare (veh)						
Median type				TWLT	TWLT	
Median storage veh				2	2	
Upstream signal (m)				77		
pX, platoon unblocked	0.98					
vC, conflicting volume	850	430	438			
vC1, stage 1 conf vol	412					
vC2, stage 2 conf vol	438					
vCu, unblocked vol	835	430	438			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	95	95			
cM capacity (veh/h)	510	619	1130			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	52	61	299	435		
Volume Left	18	61	0	0		
Volume Right	34	0	0	51		
cSH	576	1130	1700	1700		
Volume to Capacity	0.09	0.05	0.18	0.26		
Queue Length 95th (m)	2.3	1.3	0.0	0.0		
Control Delay (s)	11.9	8.4	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.9	1.4		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			42.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Obelisk Way & Kaneff Cres

3/10/2020





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	32	36	32	60	12	25	3	21	3	0	0
Future Volume (Veh/h)	2	32	36	32	60	12	25	3	21	3	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			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)	2	35	39	35	65	13	27	3	23	3	0	0
Pedestrians		19			19			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		2			2			1			1	
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	93			89			234	236	88	258	250	106
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	93			89			234	236	88	258	250	106
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			96	100	98	100	100	100
cM capacity (veh/h)	1494			1499			676	634	946	634	624	926
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	76	113	53	3								
Volume Left	2	35	27	3								
Volume Right	39	13	23	0								
cSH	1494	1499	768	634								
Volume to Capacity	0.00	0.02	0.07	0.00								
Queue Length 95th (m)	0.0	0.5	1.7	0.1								
Control Delay (s)	0.2	2.4	10.0	10.7								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.2	2.4	10.0	10.7								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			27.4%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Elm Drive E & Obelisk Way

3/10/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	175	209	7	6	51
Future Volume (Veh/h)	44	175	209	7	6	51
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)	48	190	227	8	7	55
Pedestrians		28	28		3	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		2	2		0	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		167	69			
pX, platoon unblocked						
vC, conflicting volume	238				548	262
vC1, stage 1 conf vol					234	
vC2, stage 2 conf vol					314	
vCu, unblocked vol	238				548	262
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				99	93
cM capacity (veh/h)	1337				625	760
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	48	190	235	62		
Volume Left	48	0	0	7		
Volume Right	0	0	8	55		
cSH	1337	1700	1700	742		
Volume to Capacity	0.04	0.11	0.14	0.08		
Queue Length 95th (m)	0.8	0.0	0.0	2.1		
Control Delay (s)	7.8	0.0	0.0	10.3		
Lane LOS	A			B		
Approach Delay (s)	1.6		0.0	10.3		
Approach LOS				B		
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			35.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues

7: Mississauga Valley Blvd & Elm Drive E

3/10/2020



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	140	74	121	354	34	382
Act Effect Green (s)	9.5	9.5	10.0	30.7	28.9	15.7	15.7
Actuated g/C Ratio	0.21	0.21	0.22	0.68	0.64	0.35	0.35
v/c Ratio	0.20	0.35	0.23	0.18	0.31	0.10	0.65
Control Delay	21.5	10.3	16.8	4.4	6.5	11.5	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	10.3	16.8	4.4	6.5	11.5	18.2
LOS	C	B	B	A	A	B	B
Approach Delay		13.2	16.8		6.0		17.7
Approach LOS		B	B		A		B
Queue Length 50th (m)	3.5	2.1	4.0	3.2	13.6	1.9	24.9
Queue Length 95th (m)	12.6	15.2	14.5	8.4	28.7	6.6	49.8
Internal Link Dist (m)		44.7	15.4		104.6		53.4
Turn Bay Length (m)	17.0			16.0		21.0	
Base Capacity (vph)	710	959	913	673	1368	598	1007
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	0.07	0.15	0.08	0.18	0.26	0.06	0.38

Intersection Summary

Cycle Length: 74.5

Actuated Cycle Length: 45.1

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 12.1

Intersection LOS: B

Intersection Capacity Utilization 73.3%




















ICU Level of Service D

Analysis Period (min) 15

HCM Signalized Intersection Capacity Analysis

7: Mississauga Valley Blvd & Elm Drive E

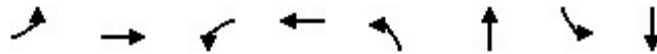
3/10/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	28	101	31	23	14	111	271	54	31	272	79
Future Volume (vph)	45	28	101	31	23	14	111	271	54	31	272	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.95	1.00			0.99		1.00	1.00		0.98	1.00	
Frt	1.00	0.88			0.97		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1589	1514			1723		1700	1798		1746	1669	
Flt Permitted	0.71	1.00			0.80		0.42	1.00		0.55	1.00	
Satd. Flow (perm)	1186	1514			1408		751	1798		1009	1669	
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)	49	30	110	34	25	15	121	295	59	34	296	86
RTOR Reduction (vph)	0	95	0	0	12	0	0	8	0	0	14	0
Lane Group Flow (vph)	49	45	0	0	62	0	121	346	0	34	368	0
Confl. Peds. (#/hr)	41		41	22		22			46	39		39
Heavy Vehicles (%)	7%	0%	6%	2%	3%	0%	5%	1%	0%	0%	2%	26%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	6.4	6.4			8.4		26.2	26.2		16.0	16.0	
Effective Green, g (s)	6.4	6.4			8.4		26.2	26.2		16.0	16.0	
Actuated g/C Ratio	0.14	0.14			0.18		0.57	0.57		0.35	0.35	
Clearance Time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	164	210			256		575	1021		350	579	
v/s Ratio Prot		0.03					0.03	c0.19			c0.22	
v/s Ratio Perm	0.04				c0.04		0.09			0.03		
v/c Ratio	0.30	0.22			0.24		0.21	0.34		0.10	0.64	
Uniform Delay, d1	17.8	17.6			16.1		4.8	5.3		10.2	12.6	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.5			0.5		0.2	0.2		0.1	2.3	
Delay (s)	18.9	18.1			16.6		5.0	5.5		10.3	14.9	
Level of Service	B	B			B		A	A		B	B	
Approach Delay (s)		18.3			16.6			5.4			14.5	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.5				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			46.1				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			73.3%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

11: Hurontario St/Hurontario St & Elm Drive E

3/10/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	193	63	192	75	1627	87	1793
Act Effect Green (s)	10.2	10.2	10.2	10.2	35.3	26.2	35.7	27.9
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.60	0.45	0.61	0.47
v/c Ratio	0.22	0.52	0.31	0.54	0.23	0.73	0.27	0.75
Control Delay	24.3	17.9	26.3	20.7	6.3	16.7	6.9	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	17.9	26.3	20.7	6.3	16.7	6.9	17.3
LOS	C	B	C	C	A	B	A	B
Approach Delay		19.2		22.1		16.2		16.8
Approach LOS		B		C		B		B
Queue Length 50th (m)	4.4	9.9	6.3	12.0	2.4	52.1	2.8	60.4
Queue Length 95th (m)	11.9	25.7	15.4	28.3	7.3	78.0	8.2	#103.1
Internal Link Dist (m)		124.5		143.4		120.1		174.5
Turn Bay Length (m)	22.5		41.0		28.0		69.0	
Base Capacity (vph)	745	1104	744	1107	343	2231	325	2382
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.17	0.08	0.17	0.22	0.73	0.27	0.75

Intersection Summary

Cycle Length: 87.5

Actuated Cycle Length: 58.8

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 75.5%

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.

