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Transportation Impact Study

PROPOSED RESIDENTIAL DEVELOPMENT

3575 KANEFF CRESCENT
CITY OF MISSISSAUGA, ONTARIO

May 2020
Project No: NT-19-174

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

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NextEng Consulting Group Inc.

May 25, 2020

Kristina and Anna-Maria Kaneff
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

Nextrans 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 29-storey residential building with a total of 282 dwelling unit. A total of 173 vehicle parking spaces and 56 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,
Nextrans Consulting Engineers
A Division of NextEng Consulting Group Inc.

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Issues and Revisions Registry

Identification	Date	Description of issued and/or revision
Final Report	May 26, 2020	For Client Submission

EXECUTIVE SUMMARY

Nextrans 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 29-storey residential building with a total of 282 dwelling units. The proposed development will provide three levels underground parking garage a total of 173 vehicle parking spaces (140 spaces for tenant and 42 spaces for visitor). A total of 56 bicycle spaces will also be provided.

Proposed Development Access

As part of the proposed development, the access to building will be right in via Obelisk Way and right-out via Kaneff Crescent.

Capacity Analysis

The proposed development is expected to generate:

- 201 total two-way person trips (42 inbound and 159 outbound) and 166 total two-way person trips (97 inbound and 68 outbound) during the morning and afternoon peak hours, respectively;
- 95 total two-way auto trips (20 inbound and 73 outbound) and 83 total two-way auto trips (49 inbound and 34 outbound) during the morning and afternoon peak hours, respectively;
- 64 total two-way transit trips (13 inbound and 50 outbound) and 17 total two-way transit trips (10 inbound and 7 outbound) during the morning and afternoon peak hours, respectively;
- 14 total two-way active trips (3 inbound and 11 outbound) and 28 total two-way active trips (17 inbound and 12 outbound) during the morning and afternoon peak hours, respectively;
- 28 total two-way carpooling/ paid rideshare trips (6 inbound and 22 outbound) and 38 total two-way active trips (22 inbound and 16 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 existing/proposed accesses onto Kaneff Crescent and Obelisk Way are expected to operate at acceptable levels of service with minimal delays or queues. No improvement to the existing Kaneff Crescent and Obelisk Way 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 406 parking spaces are required for the proposed development. It is our understanding that the proposed development provides 173 vehicle parking spaces (including 130 parking spaces for resident and 43 parking spaces for visitor) or in rate of 0.46 spaces/ unit for resident and 0.15 spaces/unit for visitor parking, this presenting a technical shortfall of 233 parking spaces (~57% reduction).

Currently, there is no requirements for bicycle parking for the proposed development. However, it is our understanding that the proposed development will provide 56 bicycle parking spaces on the underground parking Level 1, 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 spaces 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 right-in and right right-out accesses onto Elm Drive East and Kaneff Crescent, 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 Mississauga Valley Boulevard and Elm Drive East, where appropriate;
- No additional physical improvements for the area at this time under the future background and future total conditions.

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1.0 INTRODUCTION

Nextrans 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**.

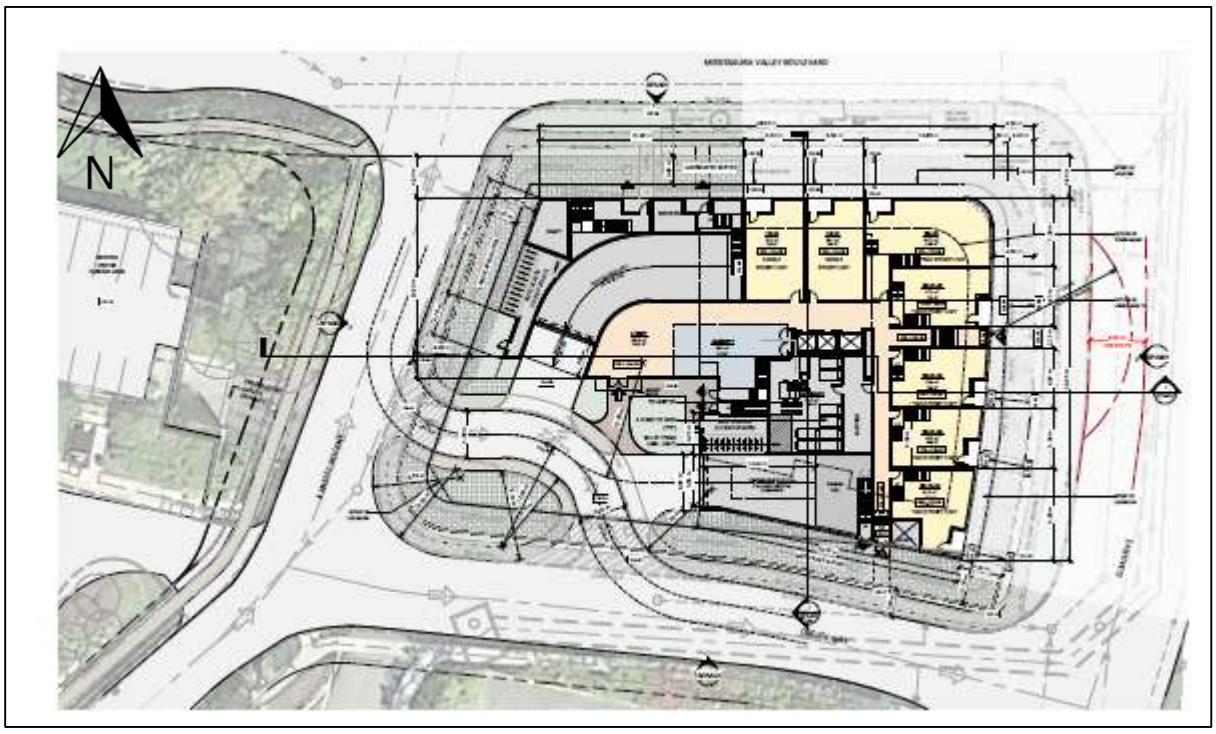
Figure 1 – Proposed Development Location

Source: Google Map

The site is currently occupied by a parking lot. The redevelopment proposal includes a 29-storey apartment building with a total of 282 dwelling units. As part of the proposed development, the access to building will be right in via Obelisk Way and right-out via Kaneff Crescent. The proposed development will provide three levels underground parking garage a total of 173 vehicle parking spaces (130 spaces for tenant and 43 spaces for visitor). A total of 56 bicycle spaces will also be provided.

Figure 2 illustrates the proposed development site plan.

Figure 2 – Proposed Concept Site Plan



2.0 EXISTING TRAFFIC CONDITIONS

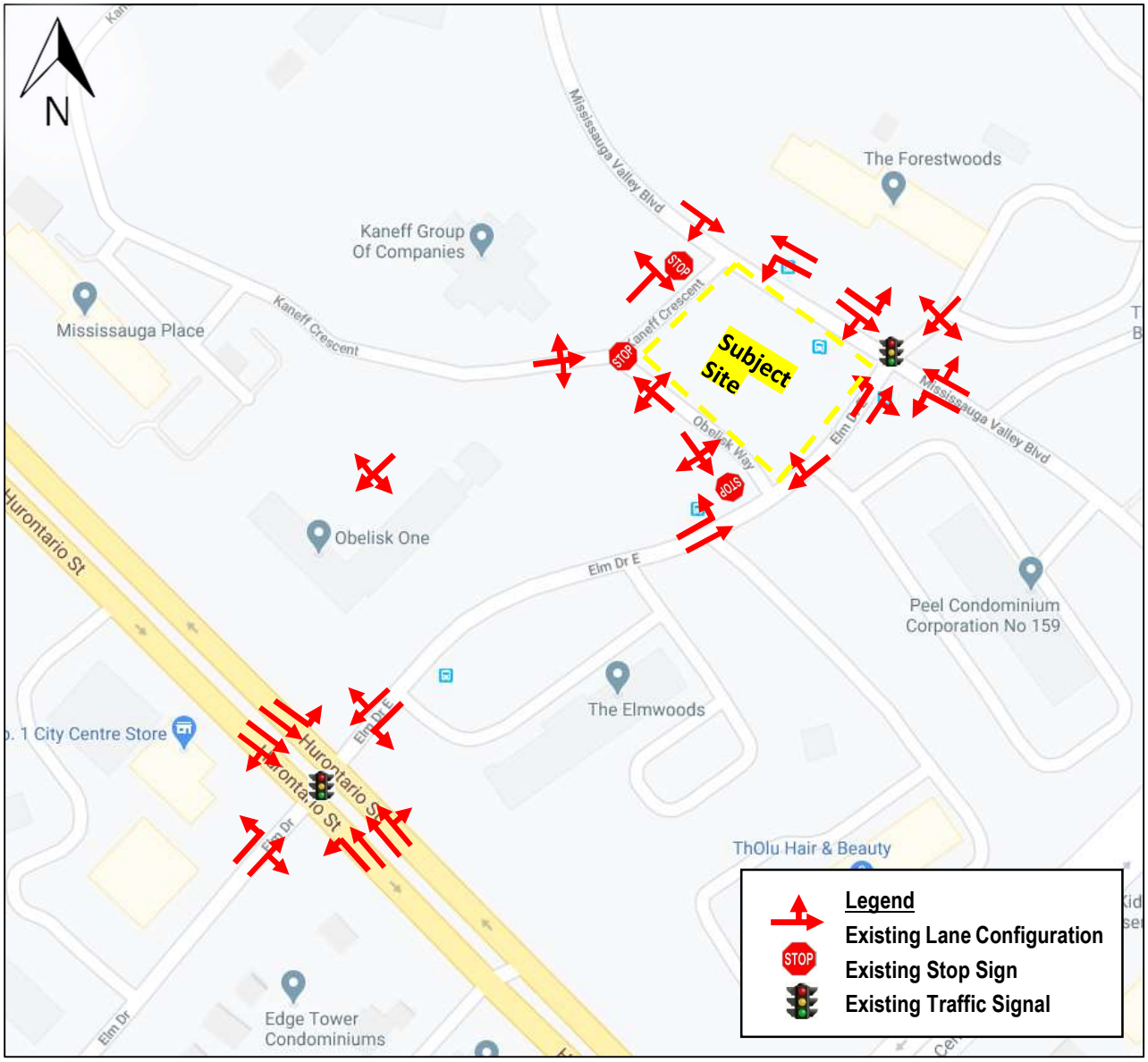
2.1. Existing Road Network

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 road network is described as follows:

- **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.

The subject site currently has one full movement access onto Kaneff Crescent servicing the existing parking lot. As indicated, the proposed residential development will provide the right-in access via Obelisk Way and the right-out access via Kaneff Crescent. It is NexTrans' opinion that this provision will eliminate multiple existing accesses onto 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

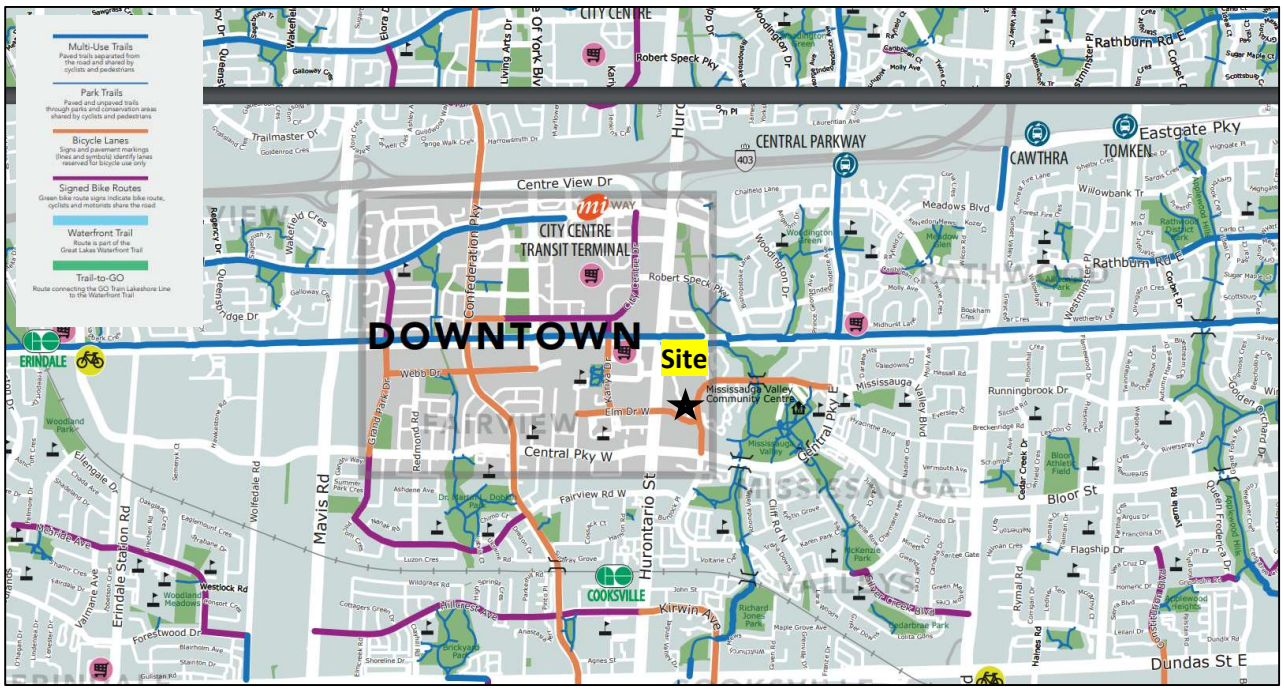


Source: Google Map

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.