HCM Signalized Intersection Capacity Analysis

11: Hurontario St/Hurontario St & Elm Drive E

3/10/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	76	101	58	87	89	69	1418	79	80	1604	46
Future Volume (vph)	41	76	101	58	87	89	69	1418	79	80	1604	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.91		1.00	0.92		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1685		1750	1702		1750	4989		1750	5008	
Flt Permitted	0.64	1.00		0.64	1.00		0.15	1.00		0.14	1.00	
Satd. Flow (perm)	1173	1685		1172	1702		275	4989		264	5008	
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)	45	83	110	63	95	97	75	1541	86	87	1743	50
RTOR Reduction (vph)	0	78	0	0	61	0	0	6	0	0	3	0
Lane Group Flow (vph)	45	115	0	63	131	0	75	1621	0	87	1790	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.2	10.2		10.2	10.2		30.6	26.8		32.8	27.9	
Effective Green, g (s)	10.2	10.2		10.2	10.2		30.6	26.8		32.8	27.9	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.51	0.45		0.55	0.47	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	199	286		199	289		234	2232		266	2332	
v/s Ratio Prot		0.07			c0.08		0.02	0.33		c0.03	c0.36	
v/s Ratio Perm	0.04			0.05			0.14			0.15		
v/c Ratio	0.23	0.40		0.32	0.45		0.32	0.73		0.33	0.77	
Uniform Delay, d1	21.4	22.1		21.8	22.3		8.5	13.5		7.6	13.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.9		0.9	1.1		0.8	1.2		0.7	1.6	
Delay (s)	22.0	23.1		22.7	23.5		9.3	14.8		8.3	14.9	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		22.9			23.3			14.5			14.6	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay	15.6			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	59.9			Sum of lost time (s)			18.0					
Intersection Capacity Utilization	75.5%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

APPENDIX C

Historical Traffic Count Analysis

From: [Tyler Xuereb](#)
To: [Sam Nguyen](#)
Subject: RE: Growth Rate
Date: Tuesday, March 3, 2020 9:08:34 AM

Good Morning Sam,

Using the City's Travel Demand Model and supporting traffic count data, the City's Transportation Planning section has determined the projected growth on Hurontario Street to be used as part of your study. The recommended projected growth is shown below:

Hurontario Street

	Existing to 2023	
	NB	SB
Time		
AM Peak		
Hour	-30.0%	-31.0%
PM Peak		
Hour	-28.0%	-30.0%

Note:

-The above analysis assumes the lane reduction on Hurontario Street from 3 through lanes in each direction to 2 through lanes in each direction, therefore your analysis should also reflect these changes.

-Rates for Hurontario Street represent a one-time total change, this represents the changes in travel patterns as a result of LRT implementation.

If you have any questions regarding the information provided please let me know.

Regards,

Tyler

From: Sam Nguyen [<mailto:sam@nextrans.ca>]
Sent: 2020/03/02 9:38 AM
To: Tyler Xuereb
Subject: RE: Growth Rate

Hi Tyler,

I have submitted the TOR of 3575 Kaneff Cres to the City, please see the attached.
The transportation analysis for 3575 Kaneff Cres doesn't consider any background development, the

horizon year is 5 year after full build out on 2023.
Please provide the information for 3575 Kaneff Cres due to urgent work.

Thanks,

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Monday, March 2, 2020 8:15 AM
To: Sam Nguyen <sam@nextrans.ca>
Subject: RE: Growth Rate

Good Morning Sam,

Thanks for your email.

Unfortunately we only provide growth rates for major collectors and arterials and as such will not be able to provide rates for Campus Road and Bresler Drive, I will however provide rates for Hurontario Street. I just had a few questions in regards to your analysis:

- Has a TOR been submitted to the City for the TIS scope and has it been approved?
- Does your transportation analysis consider any background developments?
- Could you provide me with your horizon year?
- Could I ask that you prepare a quick map showing the locations of both your subject site and also the locations of the background developments if any that you are including in your analysis?

Regards,

Tyler

From: Sam Nguyen [<mailto:sam@nextrans.ca>]
Sent: 2020/02/28 4:38 PM
To: Tyler Xuereb
Subject: Growth Rate

Hi Tyler,

NexTrans is undertaking the transportation impact study for 3575 Kaneff Crescent and 5830 Campus Road.

Can you provide me the growth rate for Hurontario Street, Campus Road and Bresler Drive?

Thanks,

Sam (Trang) Nguyen

Transportation Analyst

o: 905-503-2563 ext. 207

c: 416-904-1461

e: sam@nextrans.ca

w: www.nextrans.ca

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Aurora ON L4G 6W8

APPENDIX D

Background Developments

From: [Adam Lucas](#)
To: [Sam Nguyen](#)
Subject: RE: TIS Background Development Request
Date: Monday, March 23, 2020 4:37:20 PM
Attachments: [image001.png](#)

Hi Sam,

Given the date of both applications, we do not have digital copies of any information. Given that the City is working from home these days, I won't be able to get you a copy of the TIS for either of these projects.

I'm sorry about that.

Regards,

Adam

From: Sam Nguyen [mailto:sam@nextrans.ca]
Sent: Monday, March 23, 2020 3:28 PM
To: Adam Lucas
Subject: RE: TIS Background Development Request

Hi Adam,

Actually I do not need the whole report, I just need the page that has the generated Site Traffic Volumes on those applications, if it is possible. If not, I guess I have to obtain the whole report? Please advise.

Thanks,

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

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Aurora ON L4G 6W8

Note: my working hours from March 18 to March 24 are 3pm to 9pm

From: Adam Lucas <Adam.Lucas@mississauga.ca>
Sent: Monday, March 23, 2020 3:25 PM
To: Sam Nguyen <sam@nextrans.ca>
Subject: RE: TIS Background Development Request

Hi Sam, are you looking to obtain a copy of the Traffic Impact Studies that were submitted on those applications?

Thanks,
Adam

From: Sam Nguyen [<mailto:sam@nextrans.ca>]
Sent: Monday, March 23, 2020 2:57 PM
To: Adam Lucas
Subject: FW: TIS Background Development Request

Hi Adam,

NexTrans is undertaking the TIS for 3575 Kaneff Crescent. Can you provide me the site traffic for the background development so I can complete my study.

- FILE NO: H-OZ 13/6 : 0 Enfield Place, 3606 and 3618 Hurontario Street
- SITE ADDRESS: 30, 38, 44, 50, 58 & 64 Elm Drive West and 3528 & 3536 Hurontario Street

Thanks,

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8
Note: my working hours from March 18 to March 24 are 3pm to 9pm

From: Lahini Senthil-kumaran <Lahini.Senthil-kumaran@mississauga.ca>
Sent: Monday, March 23, 2020 8:56 AM
To: Sam Nguyen <sam@nextrans.ca>
Subject: RE: TIS Background Development Request

Hi Sam,

You can reach out to Adam Lucas (Adam.Lucas@mississauga.ca), regarding site stats that you are requesting.
Adam is a Planner with the City,

Thanks,



Lahini Senthil-Kumaran, B.Eng
Traffic Planning Technologist

T 905-615-3200 ext.5798
lahini.senthil-kumaran@mississauga.ca |

[City of Mississauga](#) |

Please consider the environment before printing.

From: Sam Nguyen [<mailto:sam@nextrans.ca>]
Sent: 2020/03/17 10:20 AM
To: Lin Rogers
Cc: Michael Hynes
Subject: RE: TIS Background Development Request

Hi Lin,

NexTrans is undertaking the TIS for 3575 Kaneff Crescent. Can you provide me the site traffic for the background development so I can complete my study.

- FILE NO: H-OZ 13/6 : 0 Enfield Place, 3606 and 3618 Hurontario Street
- SITE ADDRESS: 30, 38, 44, 50, 58 & 64 Elm Drive West and 3528 & 3536 Hurontario Street

Thanks,

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
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Aurora ON L4G 6W8

From: Michael Hynes <Michael.Hynes@mississauga.ca>
Sent: Tuesday, March 17, 2020 10:18 AM
To: Sam Nguyen <sam@nextrans.ca>
Cc: Lin Rogers <Lin.Rogers@mississauga.ca>
Subject: RE: TIS Background Development Request

Sam please contact Lin Rogers Manager Transportation Projects (copied on this e-mail) and she will direct you to this information

From: Sam Nguyen [<mailto:sam@nextrans.ca>]

Sent: Tuesday, March 17, 2020 10:00 AM
To: Michael Hynes
Subject: RE: TIS Background Development Request

No, I haven't gotten any answer.

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

From: Michael Hynes <Michael.Hynes@mississauga.ca>
Sent: Tuesday, March 17, 2020 9:59 AM
To: Sam Nguyen <sam@nextrans.ca>
Subject: RE: TIS Background Development Request

Did you get an answer

From: Sam Nguyen [<mailto:sam@nextrans.ca>]
Sent: Thursday, February 27, 2020 2:46 PM
To: Michael Hynes
Subject: TIS Background Development Request

Hi Michael,

NexTrans is undertaking the TIS for 3575 Kaneff Crescent. Can you provide me the site traffic for the background development so I can complete my study.

- FILE NO: H-OZ 13/6 : 0 Enfield Place, 3606 and 3618 Hurontario Street
- SITE ADDRESS: 30, 38, 44, 50, 58 & 64 Elm Drive West and 3528 & 3536 Hurontario Street

Thanks,

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

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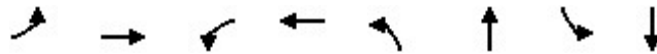
APPENDIX E

Future Background Traffic Level of Service Calculations

Queues

1: Hurontario St & Elm Drive E

3/10/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	142	140	83	204	72	1612	43	1376
Act Effect Green (s)	13.2	13.2	13.2	13.2	6.7	30.4	6.5	26.4
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.11	0.49	0.10	0.42
v/c Ratio	0.58	0.33	0.32	0.45	0.38	0.95	0.24	0.93
Control Delay	32.8	11.8	24.7	11.7	34.7	33.3	31.6	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	11.8	24.7	11.7	34.7	33.3	31.6	33.2
LOS	C	B	C	B	C	C	C	C
Approach Delay		22.4		15.4		33.4		33.1
Approach LOS		C		B		C		C
Queue Length 50th (m)	15.4	5.2	8.5	6.7	8.1	72.8	4.8	80.3
Queue Length 95th (m)	30.7	17.2	18.8	21.4	20.8	#188.0	14.2	#150.1
Internal Link Dist (m)		217.5		214.8		169.2		328.4
Turn Bay Length (m)	22.5		41.0		28.0		69.0	
Base Capacity (vph)	698	1040	740	1052	199	1697	199	1476
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	0.20	0.13	0.11	0.19	0.36	0.95	0.22	0.93

Intersection Summary

Cycle Length: 88

Actuated Cycle Length: 62.5

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 86.1%

ICU Level of Service E

Analysis Period (min) 15






















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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Hurontario St & Elm Drive E

3/10/2020





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	49	80	76	63	125	66	1437	46	40	1230	36
Future Volume (vph)	131	49	80	76	63	125	66	1437	46	40	1230	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.90		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1670		1750	1658		1750	3484		1750	3485	
Flt Permitted	0.63	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1160	1670		1230	1658		1750	3484		1750	3485	
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)	142	53	87	83	68	136	72	1562	50	43	1337	39
RTOR Reduction (vph)	0	69	0	0	108	0	0	2	0	0	2	0
Lane Group Flow (vph)	142	71	0	83	96	0	72	1610	0	43	1374	0
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	13.2	13.2		13.2	13.2		5.3	30.4		2.5	27.6	
Effective Green, g (s)	13.2	13.2		13.2	13.2		5.3	30.4		2.5	27.6	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.08	0.47		0.04	0.43	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	343		253	341		144	1652		68	1500	
v/s Ratio Prot		0.04			0.06		0.04	c0.46		c0.02	0.39	
v/s Ratio Perm	c0.12			0.07								
v/c Ratio	0.60	0.21		0.33	0.28		0.50	0.97		0.63	0.92	
Uniform Delay, d1	23.0	21.1		21.7	21.5		28.1	16.5		30.3	17.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.3		0.8	0.5		2.7	16.4		17.6	9.1	
Delay (s)	27.0	21.4		22.4	21.9		30.8	32.8		48.0	26.2	
Level of Service	C	C		C	C		C	C		D	C	
Approach Delay (s)		24.2			22.1			32.7			26.9	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			29.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			64.1			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			86.1%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Mississauga Valley Blvd & Kaneff Cres

3/10/2020



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	39	14	163	168	10
Future Volume (Veh/h)	31	39	14	163	168	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	42	15	177	183	11
Pedestrians	4			13	13	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	0			1	1	
Right turn flare (veh)						
Median type				TWLT	TWLT	
Median storage veh				2	2	
Upstream signal (m)				77		
pX, platoon unblocked						
vC, conflicting volume	412	206	198			
vC1, stage 1 conf vol	192					
vC2, stage 2 conf vol	220					
vCu, unblocked vol	412	206	198			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	95	99			
cM capacity (veh/h)	718	828	1382			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	76	15	177	194		
Volume Left	34	15	0	0		
Volume Right	42	0	0	11		
cSH	774	1382	1700	1700		
Volume to Capacity	0.10	0.01	0.10	0.11		
Queue Length 95th (m)	2.5	0.3	0.0	0.0		
Control Delay (s)	10.2	7.6	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	10.2	0.6		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			26.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Obelisk Way & Kaneff Cres

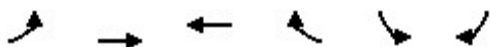
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	34	32	23	16	5	23	4	10	1	2	0
Future Volume (Veh/h)	1	34	32	23	16	5	23	4	10	1	2	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			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)	1	37	35	25	17	5	25	4	11	1	2	0
Pedestrians	15			15			10			10		
Lane Width (m)	3.5			3.5			3.5			3.5		
Walking Speed (m/s)	1.1			1.1			1.1			1.1		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	32			82			152	148	80	164	164	44
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			82			152	148	80	164	164	44
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			97	99	99	100	100	100
cM capacity (veh/h)	1579			1515			779	721	965	755	707	1009
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	73	47	40	3								
Volume Left	1	25	25	1								
Volume Right	35	5	11	0								
cSH	1579	1515	816	723								
Volume to Capacity	0.00	0.02	0.05	0.00								
Queue Length 95th (m)	0.0	0.4	1.2	0.1								
Control Delay (s)	0.1	4.0	9.6	10.0								
Lane LOS	A	A	A	B								
Approach Delay (s)	0.1	4.0	9.6	10.0								
Approach LOS			A	B								
Intersection Summary												
Average Delay				3.8								
Intersection Capacity Utilization				24.3%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

6: Elm Drive E & Obelisk Way

3/10/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	121	124	6	19	61
Future Volume (Veh/h)	32	121	124	6	19	61
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)	35	132	135	7	21	66
Pedestrians		28	28		3	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		2	2		0	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		239	69			
pX, platoon unblocked						
vC, conflicting volume	145				372	170
vC1, stage 1 conf vol					142	
vC2, stage 2 conf vol					230	
vCu, unblocked vol	145				372	170
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	92
cM capacity (veh/h)	1446				714	856
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	35	132	142	87		
Volume Left	35	0	0	21		
Volume Right	0	0	7	66		
cSH	1446	1700	1700	816		
Volume to Capacity	0.02	0.08	0.08	0.11		
Queue Length 95th (m)	0.6	0.0	0.0	2.7		
Control Delay (s)	7.6	0.0	0.0	9.9		
Lane LOS	A			A		
Approach Delay (s)	1.6		0.0	9.9		
Approach LOS				A		
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			31.6%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