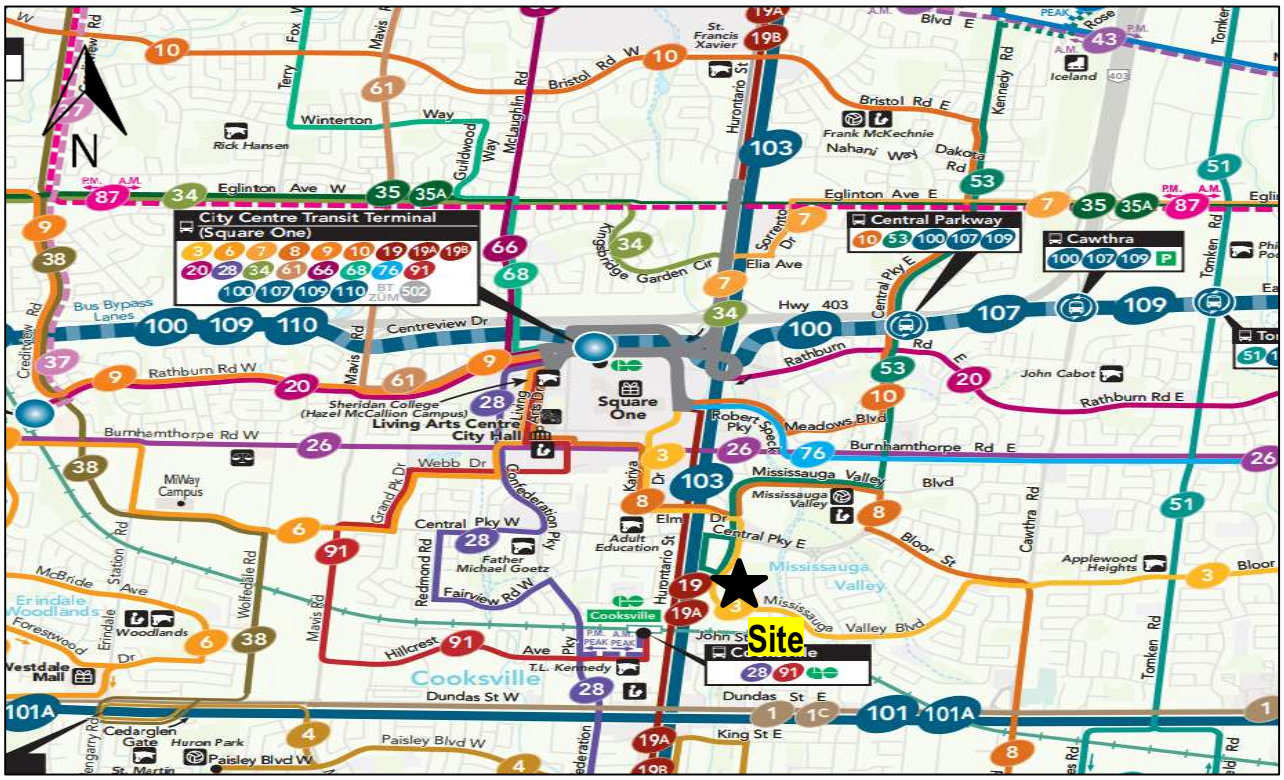
2.4. Existing MiWay System

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/):

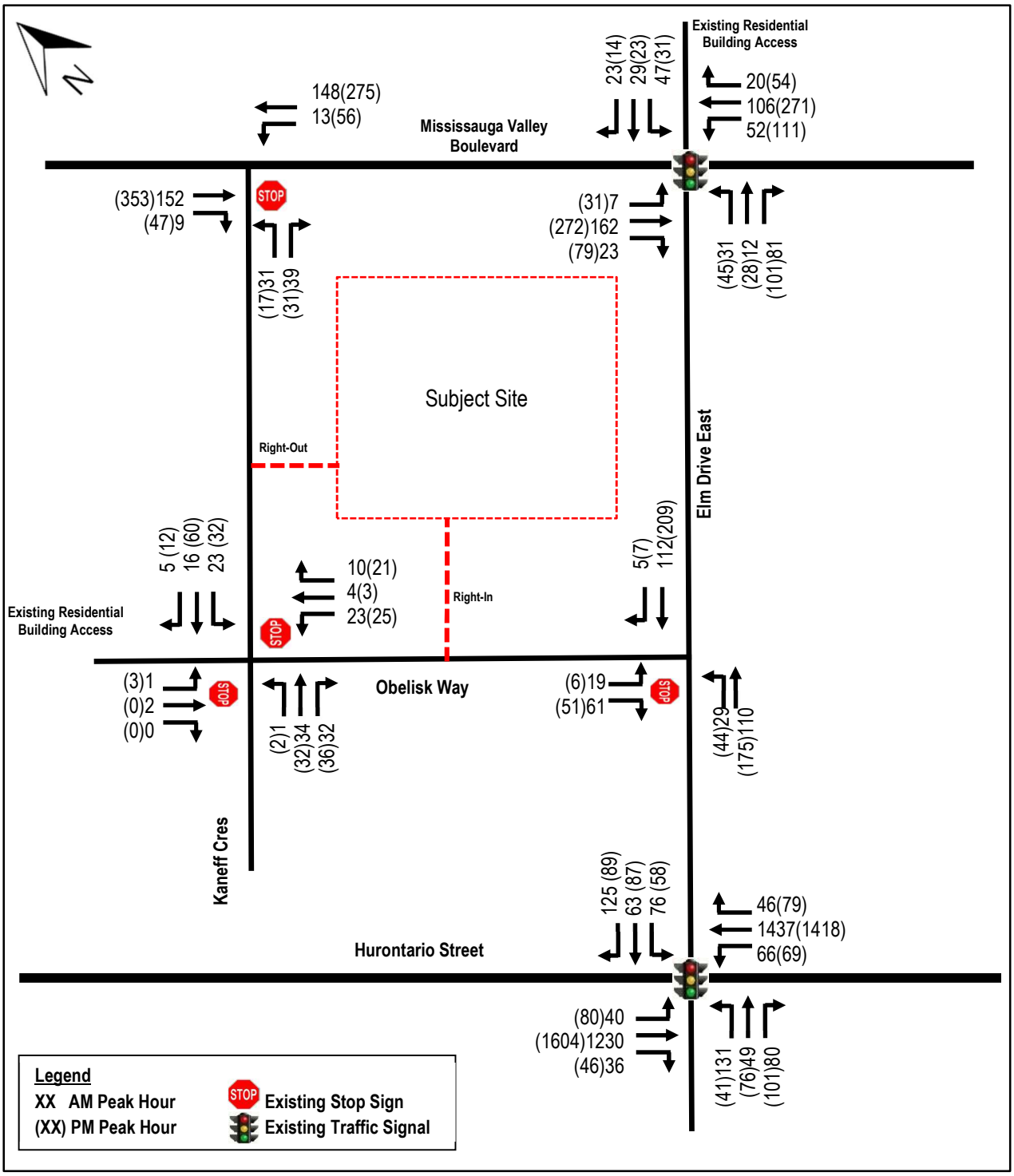
- **MiWay Bus Route 8 Cawthra** - The 8 Cawthra bus route operates generally in a north-south direction between City Centre Transit Terminal Platform J and Port Credit GO Station Platform 8. This route operates all day, every day and the service frequency are about 10 minutes during the peak periods.
- **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 on Tuesday February 04, 2020 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 all area intersections. 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 95th (m)	LOS (v/c)	Delay (s)	Queue 95th (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
	SB - TR	B (0.63)	14.2	73.1	B (0.77)	14.9	103.1
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

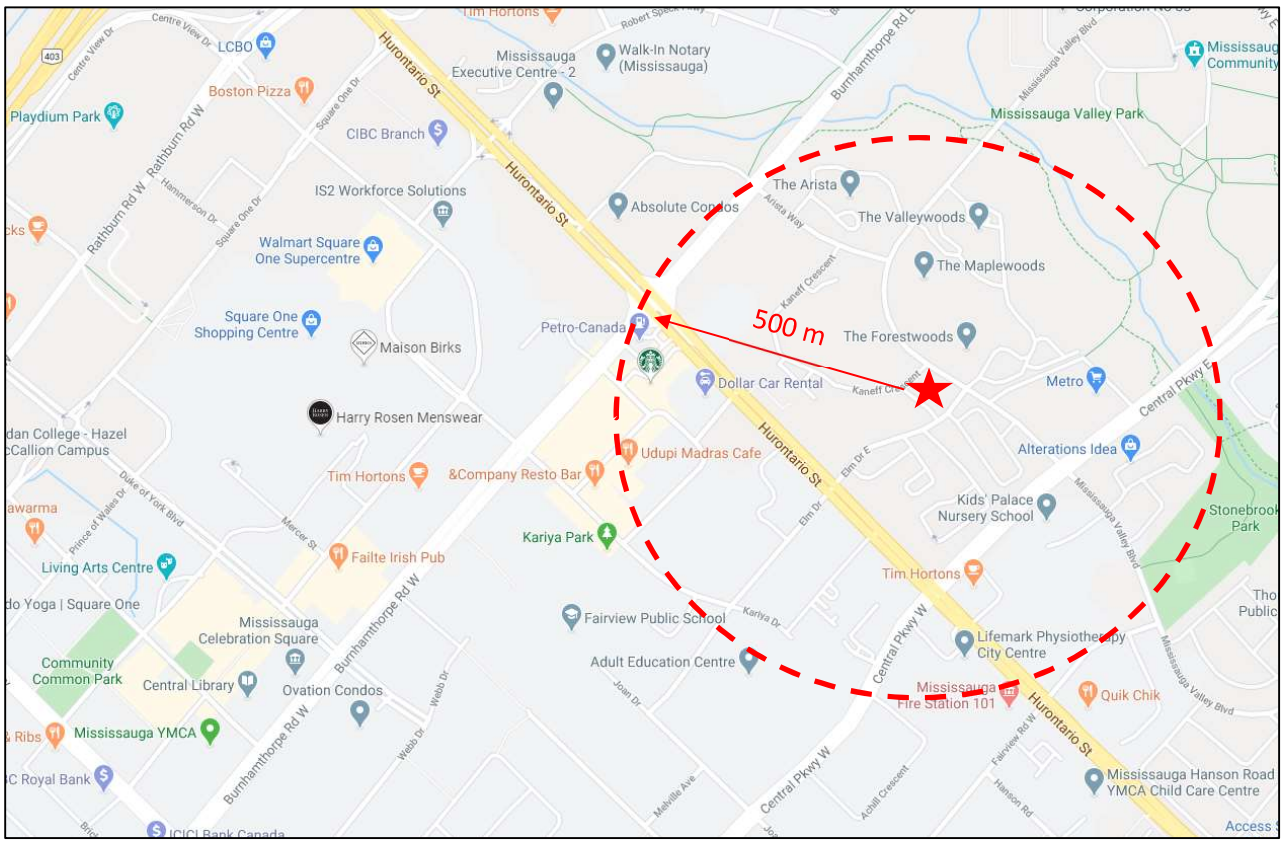
3.1. Land Use Context

NexTrans has conducted a comprehensive review of the area. To the west of the subject site, Hurontario Street is an important corridor that has serval 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 the 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

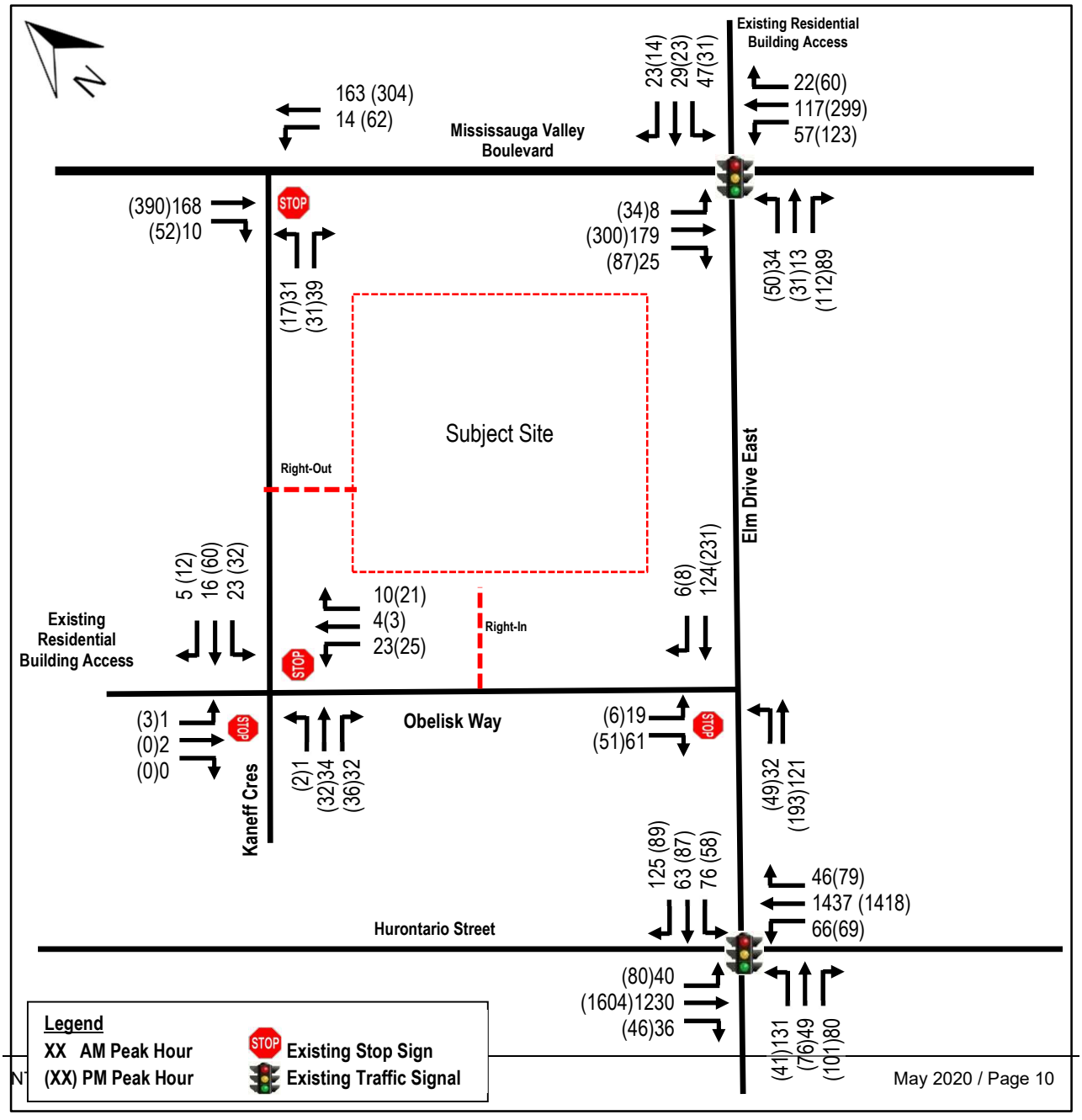


Table 2 – 2028 Future Background Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95th (m)	LOS (v/c)	Delay (s)	Queue 95th (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
	SB - TR	C (0.92)	26.2	150.1	D (1.05)	52.7	180.4
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 29-storey residential building with 282 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%	30%	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:

- 201 total two-way trips (42 inbound and 159 outbound) and 166 total two-way trips (97 inbound and 68 outbound) during the morning and afternoon peak hours, respectively;
- 95 total two-way auto trips (20 inbound and 73 outbound) and 83 total two-way auto trips (49 inbound and 34 outbound) during the morning and afternoon peak hours, respectively;
- 64 total two-way transit trips (13 inbound and 50 outbound) and 17 total two-way transit trips (10 inbound and 7 outbound) during the morning and afternoon peak hours, respectively;
- 14 total two-way active trips (3 inbound and 11 outbound) and 28 total two-way active trips (17 inbound and 12 outbound) during the morning and afternoon peak hours, respectively;
- 28 total two-way carpooling/ paid rideshare trips (6 inbound and 22 outbound) and 38 total two-way active trips (22 inbound and 16 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	282	Total trips	100%	100%	42	159	201	99	68	167
		Transit Trips	**32%**	**10%**	**14**	**51**	**64**	**10**	**7**	**17**
		Walking Trips	7%	17%	3	11	14	17	12	29
		Cycling Trips	0%	0%	0	0	0	0	0	0
		Auto Passenger	14%	23%	6	22	28	23	15	38
		Auto Trips	***47%***	***50%***	***20***	***75***	***95***	***49***	***34***	***83***