7: Mississauga Valley Blvd & Elm Drive E

3/10/2020



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	111	108	62	151	9	222
Act Effect Green (s)	8.8	8.8	9.4	25.1	23.1	10.9	10.9
Actuated g/C Ratio	0.23	0.23	0.24	0.64	0.59	0.28	0.28
v/c Ratio	0.11	0.29	0.31	0.09	0.14	0.03	0.45
Control Delay	16.1	8.0	14.4	4.2	5.9	11.9	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	8.0	14.4	4.2	5.9	11.9	15.9
LOS	B	A	B	A	A	B	B
Approach Delay		10.0	14.4		5.4		15.8
Approach LOS		A	B		A		B
Queue Length 50th (m)	2.2	0.8	4.9	1.6	4.7	0.5	12.9
Queue Length 95th (m)	8.2	10.5	15.6	4.8	11.8	2.8	28.0
Internal Link Dist (m)		44.7	15.4		104.6		53.4
Turn Bay Length (m)	17.0			16.0		21.0	
Base Capacity (vph)	1029	978	1006	684	1517	795	1168
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	0.04	0.11	0.11	0.09	0.10	0.01	0.19

Intersection Summary

Cycle Length: 74.5

Actuated Cycle Length: 39.1

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 11.2

Intersection LOS: B

Intersection Capacity Utilization 56.5%





















ICU Level of Service B

Analysis Period (min) 15

HCM Signalized Intersection Capacity Analysis

7: Mississauga Valley Blvd & Elm Drive E

3/10/2020





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	13	89	47	29	23	57	117	22	8	179	25
Future Volume (vph)	34	13	89	47	29	23	57	117	22	8	179	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.97	1.00			0.99		1.00	1.00		0.98	1.00	
Frt	1.00	0.87			0.97		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1573	1408			1716		1623	1777		1745	1748	
Flt Permitted	0.93	1.00			0.79		0.49	1.00		0.66	1.00	
Satd. Flow (perm)	1537	1408			1396		833	1777		1214	1748	
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)	37	14	97	51	32	25	62	127	24	9	195	27
RTOR Reduction (vph)	0	82	0	0	18	0	0	8	0	0	7	0
Lane Group Flow (vph)	37	29	0	0	90	0	62	143	0	9	215	0
Confl. Peds. (#/hr)	32		32	22		22			27	34		34
Heavy Vehicles (%)	10%	8%	12%	2%	3%	0%	10%	3%	0%	0%	2%	26%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	6.1	6.1			8.1		20.8	20.8		11.1	11.1	
Effective Green, g (s)	6.1	6.1			8.1		20.8	20.8		11.1	11.1	
Actuated g/C Ratio	0.15	0.15			0.20		0.51	0.51		0.27	0.27	
Clearance Time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	232	212			279		559	914		333	480	
v/s Ratio Prot		0.02					0.02	c0.08			c0.12	
v/s Ratio Perm	0.02				c0.06		0.04			0.01		
v/c Ratio	0.16	0.14			0.32		0.11	0.16		0.03	0.45	
Uniform Delay, d1	14.9	14.9			13.8		5.1	5.2		10.7	12.1	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.3			0.7		0.1	0.1		0.0	0.7	
Delay (s)	15.2	15.2			14.5		5.2	5.3		10.7	12.8	
Level of Service	B	B			B		A	A		B	B	
Approach Delay (s)		15.2			14.5			5.2			12.7	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			40.4				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			56.5%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Mississauga Valley Blvd & Kaneff Cres

3/10/2020



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	31	62	304	390	52
Future Volume (Veh/h)	17	31	62	304	390	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	34	67	330	424	57
Pedestrians	3			17	17	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	0			2	2	
Right turn flare (veh)						
Median type				TWLT	TWLT	
Median storage (veh)				2	2	
Upstream signal (m)				77		
pX, platoon unblocked	0.96					
vC, conflicting volume	936	472	484			
vC1, stage 1 conf vol	456					
vC2, stage 2 conf vol	481					
vCu, unblocked vol	914	472	484			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	94	94			
cM capacity (veh/h)	478	585	1086			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	52	67	330	481		
Volume Left	18	67	0	0		
Volume Right	34	0	0	57		
cSH	543	1086	1700	1700		
Volume to Capacity	0.10	0.06	0.19	0.28		
Queue Length 95th (m)	2.4	1.5	0.0	0.0		
Control Delay (s)	12.3	8.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.3	1.4		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			45.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Obelisk Way & Kaneff Cres

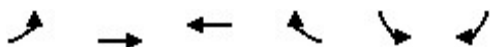
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	32	36	32	60	12	25	3	21	3	0	0
Future Volume (Veh/h)	2	32	36	32	60	12	25	3	21	3	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			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)	2	35	39	35	65	13	27	3	23	3	0	0
Pedestrians		19			19			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		2			2			1			1	
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	93			89			234	236	88	258	250	106
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	93			89			234	236	88	258	250	106
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			96	100	98	100	100	100
cM capacity (veh/h)	1494			1499			676	634	946	634	624	926
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	76	113	53	3								
Volume Left	2	35	27	3								
Volume Right	39	13	23	0								
cSH	1494	1499	768	634								
Volume to Capacity	0.00	0.02	0.07	0.00								
Queue Length 95th (m)	0.0	0.5	1.7	0.1								
Control Delay (s)	0.2	2.4	10.0	10.7								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.2	2.4	10.0	10.7								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			27.4%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Elm Drive E & Obelisk Way

3/10/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	193	231	8	6	51
Future Volume (Veh/h)	49	193	231	8	6	51
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)	53	210	251	9	7	55
Pedestrians		28	28		3	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		2	2		0	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		167	69			
pX, platoon unblocked						
vC, conflicting volume	263				602	286
vC1, stage 1 conf vol					258	
vC2, stage 2 conf vol					344	
vCu, unblocked vol	263				602	286
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				99	93
cM capacity (veh/h)	1309				599	737
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	53	210	260	62		
Volume Left	53	0	0	7		
Volume Right	0	0	9	55		
cSH	1309	1700	1700	718		
Volume to Capacity	0.04	0.12	0.15	0.09		
Queue Length 95th (m)	1.0	0.0	0.0	2.1		
Control Delay (s)	7.9	0.0	0.0	10.5		
Lane LOS	A			B		
Approach Delay (s)	1.6		0.0	10.5		
Approach LOS				B		
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			36.4%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

7: Mississauga Valley Blvd & Elm Drive E

3/10/2020



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	54	156	74	134	390	37	421
Act Effct Green (s)	9.6	9.6	10.1	32.2	30.5	17.2	17.2
Actuated g/C Ratio	0.21	0.21	0.22	0.69	0.65	0.37	0.37
v/c Ratio	0.23	0.39	0.24	0.21	0.33	0.10	0.67
Control Delay	22.5	10.6	17.4	4.6	6.6	11.5	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	10.6	17.4	4.6	6.6	11.5	18.8
LOS	C	B	B	A	A	B	B
Approach Delay		13.7	17.4		6.1		18.2
Approach LOS		B	B		A		B
Queue Length 50th (m)	4.2	2.6	4.3	3.5	15.4	2.1	28.5
Queue Length 95th (m)	13.5	16.3	14.5	9.5	32.9	7.1	57.2
Internal Link Dist (m)		44.7	15.4		104.6		53.4
Turn Bay Length (m)	17.0			16.0		21.0	
Base Capacity (vph)	691	944	882	640	1330	564	981
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	0.08	0.17	0.08	0.21	0.29	0.07	0.43