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%	3%	73%	5%	100%
Transit	38%	0%	61%	1%	100%

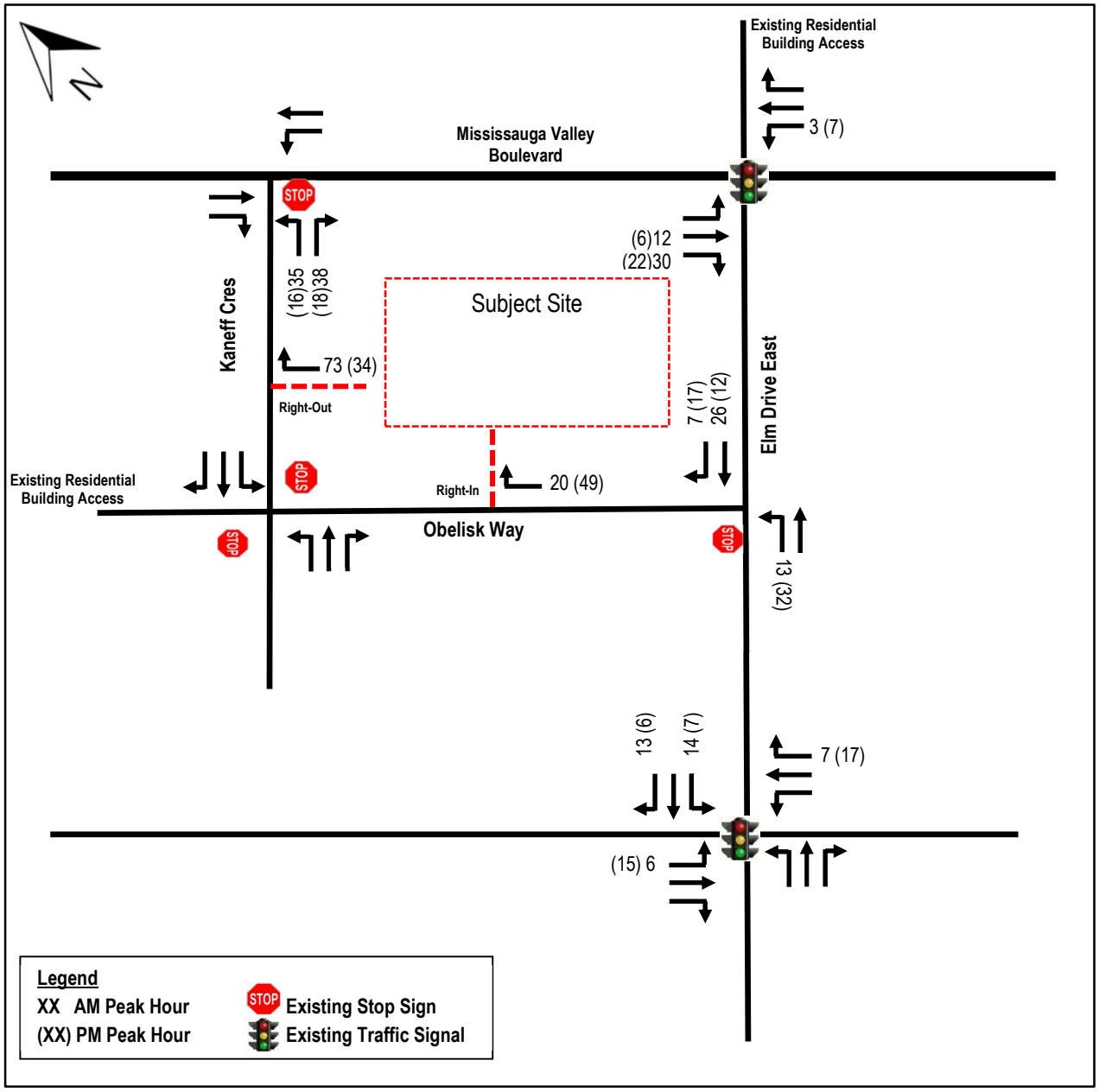
Table 6 summarizes the site trip assignment based on the 2016 TTS and existing transportation network in the area for the residential component of proposed development.

Table 6 – Site Trip Distribution

General Direction of Travel (To/From)	Auto	Transit
North	24%	15%
South	16%	15%
East	37%	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 9 – 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 10 –2028 Future Total Traffic Volumes

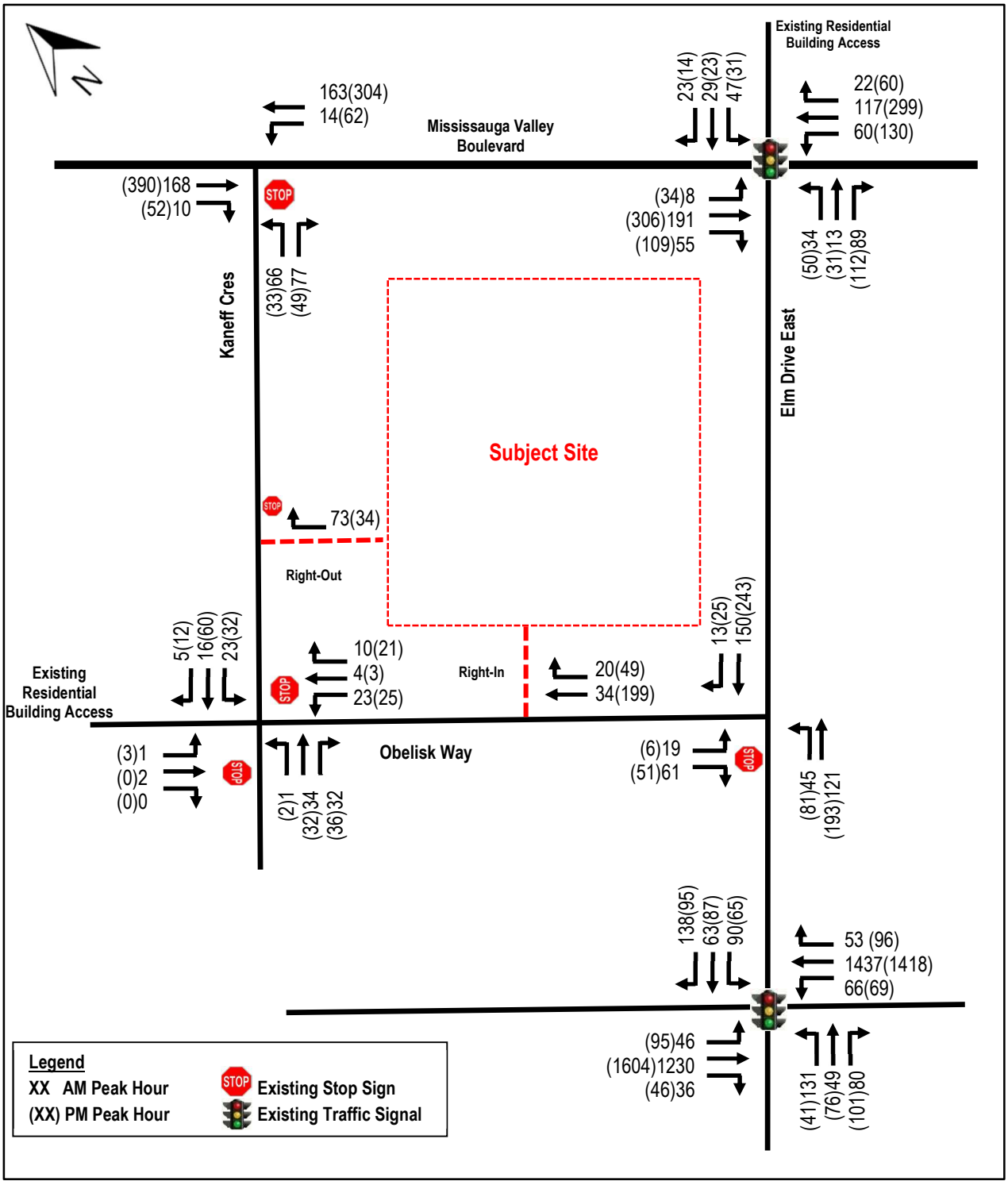


Table 7 – 2028 Future Total Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95th (m)	LOS (v/c)	Delay (s)	Queue 95th (m)
Mississauga Valley Boulevard and Elm Drive East (signalized)	**Overall**	**B (0.40)**	**11.6**		**B (0.50)**	**11.5**	
	EB – L	B (0.17)	16.0	8.8	B (0.30)	18.9	12.6
	EB – TR	B (0.14)	15.9	11.2	B (0.22)	18.1	15.2
	WB – LTR	B (0.33)	15.2	17.0	B (0.24)	16.6	14.5
	NB – L	A (0.12)	5.0	5.0	A (0.21)	5.0	8.4
	NB – TR	A (0.15)	5.1	11.8	A (0.34)	5.5	28.7
	SB – L	B (0.02)	10.5	2.7	B (0.10)	10.3	6.6
	SB - TR	B (0.51)	13.0	33.2	B (0.64)	14.9	49.8
Hurontario Street and Elm Drive (signalized)	**Overall**	**C (0.81)**	**22.8**		**D (0.87)**	**40.0**	
	EB – L	C (0.59)	26.7	30.9	C (0.59)	21.9	11.9
	EB – TR	C (0.20)	21.1	17.2	C (0.20)	22.9	25.7
	WB – L	C (0.38)	22.6	21.6	C (0.38)	22.9	17.1
	WB – TR	C (0.29)	21.7	21.8	C (0.29)	23.4	28.8
	NB – L	C (0.50)	30.6	20.9	C (0.50)	28.4	20.2
	NB -TR	C (0.94)	25.9	178.3	C (0.94)	30.9	163.6
	SB – L	C (0.47)	32.1	15.8	D (0.47)	36.5	29.4
	SB - TR	B (0.84)	18.5	139.2	D (0.84)	53.9	185.4
Elm Drive East and Obelisk Way (unsignalized)	EB – LT	A (0.03)	7.7	0.8	A (0.02)	7.5	0.5
	SB – LR	A (0.11)	10.2	2.8	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 (0.20)	10.8	5.7	B (0.09)	11.9	2.3
	NB - LT	A (0.01)	7.6	0.3	A (0.05)	8.4	1.3
Obelisk Way and Right-In Access	WB	A (0.00)	0.0	0.0	A (0.00)	0.0	0.0
Kaneff Crescent and Right-Out Access	NB - R	A (0.08)	8.8	1.9	A (0.04)	8.6	0.8

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 existing/proposed accesses onto Kaneff Crescent and Obelisk Way are expected to operate at acceptable levels of service with minimal delays or queues. No improvement to the existing Kaneff Crescent and Obelisk Way 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 64 new two-way transit trips (14 inbound and 50 outbound) and 17 new two-way transit trips (10 inbound and 7 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	***14***	***50***	***64***	***10***	***7***	***17***
8 Cawthra Northbound	1	4	5	1	1	2
8 Cawthra Southbound	1	4	5	1	1	2
3 Bloor Eastbound	7	26	33	5	4	9
3 Bloor Westbound	3	8	11	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	1.2	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 282 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 right-in access via Obelisk Way and one right-out access via Kaneff Crescent. The analysis indicates that the proposed accesses onto Kaneff Crescent and Obelisk Way are 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	190 units (one bedroom)	1.18 spaces/unit	224		
	87 units (two bedroom)	1.36 spaces/unit	118		
	5 units (three bedroom)	1.50 spaces/unit	8		
	282 units	0.20 visitor spaces/unit	56		
Total			***406***	***173***	***-233***

Based on the City of Mississauga By-Law 0225-2007 Part 3 – Parking, Loading and Stacking Lane Regulations, a total of 406 parking spaces are required for the proposed development. It is our understanding that the proposed development provides 173 vehicle parking spaces (including 130 parking spaces for resident and 43 parking spaces for visitor) or in rate of 0.46 spaces/ unit for resident and 0.15 spaces/unit for visitor parking, this presenting a technical shortfall of 233 parking spaces (~57% 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	282 units	0.46 space per unit	130 spaces
Visitor Use		0.15 space per unit	43 spaces
Total Parking Required		***0.61 spaces per unit***	***173 spaces***

Based on the recommended parking rates noted above, the proposed development will require 173 parking spaces or in rate of 0.61 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 29-storey residential building with 282 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%	30%	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 a reduced rate of 0.61 spaces per dwelling unit for the proposed development 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 a reduced rate of 0.61 spaces per dwelling unit for the proposed development 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 household 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 11 illustrates the Mississauga Transitway.

Figure 11 – 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 14 illustrates the Zipcar locations and on-street parking

Figure 14 – Available On-street Parking and Zipcar Locations

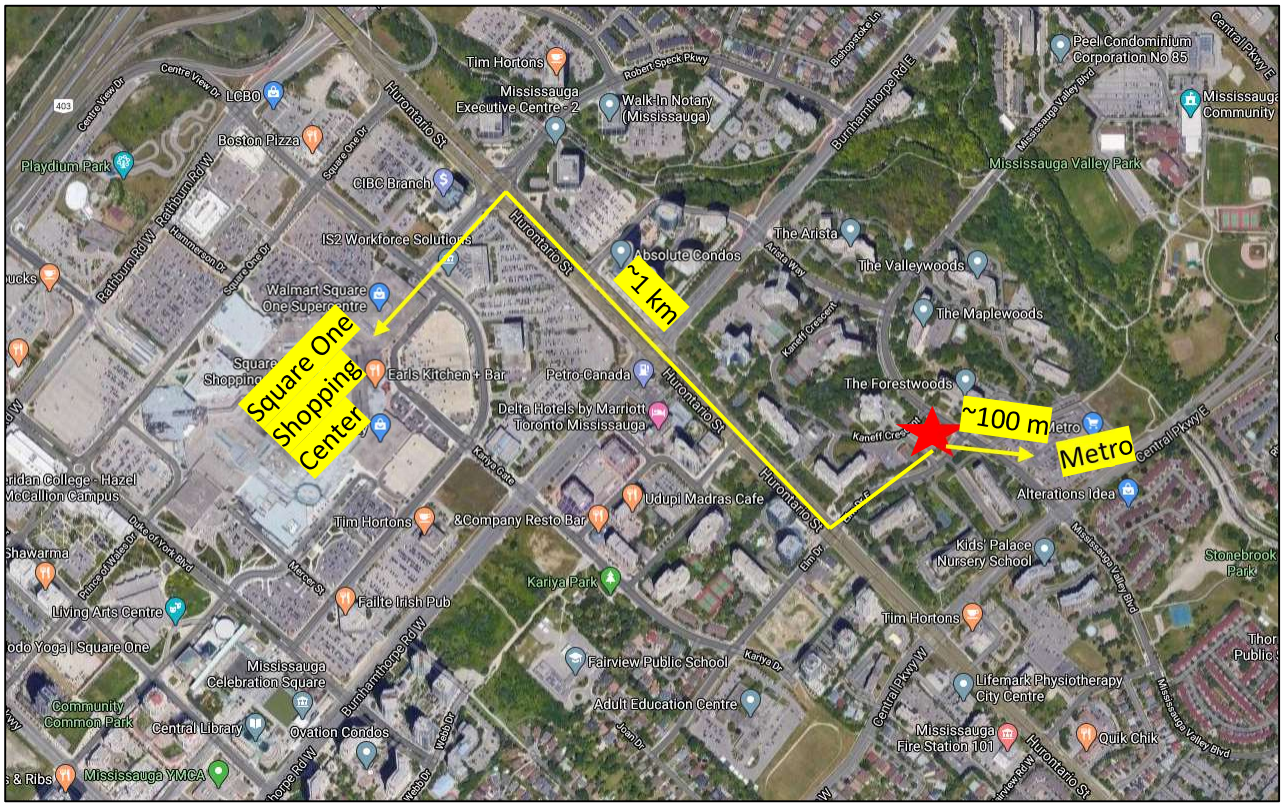
Source: Google Maps

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

Figure 15 – Available Amenities in the Area Within Walking Distance



Source: Google Maps

8.1.11. Transportation Demand Management Measures

The main objective of the Transportation Demand Management (TDM) is to encourage residents to take alternative modes of transportation such as public transit, walking, cycling and carpooling. Based on NexTrans' experience in conducting transportation impact studies in various jurisdictions in the Great Toronto and Hamilton Area, 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. NexTrans provides additional recommendations for the TDM measures in Section 9 of this study to support the recommended parking rates reduction for the proposed development.

8.2. Bicycle Parking

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 56 bicycle parking spaces on the underground parking Level 1, in order to encourage residents to take alternative modes of transportation to and from the proposed development.

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	• Visible, well-lit, short-term bicycle parking for visitors • Secure, indoor bicycle parking storage spaces for tenants/residents • Ensure development connects to bicycle network	• Provide 56 bicycle parking spaces including short-term and long-term	• Applicant
Walking	• 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)	• Provide direct shared pedestrian and cycling connections from the proposed development to Mississauga Valley Boulevard and Elm Drive East	• Applicant
Transit	• Enhanced walking routes between main building entrance(s) and transit stops/stations • Bicycle parking located at or near transit stops	• Provide direct connections from the proposed development to the closest bus stop on Mississauga Valley Drive	• Applicant
Parking	• 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	• Consider unbundle parking rent with the unit; • Reduced 56% of the parking supply to support TDM and transit	• Applicant
Information Brochure/Letter	• Provide an information brochure/letter for each residential unit that including Mississauga Transit System (Miway) schedules, GO Transit, Cycling maps, and community maps	• 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.	• Applicant

10.0 CONCLUSIONS / FINDINGS

10.1. Study Conclusions

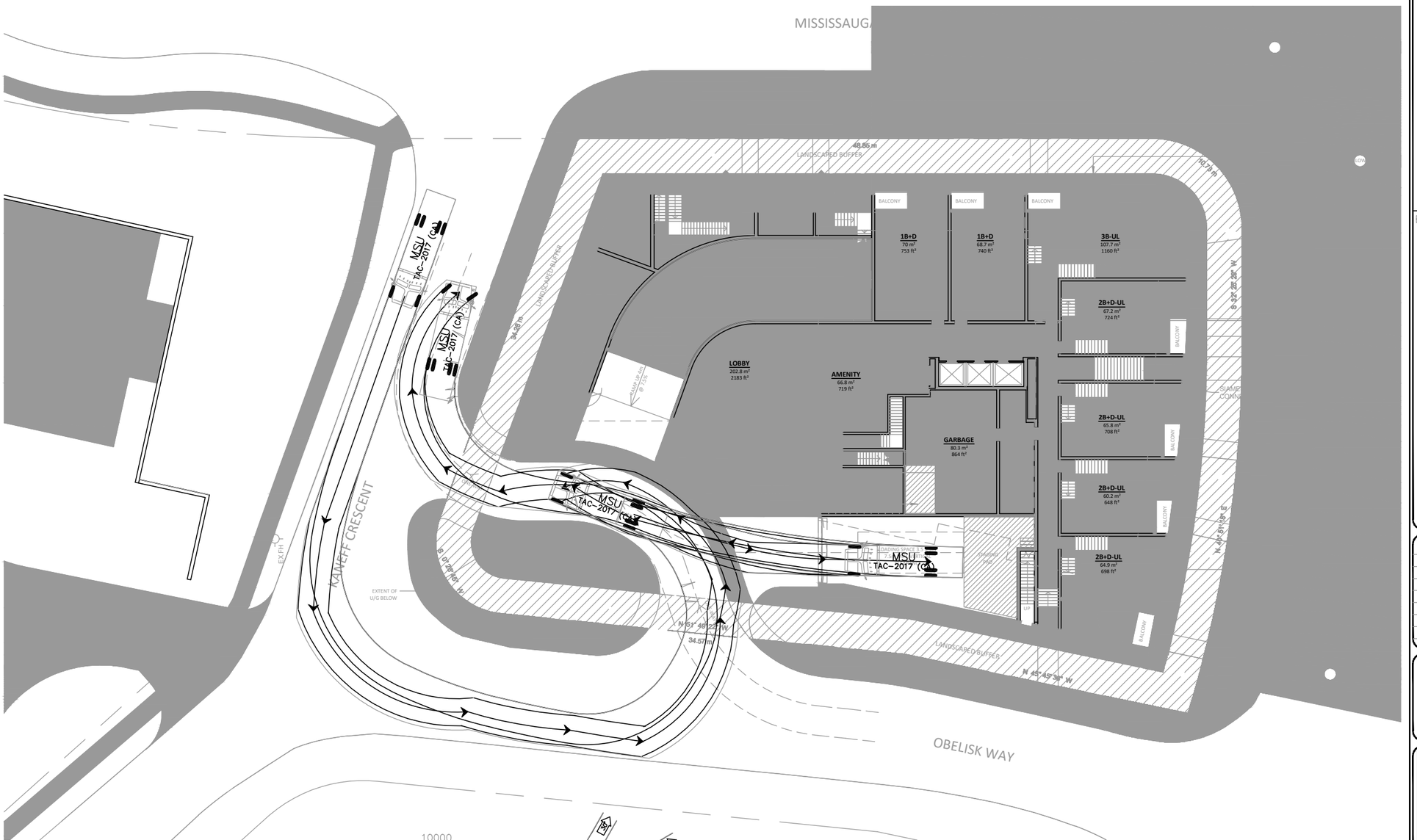
The findings and conclusions of the analysis are as follows:

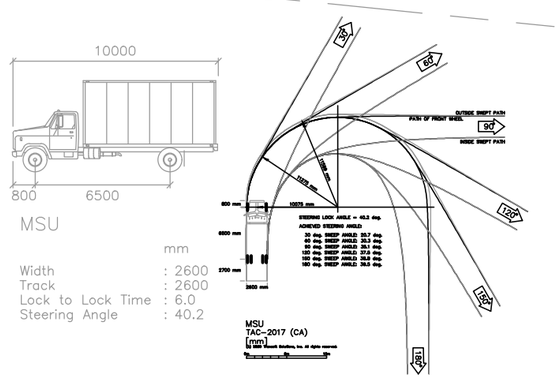
- The proposed development is expected to generate:
    - 201 total two-way trips (42 inbound and 159 outbound) and 167 total two-way trips (99 inbound and 68 outbound) during the morning and afternoon peak hours, respectively;
    - 94 total two-way auto trips (20 inbound and 75 outbound) and 83 total two-way auto trips (49 inbound and 34 outbound) during the morning and afternoon peak hours, respectively;
    - 63 total two-way transit trips (13 inbound and 50 outbound) and 17 total two-way transit trips (10 inbound and 7 outbound) during the morning and afternoon peak hours, respectively;
    - 14 total two-way active trips (3 inbound and 11 outbound) and 28 total two-way active trips (17 inbound and 12 outbound) during the morning and afternoon peak hours, respectively;
    - 28 total two-way carpooling/ paid rideshare trips (6 inbound and 22 outbound) and 38 total two-way active trips (22 inbound and 16 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 existing/proposed accesses onto Kaneff Crescent and Obelisk Way are expected to operate at acceptable levels of service with minimal delays or queues. No improvement to the existing Kaneff Crescent and Obelisk Way 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 406 parking spaces are required for the proposed development. It is our understanding that the proposed development provides 173 vehicle parking spaces (including 130 parking spaces for resident and 43 parking spaces for visitor) or in rate of 0.46 spaces/ unit for resident and 0.15 spaces/unit for visitor parking, this presenting a technical shortfall of 233 parking spaces (~57% 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 56 bicycle parking spaces on the underground parking Level 1, 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 spaces 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 right-in and right right-out accesses onto Elm Drive East and Kaneff Crescent, 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 Mississauga Valley Boulevard and Elm Drive East, where appropriate;
- The proposed development considers reduce 57% of required parking supply (or 0.61 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.





KEY PLAN

BENCHMARK

REVISONS

NO	REVISION	DATE	BY

STAMP

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

PROJECT NAME:
Residential Development
3575 Kaneff Crescent
(CITY OF MISSISAUGA)

DRAWING TITLE:
AutoTURN Analysis
(MSU TAC–2017)

DESIGN BY: A.S.	DATE: May 20, 2020
CHECKED BY: R.P.	PROJECT NO. NT-19-174
DRAWN BY: A.S.	
SCALE: NTS	DRAWING NO. Figure 12

KANEFF CRESCENT

MISSISSAUGA, ON

16.286

TURNER
FLEISCHER

67 Lesmill Road
Toronto, ON, M3B 2T8
turnerfleischer.com

01/17/20

16.286SPA - KANEFF CRESCENT

MISSISSAUGA, ONTARIO

GROSS FLOOR AREA SUMMARY

PARCEL		GFA		FSI
		m²	ft²	
29 STOREY RESIDENTIAL TOWER WITH 5 STOREY PODIUM	RESIDENTIAL	20,784.0	223,719	7.59
	TOTAL	20,784.0	223,719	7.59
SITE AREA		2,739.0	29,482	

GROSS FLOOR AREA DEFINITION

Mississauga Zoning By-Law NO. 0225-2007

(GFA) - APARTMENT DWELLING ZONE
MEANS THE SUM OF THE AREAS OF EACH **STOREY** OF A **BUILDING** ABOVE OR BELOW **ESTABLISHED GRADE**, MEASURED FROM THE EXTERIOR OF OUTSIDE WALLS OF THE **BUILDING** INCLUDING FLOOR AREA OCCUPIED BY INTERIOR WALLS BUT EXCLUDING ANY PART OF THE **BUILDING** USED FOR **MECHANICAL FLOOR AREA**, STAIRWELLS, ELEVATORS, **MOTOR VEHICLE** PARKING, BICYCLE PARKING, STORAGE LOCKERS, BELOW-GRADE STORAGE, ANY ENCLOSED AREA USED FOR THE COLLECTION OR STORAGE OF DISPOSABLE OR RECYCLABLE **WASTE** GENERATED WITHIN THE **BUILDING**, COMMON FACILITIES FOR THE USE OF THE RESIDENTS OF THE **BUILDING**, A DAY CARE AND **AMENITY AREA**.

HEIGHT DEFINITION

Mississauga Zoning By-Law NO. 0225-2007

I. MEANS, WITH REFERENCE TO THE HEIGHT OF A BUILDING, STRUCTURE OR PART THEREOF, EXCEPT A DETACHED, SEMI-DETACHED, DUPLEX OR TRIPLEX, THE VERTICAL DISTANCE BETWEEN THE ESTABLISHED GRADE AND: (0174-2017)
II. THE HIGHEST POINT OF THE ROOF SURFACE OF A FLAT ROOF; OR
III. THE MEAN HEIGHT LEVEL BETWEEN THE EAVES AND RIDGE OF A SLOPED ROOF.
IV. THE MEAN HEIGHT LEVEL BETWEEN THE EAVES AND HIGHEST POINT OF THE FLAT ROOF WHERE THERE IS A FLAT ROOF ON TOP OF A SLOPED ROOF; OR (0325-2008)
V. THE HIGHEST POINT OF A STRUCTURE WITHOUT A ROOF.

GROSS FLOOR AREA (GFA) BREAKDOWN

		GROSS FLOOR AREA BREAKDOWN										INDOOR AMENITY		TOTAL FLOOR AREA [TFA] (NO EXCLUSIONS)		OUTDOOR AMENITY	
		FLOOR	# OF UNITS	RESIDENTIAL				TOTAL RESIDENTIAL		TOTAL GROSS FLOOR AREA [GFA] (TFA - EXCLUSIONS)							
				SALEABLE		NON-SALEABLE											
			#	m²	ft²	m²	ft²	m²	ft²	m²	ft²	m²	ft²	m²	ft²	m²	ft²
29 STOREY RESIDENTIAL TOWER WITH 5 STOREY PODIUM		U/G 3				34.0	366	34.0	366	**34.0**	**366**			**2,120.8**	**22,829**		
		U/G 2				34.0	366	34.0	366	**34.0**	**366**			**2,120.8**	**22,829**		
		U/G 1				41.0	441	41.0	441	**41.0**	**441**			**1,931.3**	**20,788**		
	PODIUM	FL1 LOWER LEVEL		413.0	4,446	0.0	0	413.0	4,446	**413.0**	**4,446**			**442.0**	**4,758**		
	PODIUM	1	7	505.0	5,436	203.0	2,185	708.0	7,621	**708.0**	**7,621**	67.0		**1,354.0**	**14,574**		
	PODIUM	2	0	0.0	0	77.0	829	77.0	829	**77.0**	**829**	1,192.0	12,831	**1,387.0**	**14,930**		
	PODIUM	3	13	869.0	9,354	84.0	904	953.0	10,258	**953.0**	**10,258**			**1,065.0**	**11,464**		
	PODIUM	4	13	869.0	9,354	84.0	904	953.0	10,258	**953.0**	**10,258**			**1,065.0**	**11,464**		
	TOWER 1	5	9	601.0	6,469	50.0	538	651.0	7,007	**651.0**	**7,007**	56.0	603	**749.0**	**8,062**	318.0	3,423
	TOWER 1	6	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	7	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	8	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	9	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	10	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	11	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	12	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	13	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	14	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	15	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	16	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	17	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	18	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	19	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	20	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	21	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	22	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	23	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	24	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	25	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	26	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	27	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	28	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	29	10	656.0	7,061	49.0	527	705.0	7,589	**705.0**	**7,589**			**749.0**	**8,062**		
	TOWER 1	MPH												**175.5**	**1,889**		
		TOTAL	282	19,001.0	204,527	1,783.0	19,192	20,784.0	223,719	20,784.0	223,719	1,315.0	14,155	30,386.4	327,080	318.0	3,423