Intersection Summary

Cycle Length: 74.5

Actuated Cycle Length: 46.8

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 12.4

Intersection LOS: B

Intersection Capacity Utilization 73.7%





















ICU Level of Service D

Analysis Period (min) 15

HCM Signalized Intersection Capacity Analysis

7: Mississauga Valley Blvd & Elm Drive E

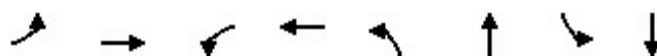
3/10/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	31	112	31	23	14	123	299	60	34	300	87
Future Volume (vph)	50	31	112	31	23	14	123	299	60	34	300	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.95	1.00			0.99		1.00	1.00		0.98	1.00	
Frt	1.00	0.88			0.97		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1586	1514			1722		1700	1798		1746	1668	
Flt Permitted	0.71	1.00			0.79		0.38	1.00		0.53	1.00	
Satd. Flow (perm)	1184	1514			1395		687	1798		977	1668	
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)	54	34	122	34	25	15	134	325	65	37	326	95
RTOR Reduction (vph)	0	105	0	0	12	0	0	8	0	0	13	0
Lane Group Flow (vph)	54	51	0	0	62	0	134	382	0	37	408	0
Confl. Peds. (#/hr)	41		41	22		22			46	39		39
Heavy Vehicles (%)	7%	0%	6%	2%	3%	0%	5%	1%	0%	0%	2%	26%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	6.5	6.5			8.5		27.8	27.8		17.5	17.5	
Effective Green, g (s)	6.5	6.5			8.5		27.8	27.8		17.5	17.5	
Actuated g/C Ratio	0.14	0.14			0.18		0.58	0.58		0.37	0.37	
Clearance Time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	161	205			248		554	1045		357	610	
v/s Ratio Prot		0.03					0.04	c0.21			c0.24	
v/s Ratio Perm	c0.05				0.04		0.10			0.04		
v/c Ratio	0.34	0.25			0.25		0.24	0.37		0.10	0.67	
Uniform Delay, d1	18.7	18.5			16.9		4.9	5.3		10.0	12.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.6			0.5		0.2	0.2		0.1	2.8	
Delay (s)	19.9	19.1			17.4		5.1	5.5		10.1	15.5	
Level of Service	B	B			B		A	A		B	B	
Approach Delay (s)		19.3			17.4			5.4			15.1	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			47.8				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			73.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

11: Hurontario St/Hurontario St & Elm Drive E

3/10/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	193	63	192	75	1627	87	1793
Act Effect Green (s)	10.2	10.2	10.2	10.2	6.7	29.3	6.8	29.3
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.11	0.49	0.11	0.49
v/c Ratio	0.22	0.52	0.31	0.54	0.38	0.95	0.43	1.04
Control Delay	24.6	18.1	26.5	21.0	32.1	30.4	33.6	52.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	18.1	26.5	21.0	32.1	30.4	33.6	52.8
LOS	C	B	C	C	C	C	C	D
Approach Delay		19.3		22.4		30.5		51.9
Approach LOS		B		C		C		D
Queue Length 50th (m)	4.5	10.0	6.3	12.3	7.9	87.1	9.2	~121.4
Queue Length 95th (m)	12.0	26.0	15.6	28.6	19.9	#156.3	22.3	#180.4
Internal Link Dist (m)		124.5		143.4		120.1		174.5
Turn Bay Length (m)	22.5		41.0		28.0		69.0	
Base Capacity (vph)	738	1095	737	1098	208	1717	208	1722
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.18	0.09	0.17	0.36	0.95	0.42	1.04

Intersection Summary

Cycle Length: 88

Actuated Cycle Length: 59.3

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 39.2

Intersection LOS: D

Intersection Capacity Utilization 86.8%

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.

HCM Signalized Intersection Capacity Analysis

11: Hurontario St/Hurontario St & Elm Drive E

3/10/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	76	101	58	87	89	69	1418	79	80	1604	46
Future Volume (vph)	41	76	101	58	87	89	69	1418	79	80	1604	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.92		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1685		1750	1702		1750	3472		1750	3485	
Flt Permitted	0.64	1.00		0.64	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1173	1685		1172	1702		1750	3472		1750	3485	
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)	45	83	110	63	95	97	75	1541	86	87	1743	50
RTOR Reduction (vph)	0	78	0	0	60	0	0	4	0	0	2	0
Lane Group Flow (vph)	45	115	0	63	132	0	75	1623	0	87	1791	0
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	10.3	10.3		10.3	10.3		5.4	26.3		5.4	26.3	
Effective Green, g (s)	10.3	10.3		10.3	10.3		5.4	29.3		5.4	29.3	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.09	0.49		0.09	0.49	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	289		201	292		157	1695		157	1701	
v/s Ratio Prot		0.07			c0.08		0.04	0.47		c0.05	c0.51	
v/s Ratio Perm	0.04			0.05								
v/c Ratio	0.22	0.40		0.31	0.45		0.48	0.96		0.55	1.05	
Uniform Delay, d1	21.4	22.1		21.8	22.3		26.0	14.8		26.1	15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.9		0.9	1.1		2.3	13.1		4.2	37.4	
Delay (s)	22.0	23.0		22.7	23.4		28.2	27.9		30.3	52.7	
Level of Service	C	C		C	C		C	C		C	D	
Approach Delay (s)		22.8			23.2			27.9			51.7	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			38.3			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			86.8%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

APPENDIX F

2016 TTS Data Extraction

Wed Feb 12 2020 16:42:16 GMT-0500 (Eastern Standard Time) - Run Time: 2130ms

Cross Tabulation Query Form - Trip - 2016 v1.1

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

Filters:

2006 GTA zone of origin - gta06_orig In 3863

and

Start time of trip - start_time In 600-900

and

Type of dwelling unit - dwell_type In 2

and

Primary travel mode - travel_mode In M T U

Trip 2016

Table:

	PD 1 of Tor	PD 5 of Tor	PD 6 of Tor	PD 7 of Tor	PD 8 of Toronto	PD 9 of Tor	PD 10 of Tc	PD 15 of Tc	Vaughan	Brampton	Mississauga	Oakville	Hamilton	Waterloo	
3863	49	38	22	23	124	46	81	51	85	199	1601	82	33	18	2452
	2%	2%	1%	1%	5%	2%	3%	2%	3%	8%	65%	3%	1%	1%	
74	1	1	1	1	4	1	2	2	3	6	48	2	1	1	

toronto	18%	13	North	24%
peel region	73%		South	16%
york region	3%		East	37%
Halton Reg	5%		West	22%
				100%

Wed Feb 12 2020 16:42:57 GMT-0500 (Eastern Standard Time) - Run Time: 2288ms

Cross Tabulation Query Form - Trip - 2016 v1.1

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

Filters:

2006 GTA zone of origin - gta06_orig In 3863

and

Start time of trip - start_time In 600-900

and

Type of dwelling unit - dwell_type In 2

and

Primary travel mode - travel_mode In G J

Trip 2016

Table:

	PD 1 of Tor	PD 3 of Tor	PD 4 of Tor	PD 5 of Tor	PD 7 of Toronto	PD 9 of Tor	PD 10 of Tc	PD 11 of Tc	Mississauga	Oakville	
3863	162	31	227	14	63	23	66	32	983	18	1619
	10%	2%	14%	1%	4%	1%	4%	2%	61%	1%	

toronto	38%			North	15%
peel region	61%			South	15%
york region				East	53%
Halton Reg	1%			West	16%

Wed Feb 12 2020 16:43:47 GMT-0500 (Eastern Standard Time) - Run Time: 2234ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig

Column: Primary travel mode of trip - mode_prime

Filters:

2006 GTA zone of origin - gta06_orig In 3863

and

Start time of trip - start_time In 600-900

and

Type of dwelling unit - dwell_type In 2

and

Primary travel mode of tr C D G J M P T U W

Trip 2016

Table:

	Transit exc	Auto driver	GO rail onh	Joint GO ra	Auto passe	Paid ridesh	Walk	
3863	1524	2331	54	41	603	119	332	5004
	30%	47%	1%	1%	12%	2%	7%	

Wed Feb 12 2020 16:44:27 GMT-0500 (Eastern Standard Time) - Run Time: 2185ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig

Column: Primary travel mode of trip - mode_prime

Filters:

2006 GTA zone of origin - gta06_orig In 3863

and

Start time of trip - start_time In 1500-1800

and

Type of dwelling unit - dwell_type In 2

and

Primary travel mode of tr C D G J M P T U W

Trip 2016

Table:

	Transit exc	Auto driver	Auto passe	Walk	
3,863	195	1005	453	348	2001
	10%	50%	23%	17%	

			AM			PM		
			IN	OUT	TOTAL	IN	OUT	TOTAL
			42	159	201	99	68	167
PARAMETER	AM	PM	21%	79%	100%	59%	41%	100%
transit	32%	10%	14	51	64	9.9	6.8	17
walk	7%	17%	3	11	14	16.8	11.6	28
cycling	0%	0%	0	0	0	0.0	0.0	0
auto passenger	14%	23%	6	22	28	22.7	15.7	38
Auto trip	47%	50%	19.8	74.6	94	49.3	34.2	84

T= 0.68 (X) +8.97

Ln(T)= 0.93Ln(x)-0.13

APPENDIX E





Future Total Traffic Level of Service Calculations

HCM Unsignalized Intersection Capacity Analysis

3: Mississauga Valley Blvd & Kaneff Cres

4/6/2022



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	51	41	16	163	168	16
Future Volume (Veh/h)	51	41	16	163	168	16
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	45	17	177	183	17
Pedestrians	4			13	13	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	0			1	1	
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh				2	2	
Upstream signal (m)				77		
pX, platoon unblocked						
vC, conflicting volume	420	208	204			
vC1, stage 1 conf vol	196					
vC2, stage 2 conf vol	224					
vCu, unblocked vol	420	208	204			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	95	99			
cM capacity (veh/h)	713	824	1375			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	100	17	177	200		
Volume Left	55	17	0	0		
Volume Right	45	0	0	17		
cSH	759	1375	1700	1700		
Volume to Capacity	0.13	0.01	0.10	0.12		
Queue Length 95th (m)	3.4	0.3	0.0	0.0		
Control Delay (s)	10.5	7.7	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	10.5	0.7		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			28.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Obelisk Way & Kaneff Cres

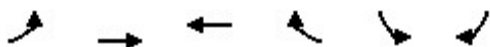
4/6/2022





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	34	32	31	16	5	23	4	32	1	2	0
Future Volume (Veh/h)	1	34	32	31	16	5	23	4	32	1	2	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			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)	1	37	35	34	17	5	25	4	35	1	2	0
Pedestrians	15			15			10			10		
Lane Width (m)	3.5			3.5			3.5			3.5		
Walking Speed (m/s)	1.1			1.1			1.1			1.1		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	32			82			170	166	80	206	182	44
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			82			170	166	80	206	182	44
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			97	99	96	100	100	100
cM capacity (veh/h)	1579			1515			755	700	965	688	687	1009
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	73	56	64	3								
Volume Left	1	34	25	1								
Volume Right	35	5	35	0								
cSH	1579	1515	852	687								
Volume to Capacity	0.00	0.02	0.08	0.00								
Queue Length 95th (m)	0.0	0.5	1.8	0.1								
Control Delay (s)	0.1	4.6	9.6	10.3								
Lane LOS	A	A	A	B								
Approach Delay (s)	0.1	4.6	9.6	10.3								
Approach LOS			A	B								
Intersection Summary												
Average Delay				4.6								
Intersection Capacity Utilization				24.6%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

6: Elm Drive E & Obelisk Way

4/6/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	123	124	6	19	61
Future Volume (Veh/h)	20	123	124	6	19	61
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)	22	134	135	7	21	66
Pedestrians		28	28		3	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		2	2		0	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		177	69			
pX, platoon unblocked						
vC, conflicting volume	145				348	170
vC1, stage 1 conf vol					142	
vC2, stage 2 conf vol					206	
vCu, unblocked vol	145				348	170
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	92
cM capacity (veh/h)	1446				735	856
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	22	134	142	87		
Volume Left	22	0	0	21		
Volume Right	0	0	7	66		
cSH	1446	1700	1700	823		
Volume to Capacity	0.02	0.08	0.08	0.11		
Queue Length 95th (m)	0.4	0.0	0.0	2.7		
Control Delay (s)	7.5	0.0	0.0	9.9		
Lane LOS	A			A		
Approach Delay (s)	1.1		0.0	9.9		
Approach LOS				A		
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			31.6%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

7: Mississauga Valley Blvd & Elm Drive E

4/6/2022



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	112	108	62	153	9	268
Act Effect Green (s)	8.9	8.9	9.5	26.6	24.7	12.2	12.2
Actuated g/C Ratio	0.22	0.22	0.23	0.65	0.61	0.30	0.30
v/c Ratio	0.11	0.30	0.32	0.09	0.14	0.03	0.52
Control Delay	17.4	8.4	15.5	4.1	5.7	11.4	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	8.4	15.5	4.1	5.7	11.4	16.2
LOS	B	A	B	A	A	B	B
Approach Delay		10.6	15.5		5.3		16.0
Approach LOS		B	B		A		B
Queue Length 50th (m)	2.3	0.9	5.1	1.6	4.9	0.5	15.5
Queue Length 95th (m)	8.8	11.1	17.0	4.8	12.0	2.7	33.2
Internal Link Dist (m)		44.7	15.4		104.6		53.4
Turn Bay Length (m)	17.0			16.0		21.0	
Base Capacity (vph)	982	953	977	681	1470	771	1086
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	0.04	0.12	0.11	0.09	0.10	0.01	0.25

Intersection Summary

Cycle Length: 74.5

Actuated Cycle Length: 40.7

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 11.8

Intersection LOS: B

Intersection Capacity Utilization 56.6%





















ICU Level of Service B

Analysis Period (min) 15

HCM Signalized Intersection Capacity Analysis

7: Mississauga Valley Blvd & Elm Drive E










4/6/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	13	90	47	29	23	57	119	22	8	191	55
Future Volume (vph)	34	13	90	47	29	23	57	119	22	8	191	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.97	1.00			0.99		1.00	1.00		0.98	1.00	
Frt	1.00	0.87			0.97		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1571	1406			1716		1623	1778		1744	1673	
Flt Permitted	0.91	1.00			0.79		0.48	1.00		0.66	1.00	
Satd. Flow (perm)	1510	1406			1394		817	1778		1211	1673	
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)	37	14	98	51	32	25	62	129	24	9	208	60
RTOR Reduction (vph)	0	83	0	0	18	0	0	8	0	0	15	0
Lane Group Flow (vph)	37	29	0	0	90	0	62	145	0	9	253	0
Confl. Peds. (#/hr)	32		32	22		22			27	34		34
Heavy Vehicles (%)	10%	8%	12%	2%	3%	0%	10%	3%	0%	0%	2%	26%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	6.2	6.2			8.2		22.2	22.2		12.4	12.4	
Effective Green, g (s)	6.2	6.2			8.2		22.2	22.2		12.4	12.4	
Actuated g/C Ratio	0.15	0.15			0.20		0.53	0.53		0.30	0.30	
Clearance Time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	223	208			272		563	942		358	495	
v/s Ratio Prot		0.02					0.02	c0.08			c0.15	
v/s Ratio Perm	0.02				c0.06		0.04			0.01		
v/c Ratio	0.17	0.14			0.33		0.11	0.15		0.03	0.51	
Uniform Delay, d1	15.6	15.5			14.5		4.9	5.0		10.5	12.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3			0.7		0.1	0.1		0.0	0.9	
Delay (s)	15.9	15.8			15.2		5.0	5.1		10.5	13.1	
Level of Service	B	B			B		A	A		B	B	
Approach Delay (s)		15.9			15.2			5.1			13.0	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			41.9				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			56.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: Obelisk Way & Right In Access