UNIT MIX - PROVIDED

FLOOR	UNIT TYPE					TOTAL
	1B	1B+D	2B	2B+D	3B	
1	0	2	0	4	1	**7**
2	0	0	0	0	0	**0**
3	4	3	3	1	2	**13**
4	4	3	3	1	2	**13**
5	2	4	0	3	0	**9**
6	3	4	0	3	0	**10**
7	3	4	0	3	0	**10**
8	3	4	0	3	0	**10**
9	3	4	0	3	0	**10**
10	3	4	0	3	0	**10**
11	3	4	0	3	0	**10**
12	3	4	0	3	0	**10**
13	3	4	0	3	0	**10**
14	3	4	0	3	0	**10**
15	3	4	0	3	0	**10**
16	3	4	0	3	0	**10**
17	3	4	0	3	0	**10**
18	3	4	0	3	0	**10**
19	3	4	0	3	0	**10**
20	3	4	0	3	0	**10**
21	3	4	0	3	0	**10**
22	3	4	0	3	0	**10**
23	3	4	0	3	0	**10**
24	3	4	0	3	0	**10**
25	3	4	0	3	0	**10**
26	3	4	0	3	0	**10**
27	3	4	0	3	0	**10**
28	3	4	0	3	0	**10**
29	3	4	0	3	0	**10**
SUBTOTAL	**82**	**108**	**6**	**81**	**5**	**282**
UNIT MIN (ft²)	577	599	607	870	985	
UNIT MAX (ft²)	609	749	858	1610	2105	
TOTAL UNITS	**82**	**108**	**6**	**81**	**5**	**282**
UNIT MIX	**29.1%**	**38.3%**	**2.1%**	**28.7%**	**1.8%**	**100.0%**

AMENITY AREAS - REQUIRED

* AS PER CITY OF MISSISSAUGA BY-LAW NUMBER 0225-2007 THE MINIMUM REQUIRED AMENITY IS EQUAL TO THE GREATER OF 5.6M2 PER DWELLING UNIT OR 10% OF THE NET SITE AREA. OF THIS, A MINIMUM OF 50% IS REQUIRED TO BE CONTIGUOUS

TYPE	REQUIRED			MINIMUM 50% CONTIGUOUS AREA	
	RATIO	m2	ft2	m2	ft2
AMENITY AREA (INDOOR AND OUTDOOR)	@ 5.6 m2 / UNIT	1,579	16,999	790	8,499
	10% OF NET SITE AREA	274	2,948	137	1,474

AMENITY AREAS - PROVIDED

TYPE	PROVIDED		
	RATIO	m2	ft2
INDOOR	4.7 m²/UNIT	1,315.0	14,155
OUTDOOR	1.1 m²/UNIT	318.0	3,423
	5.8 m²/UNIT	1,633.0	17,578
CONTIGUOUS AREA	73%	1,192.0	12,831

BICYCLE PARKING - REQUIRED

RESIDENTIAL			TOTAL
USE	RATIO	SPACES	
SHORT TERM	0.20 / UNIT	56	**56**
LONG TERM			
TOTAL REQUIRED			**56**

BICYCLE PARKING - PROVIDED

RESIDENTIAL		TOTAL
FLOOR	SHORT TERM & LONG TERM	
FLOOR 1	32	**32**
U/G LEVEL 1	24	**24**
TOTAL PROVIDED		**56**

BARRIER FREE PARKING REQUIRED

** Vehicular parking required as per City of Mississauga Zoning By-Law NO. 0225-2007*

USE	RATIO (MIN.)	VISITOR PARKING REQ'D	SPACES (MIN.)
13-100	4% OF THE TOTAL # OF REQ'D VISITOR	43	2

BARRIER FREE PARKING PROVIDED

USE	RATIO (MIN.)	VISITOR PARKING REQ'D	SPACES (MIN.)
13-100	4% OF THE TOTAL # OF REQ'D VISITOR	43	2

VEHICULAR PARKING - REQUIRED PER BY-LAW

**Vehicle parking required as per City of Mississauga Zoning By-law No. 0225-2007; Table 3.1.2.1 – Rental Apartment*

USE	RATIO (MIN.) FOR OFF-STREET PARKING	UNITS / GFA (m²)	SPACES (MIN.)
1B & 1B+D UNITS	1.18 / UNIT	190	225
2B & 2B+D UNITS	1.36 / UNIT	87	118
3B & 3B+D UNITS	1.50 / UNIT	5	8
SUB TOTAL		**282**	**351**
Visitor Parking Requirements			
	0.20 / UNIT	282	56
TOTAL			**407**

VEHICULAR PARKING - PROVIDED

FLOOR	USE		TOTAL
	RESIDENTIAL	VISITOR	
U/G LEVEL 1	3	43	46
U/G LEVEL 2	64		64
U/G LEVEL 3	63		63
TOTAL PROVIDED	**130**	**43**	**173**
PROPOSED PRKING RATIO	0.46	0.15	0.61

TURNER FLEISCHER

Turner Fleischer Architects Inc.

67 Lesmill Road
Toronto, ON. M3B 2T8
T 416 425 2222
turnerfleischer.com

#	DATE	DESCRIPTION	BY

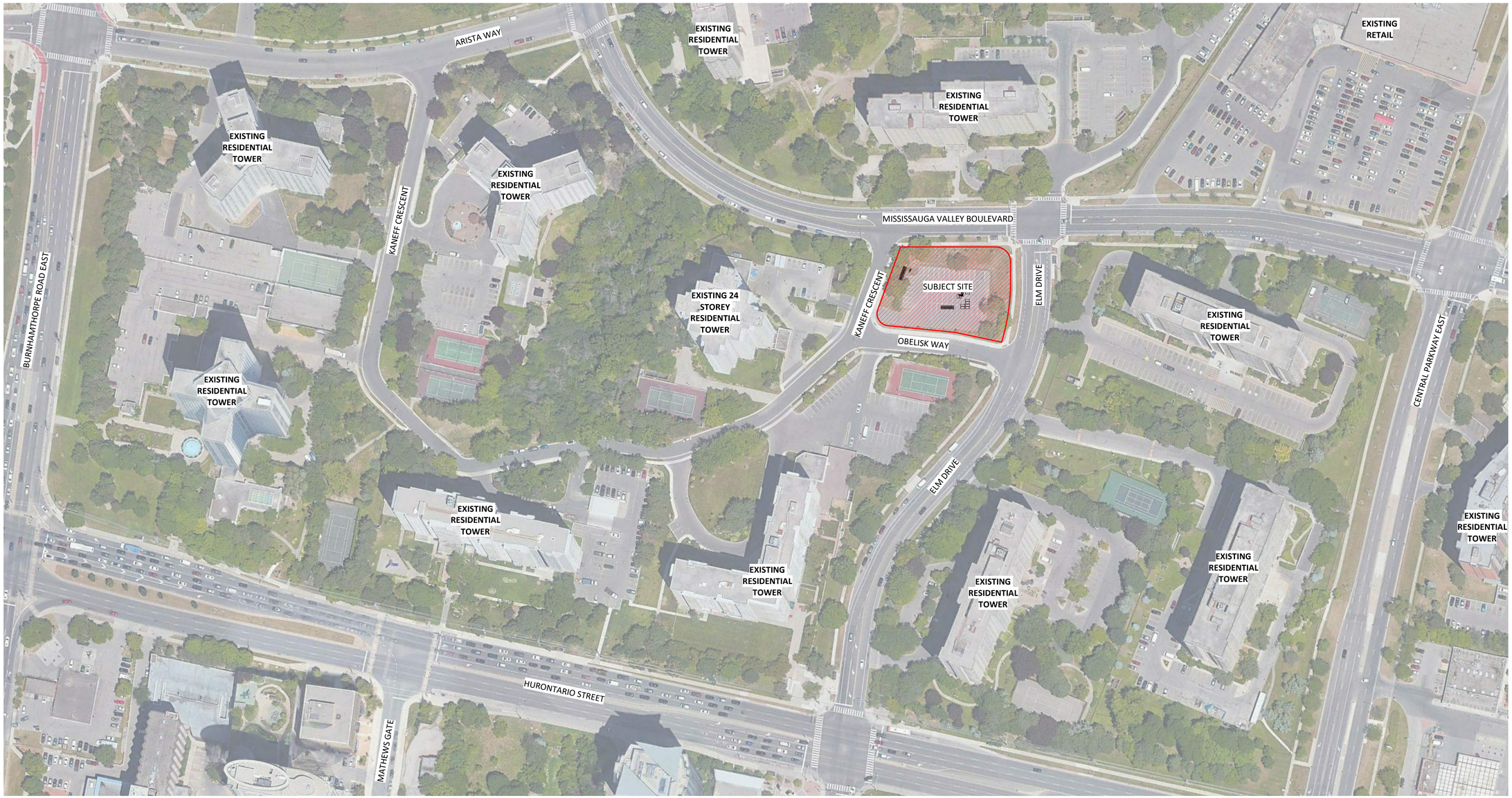
PROJECT
KANEFF CRESCENT
MISSISSAUGA, ON

DRAWING
STATISTICS

PROJECT NO. 16.286
PROJECT DATE 2018-04-20
DRAWN BY Author
CHECKED BY Checker
SCALE

DRAWING NO. SPA001

2020-05-06 4:07:21 PM



TURNER FLEISCHER

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turnerfleischer.com

#	DATE	DESCRIPTION	BY

PROJECT
KANEFF CRESCENT

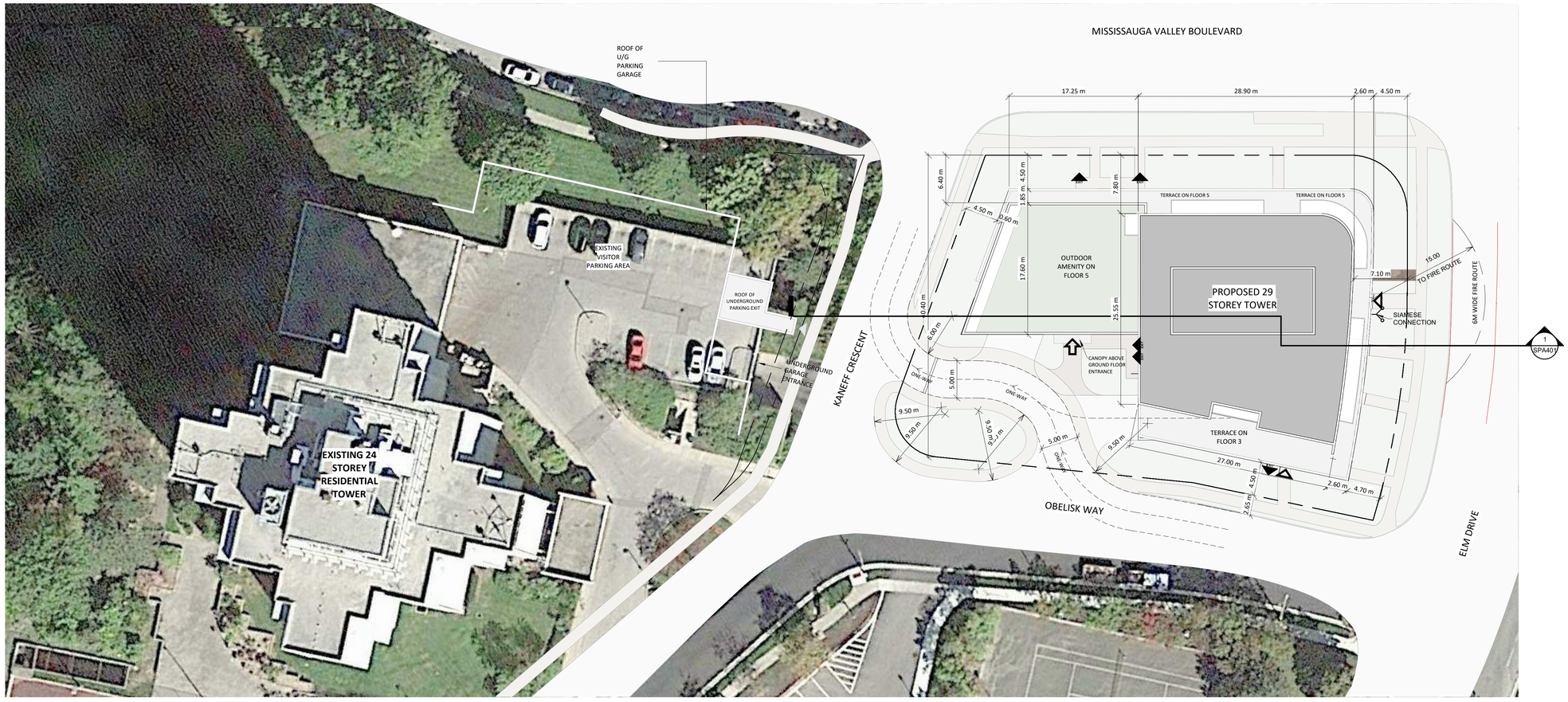
MISSISSAUGA, ON

DRAWING
CONTEXT PLAN

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 1000

DRAWING NO.
SPA002

2020-05-06 4:07:22 PM



1 SPA003 SPA-SITE PLAN / ROOF PLAN
1 : 300

TURNER FLEISCHER

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LEGEND

- PRIMARY RESIDENTIAL ENTRANCE
- SECONDARY RESIDENTIAL ENTRANCE
- RETAIL ENTRANCE
- EXIT
- FH — FIRE HYDRANT
- SIAMESE CONNECTION

#	DATE	DESCRIPTION	BY

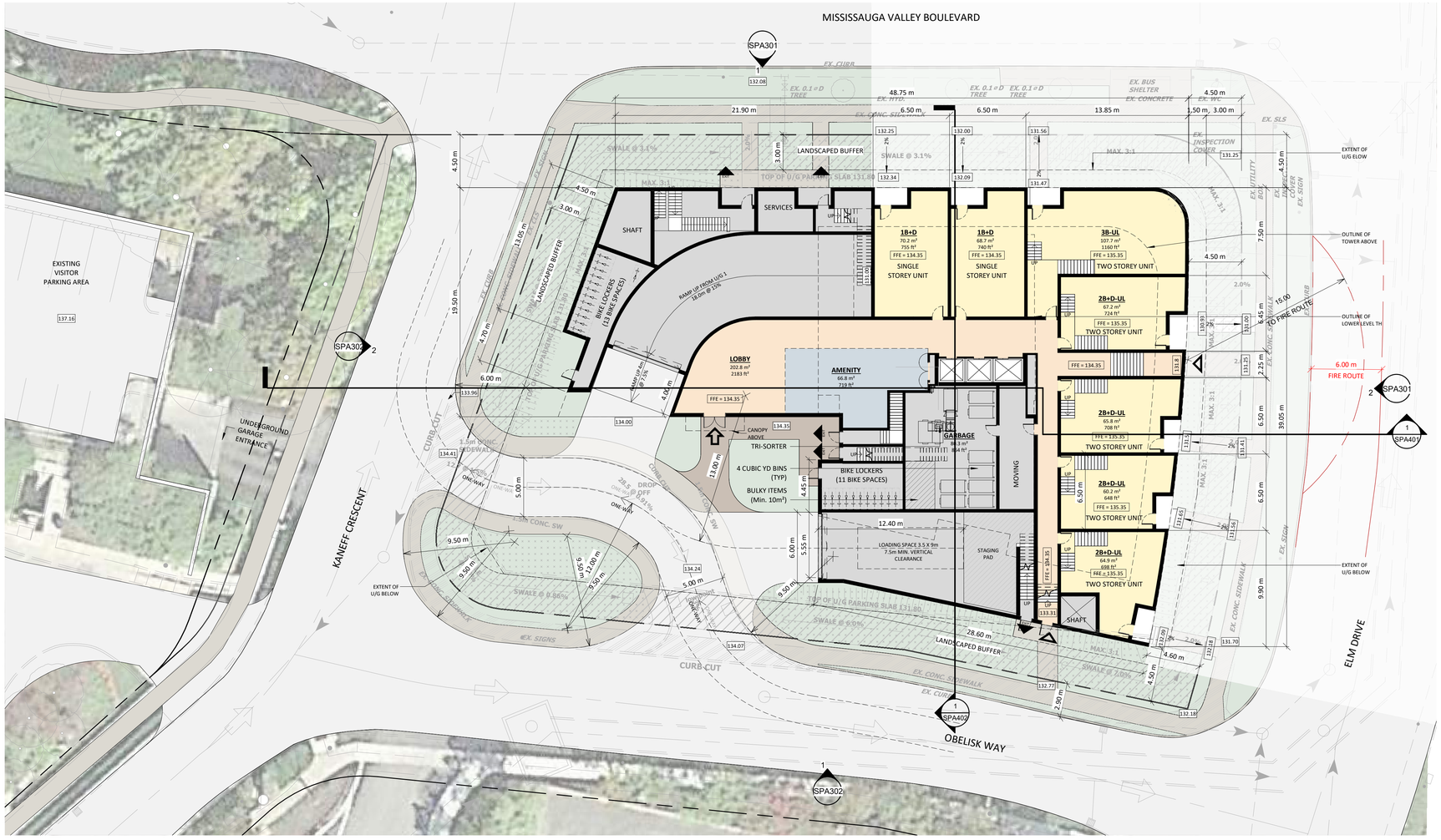
PROJECT
KANEFF CRESCENT
MISSISSAUGA, ON

DRAWING
SITE PLAN / ROOF PLAN

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	As indicated

DRAWING NO.
SPA003

2020-05-06 4:07:23 PM



RESIDENTIAL SOLID WASTE MANAGEMENT NOTES:

SOLID WASTE MANAGEMENT REQUIREMENTS AS PER THE PEEL WASTE COLLECTION DESIGN STANDARDS MANUAL:

PEEL WASTE MANAGEMENT REQUIRES INTERNAL STORAGE AREAS TO BE LARGE ENOUGH TO CONTAIN ALL THE REQUIRED NUMBER OF FRONT-END GARBAGE BINS, IN ADDITION TO A SPACE (A MINIMUM OF 10 M2) FOR THE STORAGE OF BULKY ITEMS.

THE AREA OF GARBAGE BINS IS CALCULATED AT 10 M2 FOR THE FIRST BIN AND 6M2 FOR EACH BIN THEREAFTER. EACH 4 CUBIC YARD BIN CONTAINING COMPACTED WASTE CAN ACCOMODATE 72 UNITS. FOR RECYCLABLE MATERIALS, EACH 10 UNITS REQUIRES 0.5 CUBIC YARDS OF SPACE WHICH ARE NOT TO BE COMPACTED.

THE TURNING RADIUS FROM THE CENTRE LINE HAS TO BE A MINIMUM OF 13 METRES ON ALL TURNS FOR THE WASTE COLLECTION VEHICLE WITH THE MAXIMUM GRADE CHANGE PERMITTED ALONG THE ACCESS ROUTE BEING 8%. THE COLLECTION AREA IS TO BE DESIGNED SUCH THAT IT WILL CONSIST OF A LEVEL (+/-2%) CONCRETE SURFACE.

TRAINED ON-SITE PERSONELL MUST MANEUVER COLLECTION BINS IN FRONT OF COLLECTION VEHICLE DURING COLLECTION DAY.

TRAINED ON-SITE PERSONNEL MUST ASSIST THE COLLECTION VEHICLE IN REVERSING OUT OF THE LOADING SPACE ON COLLECTION DAY.

THE FOLLOWING MINIMUM CLEARANCES ARE TO BE PROVIDED FOR THE WASTE COLLECTION VEHICLE:

- IN THE COLLECTION AREA AN OVERHEAD CLEARANCE OF 7.5 METRES FROM OBSTRUCTIONS SUCH AS BALCONIES, WIRES AND TREES MUST BE PROVIDED.
- OUTSIDE OF THE COLLECTION AREA AN OVERHEAD CLEARANCE OF 4.4 METRES FROM OBSTRUCTIONS SUCH AS BALCONIES, WIRES AND TREES MUST BE PROVIDED.

RESIDENTIAL WASTE MANAGEMENT CALCULATIONS:

WASTE STORAGE ROOM SIZE AND NUMBER OF BINS REQUIRED:

PROPOSED BUILDING WITH 282 UNITS REQUIRES:

282 / 72 = 3.9 BINS = 4 - FOUR-CUBIC YARD BINS
= 3 BINS @ 6m² + 1 BIN @ 10m²
= 28m² + 10m² (BULKY ITEMS)
= 38m² FOR SOLID WASTE

FOR RECYCLABLE MATERIALS:

282 / 10 = 28.2 *0.5 CUBIC YARD = 14.1 CUBIC YARD
= 4 FOUR-CUBIC YARD BINS
= 3 BINS @ 6m² + 1 BIN @ 10m²
= 28m²

TOWER A REQUIRES A GARBAGE ROOM 66m² IN SIZE CAPABLE OF ACCOMODATING: 4 BINS USED FOR SOLID WASTE, 4 BINS USED FOR RECYCLABLE MATERIALS AND 10m² FOR BULKY ITEMS.

PROVIDED GARBAGE ROOM AREA = 80.3 m²

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LEGEND

- PRIMARY RESIDENTIAL ENTRANCE
- SECONDARY RESIDENTIAL ENTRANCE
- RETAIL ENTRANCE
- EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION

#	DATE	DESCRIPTION	BY

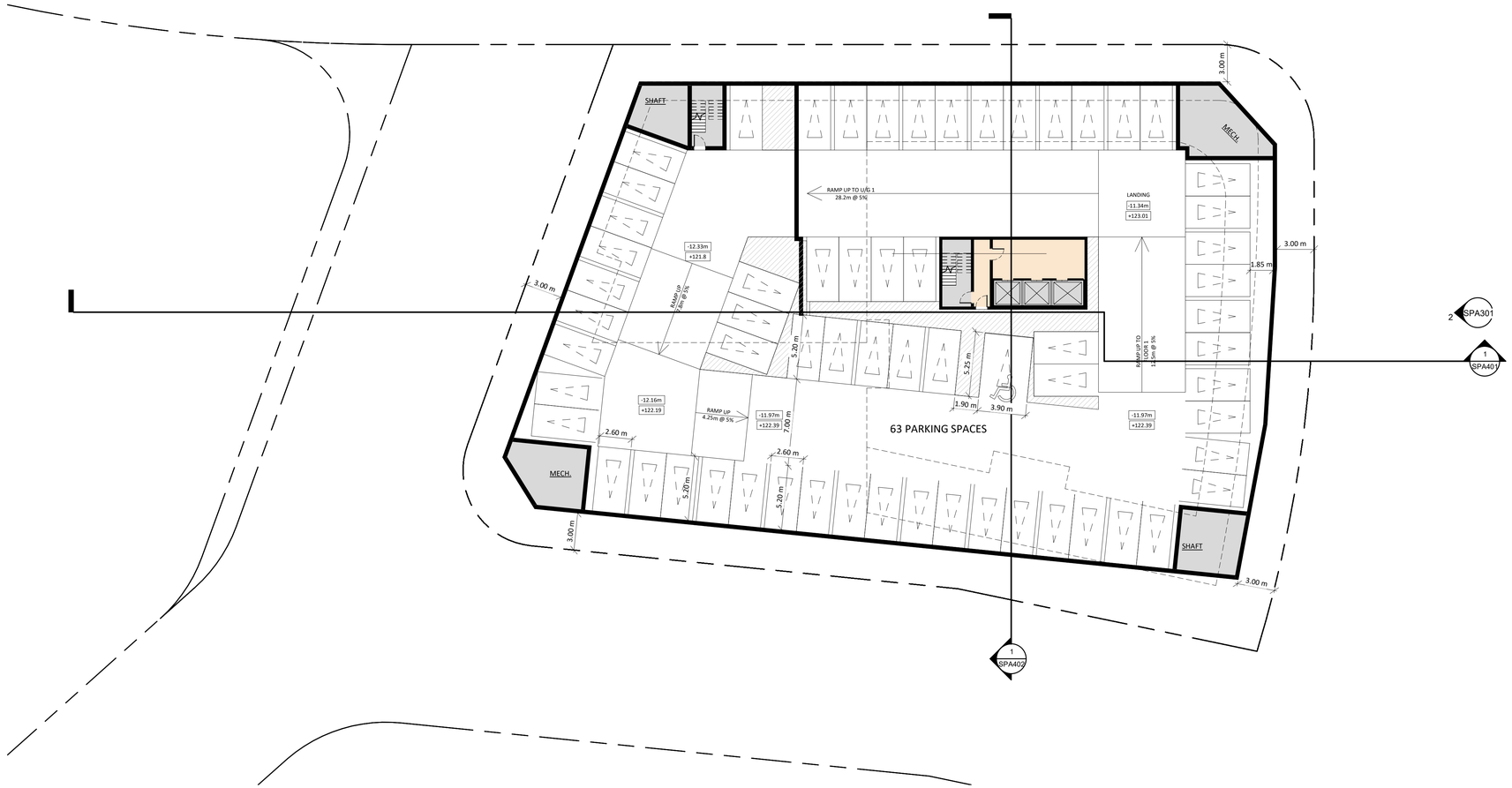
PROJECT
KANEFF CRESCENT
MISSISSAUGA, ON

DRAWING
RESIDENTIAL SOLID WASTE MANAGEMENT

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	Author
CHECKED BY	Checker
SCALE	As indicated

DRAWING NO.
SPA004

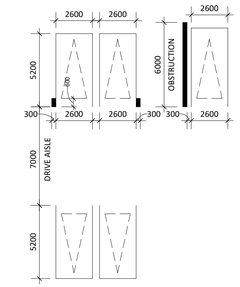
2020-05-06 4:07:26 PM

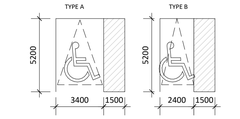


TYPICAL PARKING DIMENSIONS:

AISLE WIDTH: MIN 7m

TYPICAL PARKING SPACE:
MIN 2.6 x 5.2 x 2.0m HIGH





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#	DATE	DESCRIPTION	BY

PROJECT
KANEFF CRESCENT

MISSISSAUGA, ON

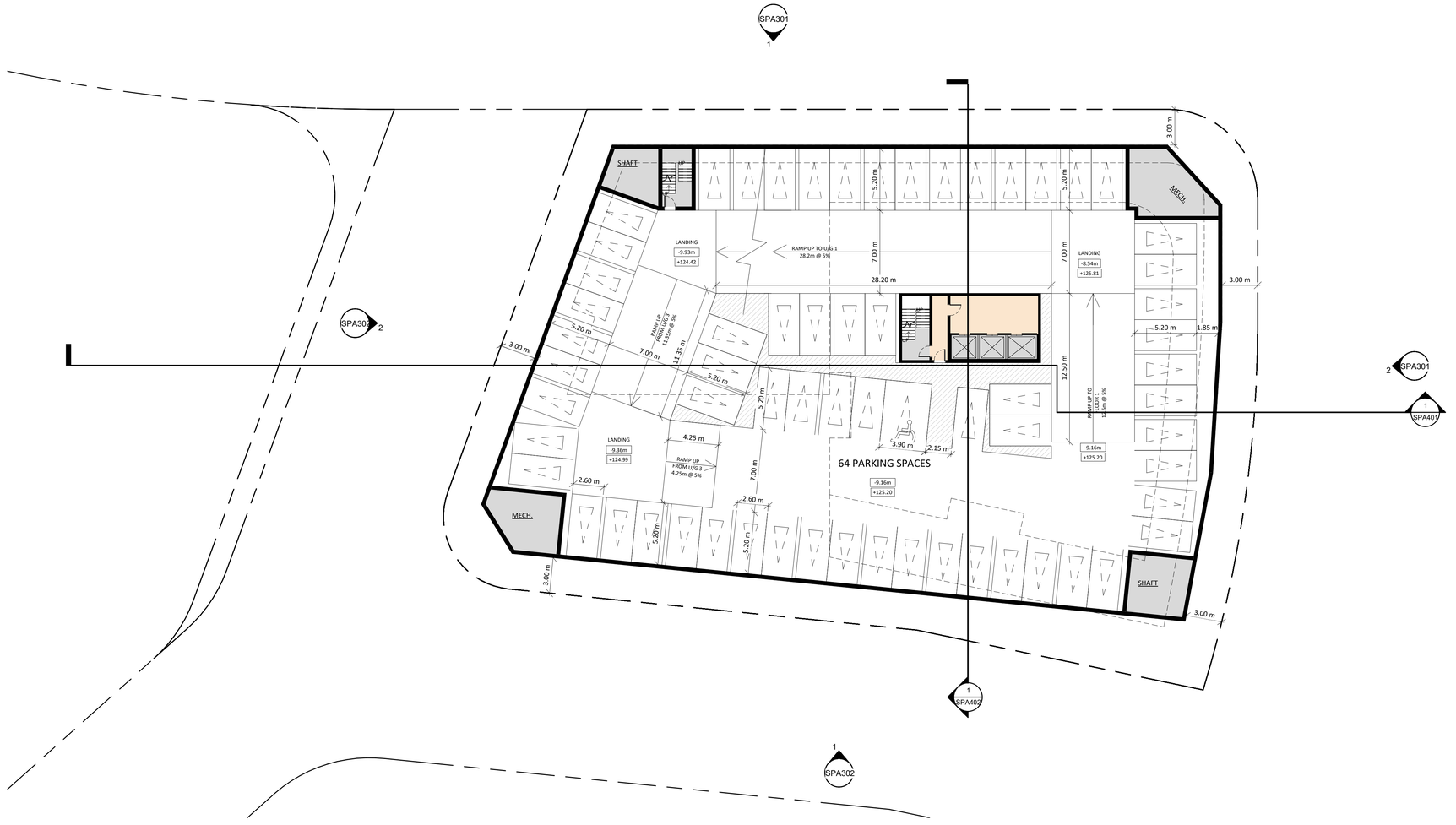
DRAWING
UNDERGROUND LEVEL 3

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200

N

DRAWING NO.
SPA101

2020-05-06 4:07:26 PM



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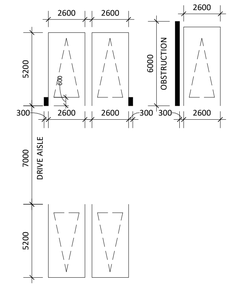
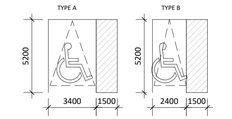
TYPICAL PARKING DIMENSIONS:

AISLE WIDTH: MIN 7m

TYPICAL PARKING SPACE:
MIN 2.6 x 5.2 x 2.0m HIGH





#	DATE	DESCRIPTION	BY

PROJECT
KANEFF CRESCENT
MISSISSAUGA, ON

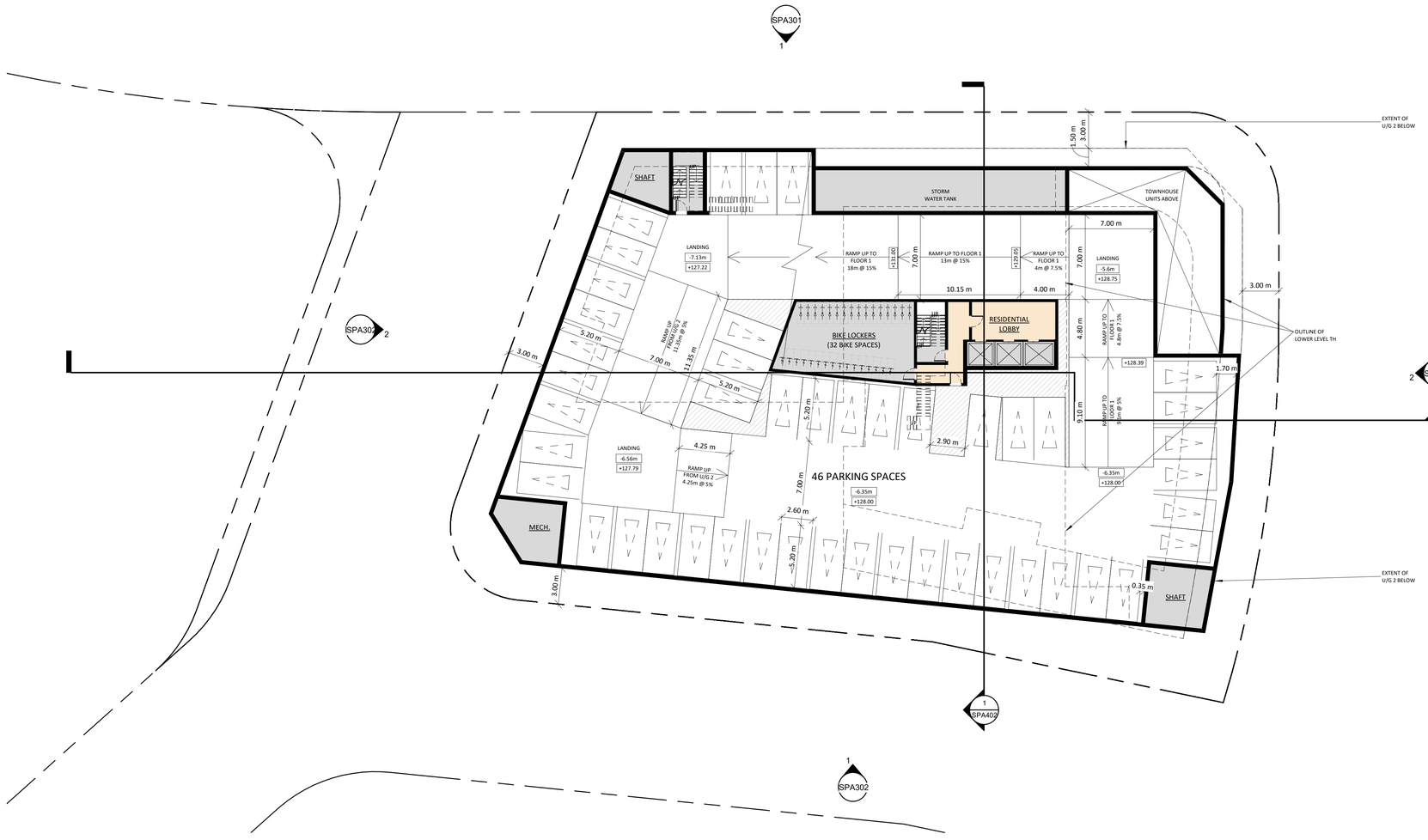
DRAWING
UNDERGROUND LEVEL 2

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200

N

DRAWING NO.
SPA102

2020-05-06 4:07:27 PM



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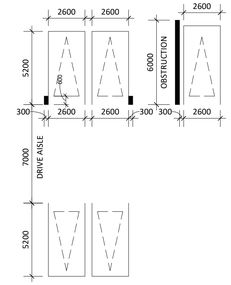
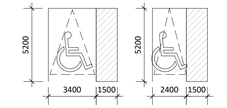
TYPICAL PARKING DIMENSIONS:

AISLE WIDTH: MIN 7m

TYPICAL PARKING SPACE:
MIN 2.6 x 5.2 x 2.0m HIGH





#	DATE	DESCRIPTION	BY

PROJECT
KANEFF CRESCENT
MISSISSAUGA, ON

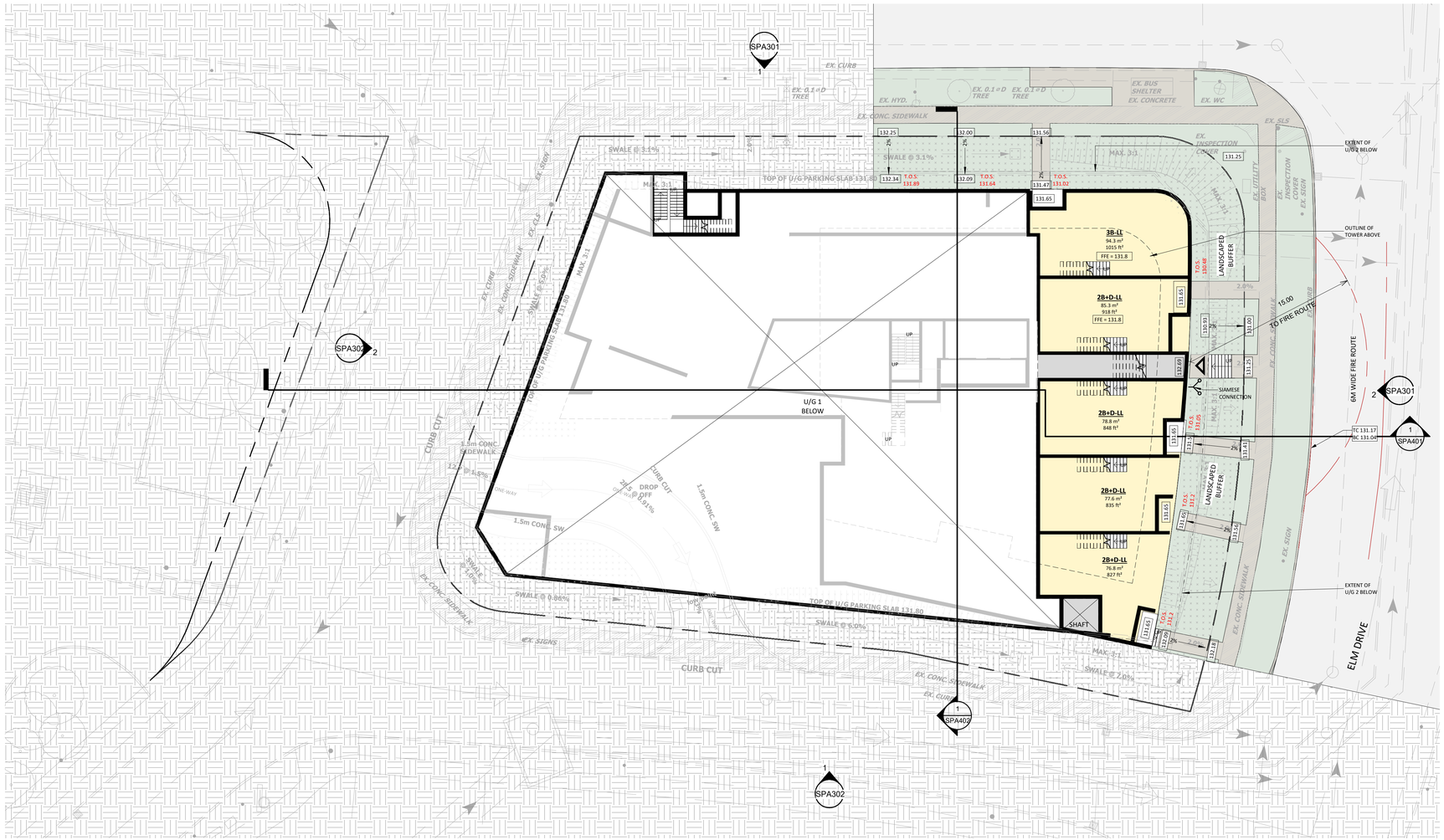
DRAWING
UNDERGROUND LEVEL 1

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200

N

DRAWING NO.
SPA103

2020-05-06 4:07:28 PM



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LEGEND

- PRIMARY RESIDENTIAL ENTRANCE
- SECONDARY RESIDENTIAL ENTRANCE
- RETAIL ENTRANCE
- EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION

#	DATE	DESCRIPTION	BY

PROJECT

KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING

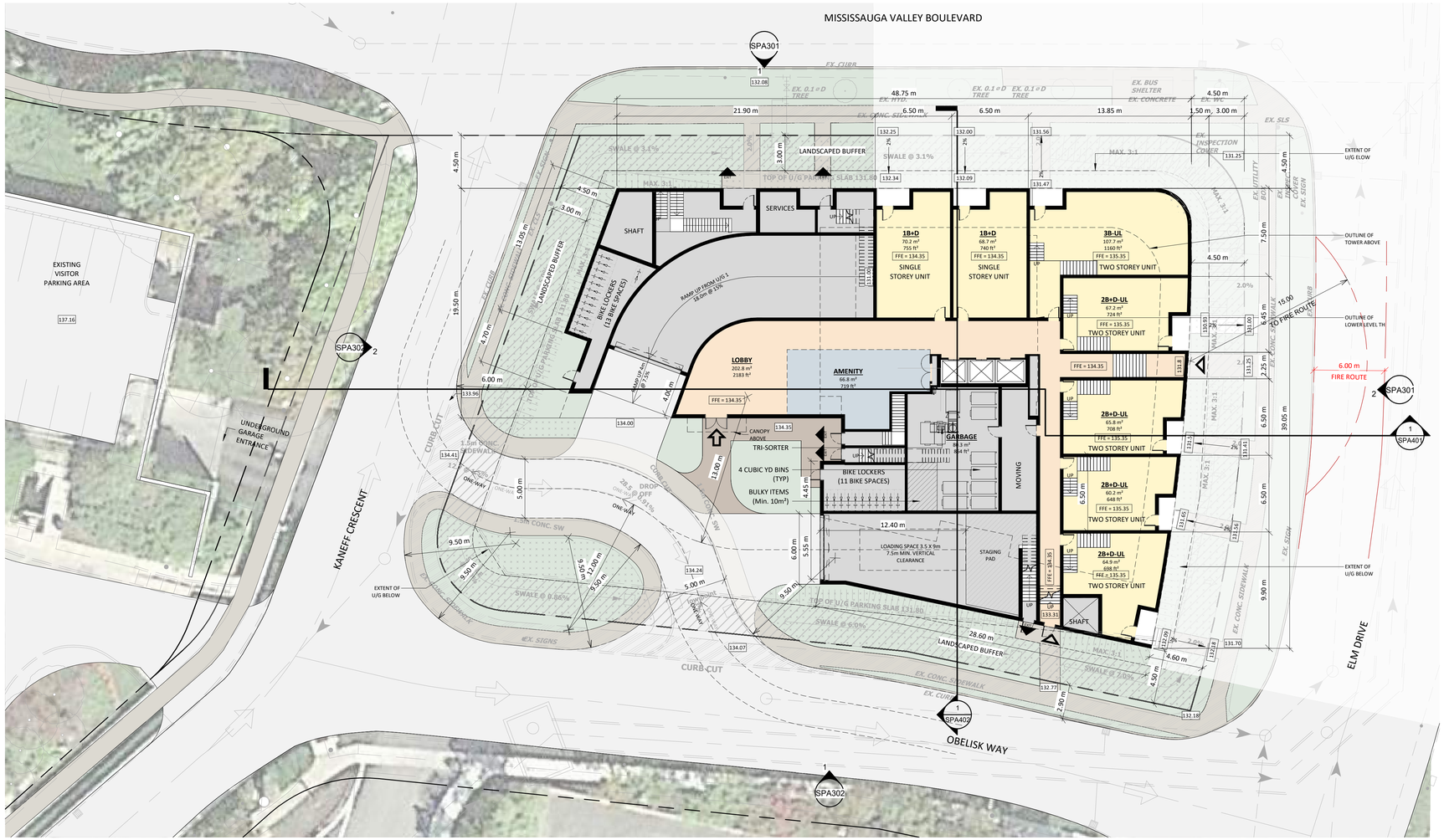
GROUND FLOOR LOWER LEVEL

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	Author
CHECKED BY	Checker
SCALE	As indicated

DRAWING NO.