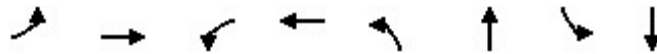
4/6/2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	22	38	15	8	143
Future Volume (Veh/h)	63	22	38	15	8	143
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	24	41	16	9	155
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	222	49			57	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	49			57	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	98			99	
cM capacity (veh/h)	762	1020			1547	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	92	57	164			
Volume Left	68	0	9			
Volume Right	24	16	0			
cSH	816	1700	1547			
Volume to Capacity	0.11	0.03	0.01			
Queue Length 95th (m)	2.9	0.0	0.1			
Control Delay (s)	10.0	0.0	0.4			
Lane LOS	A		A			
Approach Delay (s)	10.0	0.0	0.4			
Approach LOS	A					
Intersection Summary						
Average Delay		3.2				
Intersection Capacity Utilization		25.6%		ICU Level of Service		A
Analysis Period (min)		15				

Queues

15: Hurontario St & Elm Drive E

4/6/2022



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	142	140	93	271	72	1614	58	1376
Act Effect Green (s)	13.9	13.9	13.9	13.9	6.7	31.6	6.6	29.5
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.11	0.50	0.10	0.47
v/c Ratio	0.63	0.32	0.34	0.52	0.39	0.93	0.32	0.85
Control Delay	36.2	11.4	24.8	10.4	35.6	30.2	33.9	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	11.4	24.8	10.4	35.6	30.2	33.9	23.9
LOS	D	B	C	B	D	C	C	C
Approach Delay		23.9		14.1		30.4		24.3
Approach LOS		C		B		C		C
Queue Length 50th (m)	15.7	5.2	9.6	6.7	8.2	~112.4	6.6	74.8
Queue Length 95th (m)	31.8	17.0	20.6	23.6	21.3	#183.0	18.0	#144.0
Internal Link Dist (m)		175.7		152.8		182.3		254.4
Turn Bay Length (m)	22.5		41.0		28.0		69.0	
Base Capacity (vph)	606	1030	732	1056	197	1739	197	1628
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	0.23	0.14	0.13	0.26	0.37	0.93	0.29	0.85

Intersection Summary

Cycle Length: 88

Actuated Cycle Length: 63.3

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 26.0

Intersection LOS: C

Intersection Capacity Utilization 87.5%

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.

HCM Signalized Intersection Capacity Analysis

15: Hurontario St & Elm Drive E

4/6/2022





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	49	80	86	63	187	66	1437	48	53	1230	36
Future Volume (vph)	131	49	80	86	63	187	66	1437	48	53	1230	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.89		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1670		1750	1635		1750	3483		1750	3485	
Flt Permitted	0.55	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1018	1670		1230	1635		1750	3483		1750	3485	
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)	142	53	87	93	68	203	72	1562	52	58	1337	39
RTOR Reduction (vph)	0	68	0	0	159	0	0	2	0	0	2	0
Lane Group Flow (vph)	142	72	0	93	112	0	72	1612	0	58	1374	0
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	13.9	13.9		13.9	13.9		5.3	28.5		3.9	27.1	
Effective Green, g (s)	13.9	13.9		13.9	13.9		5.3	31.5		3.9	30.1	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.08	0.49		0.06	0.47	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	220	361		265	353		144	1706		106	1631	
v/s Ratio Prot		0.04			0.07		c0.04	c0.46		0.03	0.39	
v/s Ratio Perm	c0.14			0.08								
v/c Ratio	0.65	0.20		0.35	0.32		0.50	0.94		0.55	0.84	
Uniform Delay, d1	23.0	20.6		21.4	21.2		28.2	15.6		29.3	15.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.4	0.3		0.8	0.5		2.7	11.2		5.7	4.2	
Delay (s)	29.3	20.9		22.2	21.7		30.9	26.8		35.0	19.2	
Level of Service	C	C		C	C		C	C		D	B	
Approach Delay (s)		25.1			21.8			27.0			19.8	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM 2000 Control Delay		23.6			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.83										
Actuated Cycle Length (s)		64.3			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		87.5%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Mississauga Valley Blvd & Kaneff Cres

4/6/2022



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	32	67	304	390	65
Future Volume (Veh/h)	26	32	67	304	390	65
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	35	73	330	424	71
Pedestrians	3			17	17	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	0			2	2	
Right turn flare (veh)						
Median type				TWLT	TWLT	
Median storage veh				2	2	
Upstream signal (m)				77		
pX, platoon unblocked	0.96					
vC, conflicting volume	956	480	498			
vC1, stage 1 conf vol	462					
vC2, stage 2 conf vol	493					
vCu, unblocked vol	934	480	498			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	94	93			
cM capacity (veh/h)	470	580	1074			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	63	73	330	495		
Volume Left	28	73	0	0		
Volume Right	35	0	0	71		
cSH	525	1074	1700	1700		
Volume to Capacity	0.12	0.07	0.19	0.29		
Queue Length 95th (m)	3.1	1.7	0.0	0.0		
Control Delay (s)	12.8	8.6	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.8	1.6		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			46.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Obelisk Way & Kaneff Cres

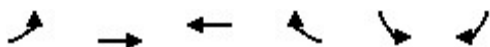
4/6/2022





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	32	36	50	60	12	25	3	31	3	0	0
Future Volume (Veh/h)	2	32	36	50	60	12	25	3	31	3	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			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)	2	35	39	54	65	13	27	3	34	3	0	0
Pedestrians	19			19			15			15		
Lane Width (m)	3.5			3.5			3.5			3.5		
Walking Speed (m/s)	1.1			1.1			1.1			1.1		
Percent Blockage	2			2			1			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	93			89			272	274	88	308	288	106
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	93			89			272	274	88	308	288	106
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			96	99	96	99	100	100
cM capacity (veh/h)	1494			1499			632	596	946	576	586	926
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	76	132	64	3								
Volume Left	2	54	27	3								
Volume Right	39	13	34	0								
cSH	1494	1499	765	576								
Volume to Capacity	0.00	0.04	0.08	0.01								
Queue Length 95th (m)	0.0	0.9	2.1	0.1								
Control Delay (s)	0.2	3.2	10.1	11.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.2	3.2	10.1	11.3								
Approach LOS			B	B								
Intersection Summary												
Average Delay				4.1								
Intersection Capacity Utilization				28.1%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

6: Elm Drive E & Obelisk Way

4/6/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	193	231	8	8	75
Future Volume (Veh/h)	87	193	231	8	8	75
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)	95	210	251	9	9	82
Pedestrians		28	28		3	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		2	2		0	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh			2			
Upstream signal (m)		224	69			
pX, platoon unblocked						
vC, conflicting volume	263				686	286
vC1, stage 1 conf vol					258	
vC2, stage 2 conf vol					428	
vCu, unblocked vol	263				686	286
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	93				98	89
cM capacity (veh/h)	1309				540	737
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	95	210	260	91		
Volume Left	95	0	0	9		
Volume Right	0	0	9	82		
cSH	1309	1700	1700	711		
Volume to Capacity	0.07	0.12	0.15	0.13		
Queue Length 95th (m)	1.8	0.0	0.0	3.3		
Control Delay (s)	8.0	0.0	0.0	10.8		
Lane LOS	A			B		
Approach Delay (s)	2.5		0.0	10.8		
Approach LOS				B		
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			38.5%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

7: Mississauga Valley Blvd & Elm Drive E

4/6/2022



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	54	158	74	134	395	37	422
Act Effect Green (s)	9.6	9.6	10.1	32.2	30.5	17.3	17.3
Actuated g/C Ratio	0.21	0.21	0.22	0.69	0.65	0.37	0.37
v/c Ratio	0.23	0.39	0.24	0.21	0.34	0.10	0.68
Control Delay	22.5	10.6	17.4	4.6	6.7	11.6	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	10.6	17.4	4.6	6.7	11.6	18.9
LOS	C	B	B	A	A	B	B
Approach Delay		13.6	17.4		6.2		18.3
Approach LOS		B	B		A		B
Queue Length 50th (m)	4.3	2.6	4.4	3.5	15.7	2.1	28.6
Queue Length 95th (m)	13.5	16.3	14.5	9.5	33.5	7.1	57.7
Internal Link Dist (m)		44.7	15.4		104.6		53.4
Turn Bay Length (m)	17.0			16.0		21.0	
Base Capacity (vph)	691	942	881	639	1329	562	981
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	0.08	0.17	0.08	0.21	0.30	0.07	0.43

Intersection Summary

Cycle Length: 74.5

Actuated Cycle Length: 46.8

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 12.4

Intersection LOS: B

Intersection Capacity Utilization 73.8%





















ICU Level of Service D

Analysis Period (min) 15

HCM Signalized Intersection Capacity Analysis

7: Mississauga Valley Blvd & Elm Drive E










4/6/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	31	114	31	23	14	123	304	60	34	301	87
Future Volume (vph)	50	31	114	31	23	14	123	304	60	34	301	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.95	1.00			0.99		1.00	1.00		0.98	1.00	
Frt	1.00	0.88			0.97		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1586	1512			1722		1700	1798		1746	1669	
Flt Permitted	0.71	1.00			0.79		0.38	1.00		0.53	1.00	
Satd. Flow (perm)	1183	1512			1396		685	1798		972	1669	
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)	54	34	124	34	25	15	134	330	65	37	327	95
RTOR Reduction (vph)	0	107	0	0	12	0	0	8	0	0	13	0
Lane Group Flow (vph)	54	51	0	0	62	0	134	387	0	37	409	0
Confl. Peds. (#/hr)	41		41	22		22			46	39		39
Heavy Vehicles (%)	7%	0%	6%	2%	3%	0%	5%	1%	0%	0%	2%	26%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	6.6	6.6			8.6		27.9	27.9		17.6	17.6	
Effective Green, g (s)	6.6	6.6			8.6		27.9	27.9		17.6	17.6	
Actuated g/C Ratio	0.14	0.14			0.18		0.58	0.58		0.37	0.37	
Clearance Time (s)	6.5	6.5			4.5		3.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	162	207			250		552	1045		356	611	
v/s Ratio Prot		0.03					0.04	c0.22			c0.24	
v/s Ratio Perm	c0.05				0.04		0.10			0.04		
v/c Ratio	0.33	0.25			0.25		0.24	0.37		0.10	0.67	
Uniform Delay, d1	18.7	18.5			16.9		4.9	5.4		10.0	12.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.6			0.5		0.2	0.2		0.1	2.8	
Delay (s)	19.9	19.1			17.4		5.1	5.6		10.1	15.5	
Level of Service	B	B			B		A	A		B	B	
Approach Delay (s)		19.3			17.4			5.5			15.1	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			48.0				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			73.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: Obelisk Way & Right In Access

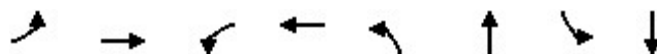
4/6/2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	26	207	38	18	83
Future Volume (Veh/h)	10	26	207	38	18	83
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	28	225	41	20	90
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	376	246			266	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	376	246			266	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	96			98	
cM capacity (veh/h)	616	793			1298	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	39	266	110			
Volume Left	11	0	20			
Volume Right	28	41	0			
cSH	734	1700	1298			
Volume to Capacity	0.05	0.16	0.02			
Queue Length 95th (m)	1.3	0.0	0.4			
Control Delay (s)	10.2	0.0	1.5			
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	1.5			
Approach LOS	B					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			29.8%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

15: Hurontario St/Hurontario St & Elm Drive E

4/6/2022



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	193	66	218	75	1631	124	1793
Act Effect Green (s)	10.8	10.8	10.8	10.8	6.7	29.0	7.0	31.1
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.11	0.47	0.11	0.50
v/c Ratio	0.23	0.52	0.32	0.59	0.39	1.00	0.63	1.02
Control Delay	24.3	17.6	26.4	20.6	33.2	41.4	44.0	47.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	17.6	26.4	20.6	33.2	41.4	44.0	47.3
LOS	C	B	C	C	C	D	D	D
Approach Delay		18.8		22.0		41.0		47.1
Approach LOS		B		C		D		D
Queue Length 50th (m)	4.5	10.0	6.7	13.1	8.0	89.0	13.6	~123.0
Queue Length 95th (m)	11.9	25.6	16.1	30.5	20.4	#164.0	#37.7	#188.2
Internal Link Dist (m)		72.3		200.1		471.9		278.6
Turn Bay Length (m)	22.5		41.0		28.0		69.0	
Base Capacity (vph)	686	1046	701	1045	198	1633	198	1755
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	0.07	0.18	0.09	0.21	0.38	1.00	0.63	1.02

Intersection Summary

Cycle Length: 88

Actuated Cycle Length: 61.9

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 41.2

Intersection LOS: D

Intersection Capacity Utilization 88.1%

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.

HCM Signalized Intersection Capacity Analysis

15: Hurontario St/Hurontario St & Elm Drive E

4/6/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	76	101	61	87	113	69	1418	83	114	1604	46
Future Volume (vph)	41	76	101	61	87	113	69	1418	83	114	1604	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.92		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1685		1750	1686		1750	3471		1750	3485	
Flt Permitted	0.62	1.00		0.64	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1146	1685		1172	1686		1750	3471		1750	3485	
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)	45	83	110	66	95	123	75	1541	90	124	1743	50
RTOR Reduction (vph)	0	78	0	0	75	0	0	4	0	0	2	0
Lane Group Flow (vph)	45	115	0	66	143	0	75	1627	0	124	1791	0
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	10.8	10.8		10.8	10.8		5.5	26.7		7.0	28.2	
Effective Green, g (s)	10.8	10.8		10.8	10.8		5.5	29.7		7.0	31.2	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.09	0.48		0.11	0.50	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	291		202	291		154	1649		196	1739	
v/s Ratio Prot		0.07			c0.08		0.04	0.47		c0.07	c0.51	
v/s Ratio Perm	0.04			0.06								
v/c Ratio	0.23	0.40		0.33	0.49		0.49	0.99		0.63	1.03	
Uniform Delay, d1	22.3	23.0		22.7	23.4		27.2	16.2		26.5	15.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.9		0.9	1.3		2.4	18.9		6.5	29.7	
Delay (s)	22.8	23.8		23.6	24.7		29.6	35.1		33.0	45.4	
Level of Service	C	C		C	C		C	D		C	D	
Approach Delay (s)		23.7			24.4			34.9			44.6	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			38.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			62.5			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			88.1%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												