SPA104

2020-05-06 4:07:29 PM



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LEGEND

- PRIMARY RESIDENTIAL ENTRANCE
- SECONDARY RESIDENTIAL ENTRANCE
- RETAIL ENTRANCE
- EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION

#	DATE	DESCRIPTION	BY

PROJECT

KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING

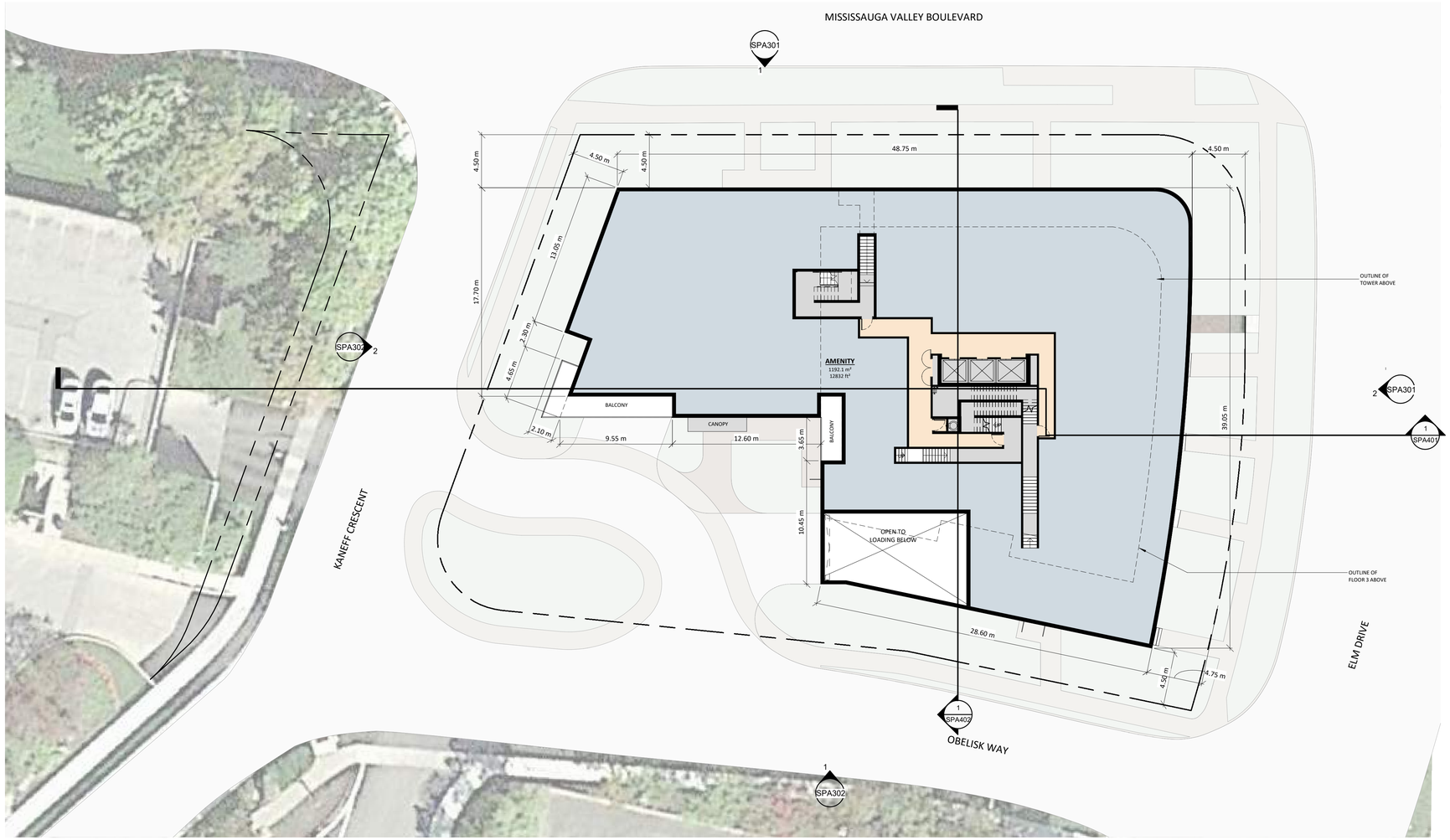
GROUND FLOOR

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	As indicated

DRAWING NO.

SPA105

2020-05-06 4:07:30 PM



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#	DATE	DESCRIPTION	BY

PROJECT

KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING

FLOOR 2

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200

N

DRAWING NO.

SPA106

2020-05-06 4:07:32 PM

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#	DATE	DESCRIPTION	BY

PROJECT
KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING
FLOOR 3

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200

DRAWING NO.
SPA107

2020-05-06 4:07:33 PM

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#	DATE	DESCRIPTION	BY

PROJECT

KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING

FLOOR 5

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200

N

DRAWING NO.

SPA108

2020-05-06 4:07:35 PM

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#	DATE	DESCRIPTION	BY

PROJECT
KANEFF CRESCENT

MISSISSAUGA, ON

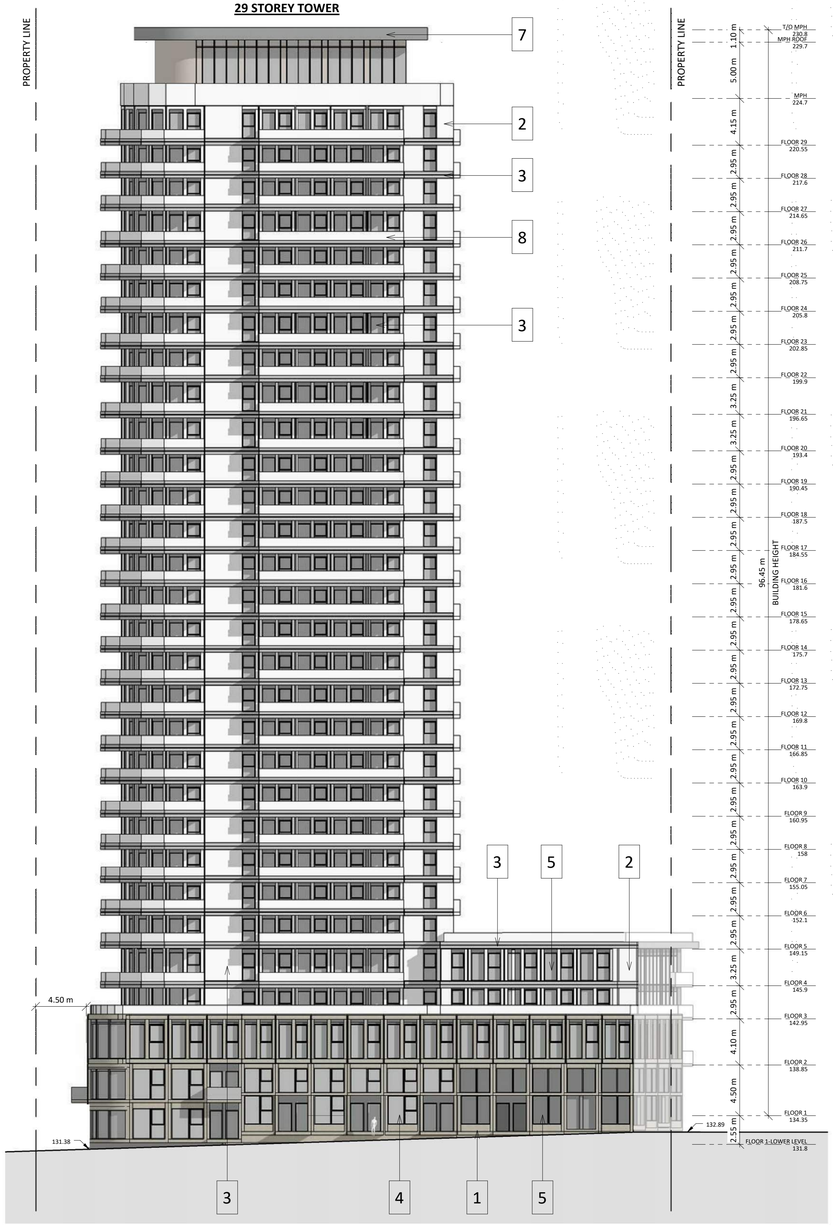
DRAWING
TYPICAL TOWER FLOOR

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200

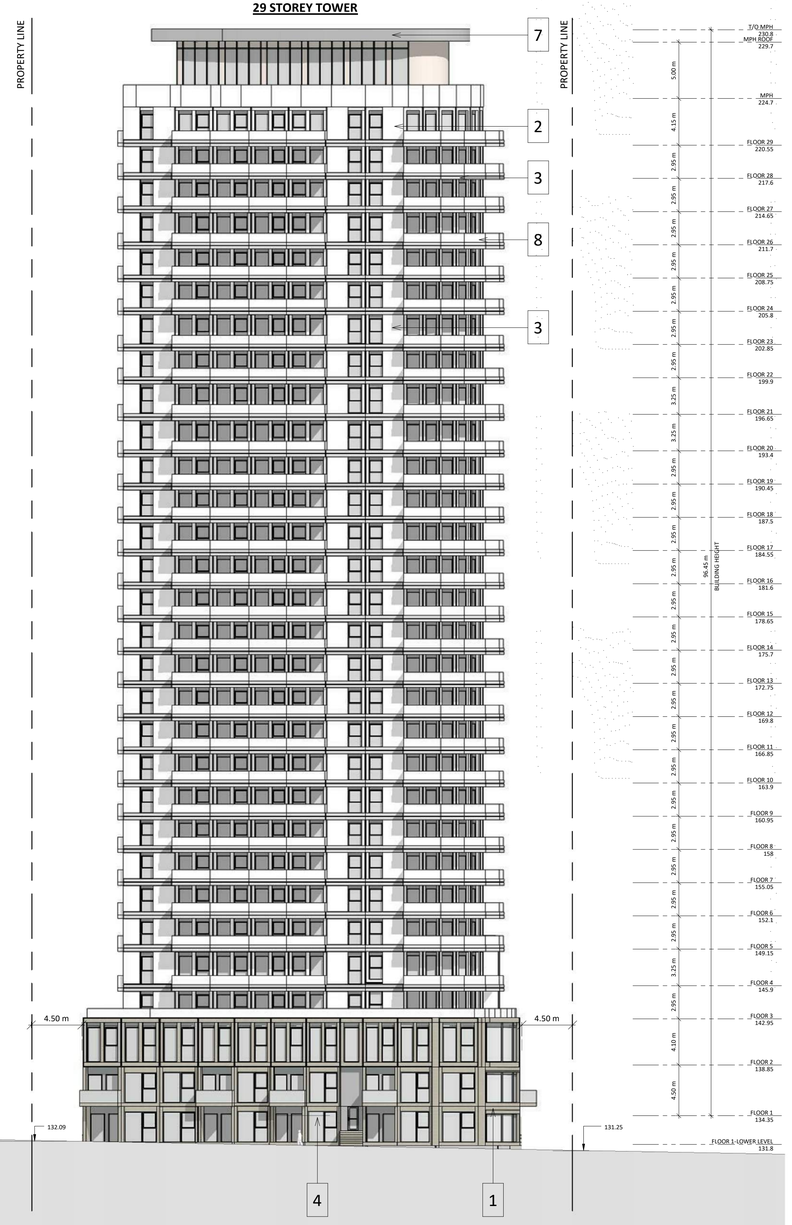
N

DRAWING NO.
SPA109

2020-05-06 4:07:36 PM



1 UPA301 NORTH ELEVATION
1 : 250



2 UPA301 EAST ELEVATION
1 : 250

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MATERIAL LEGEND

1 - PRECAST WITH STONE PATTERN (LIGHT BROWN)
2 - PRECAST (WHITE)
3 - PRECAST (LIGHT GREY)
4 - CLEAR VISION GLASS
5 - SPANDREL GLASS (DARK GREY)
6 - METAL PANEL (COPPER)
7 - METAL PANEL OR PRECAST (DARK GREY)
8 - GLASS RAILING (TRANSLUCENT)

#	DATE	DESCRIPTION	BY

PROJECT
KANEFF CRESCENT
MISSISSAUGA, ON

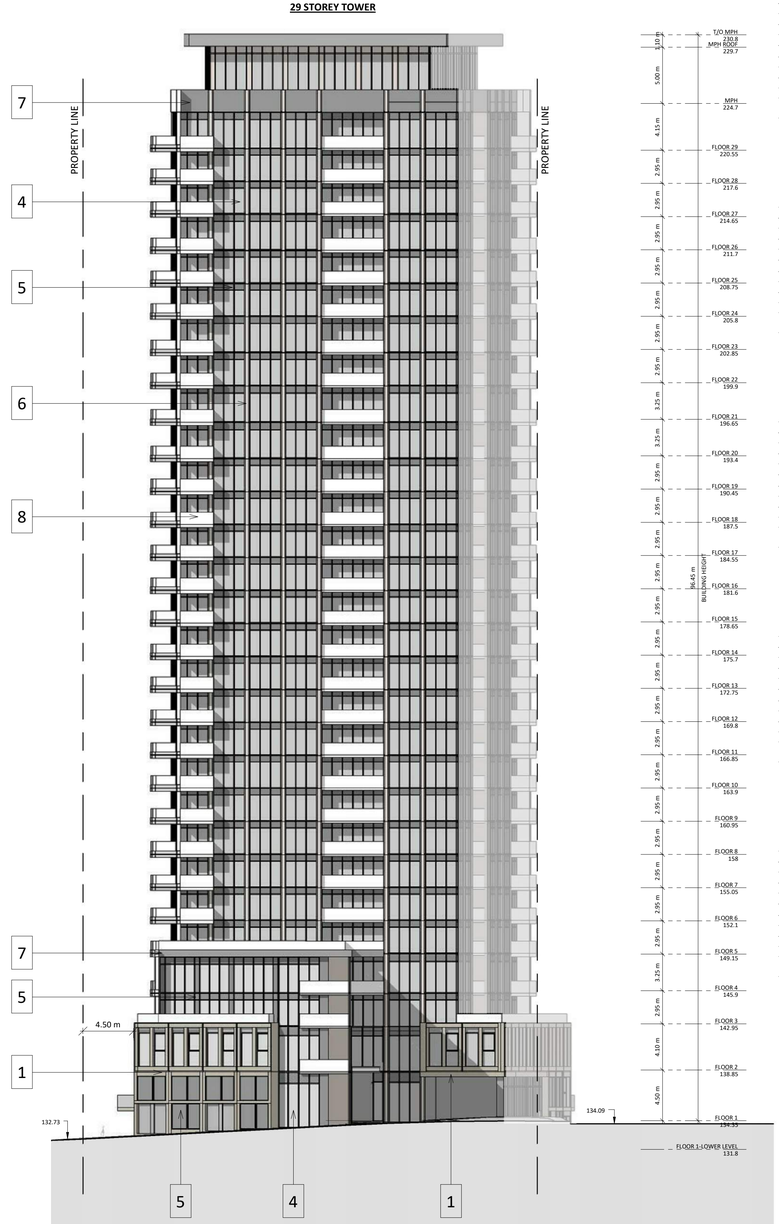
DRAWING
ELEVATIONS

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	Author
CHECKED BY	Checker
SCALE	1 : 250

DRAWING NO.
SPA301

2020-05-06 4:07:38 PM

1 SPA302 SOUTH ELEVATION
1 : 250



2 SPA302 WEST ELEVATION
1 : 250

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MATERIAL LEGEND

1 - PRECAST WITH STONE PATTERN (LIGHT BROWN)
2 - PRECAST (WHITE)
3 - PRECAST (LIGHT GREY)
4 - CLEAR VISION GLASS
5 - SPANDREL GLASS (DARK GREY)
6 - METAL PANEL (COPPER)
7 - METAL PANEL OR PRECAST (DARK GREY)
8 - GLASS RAILING (TRANSLUCENT)

#	DATE	DESCRIPTION	BY

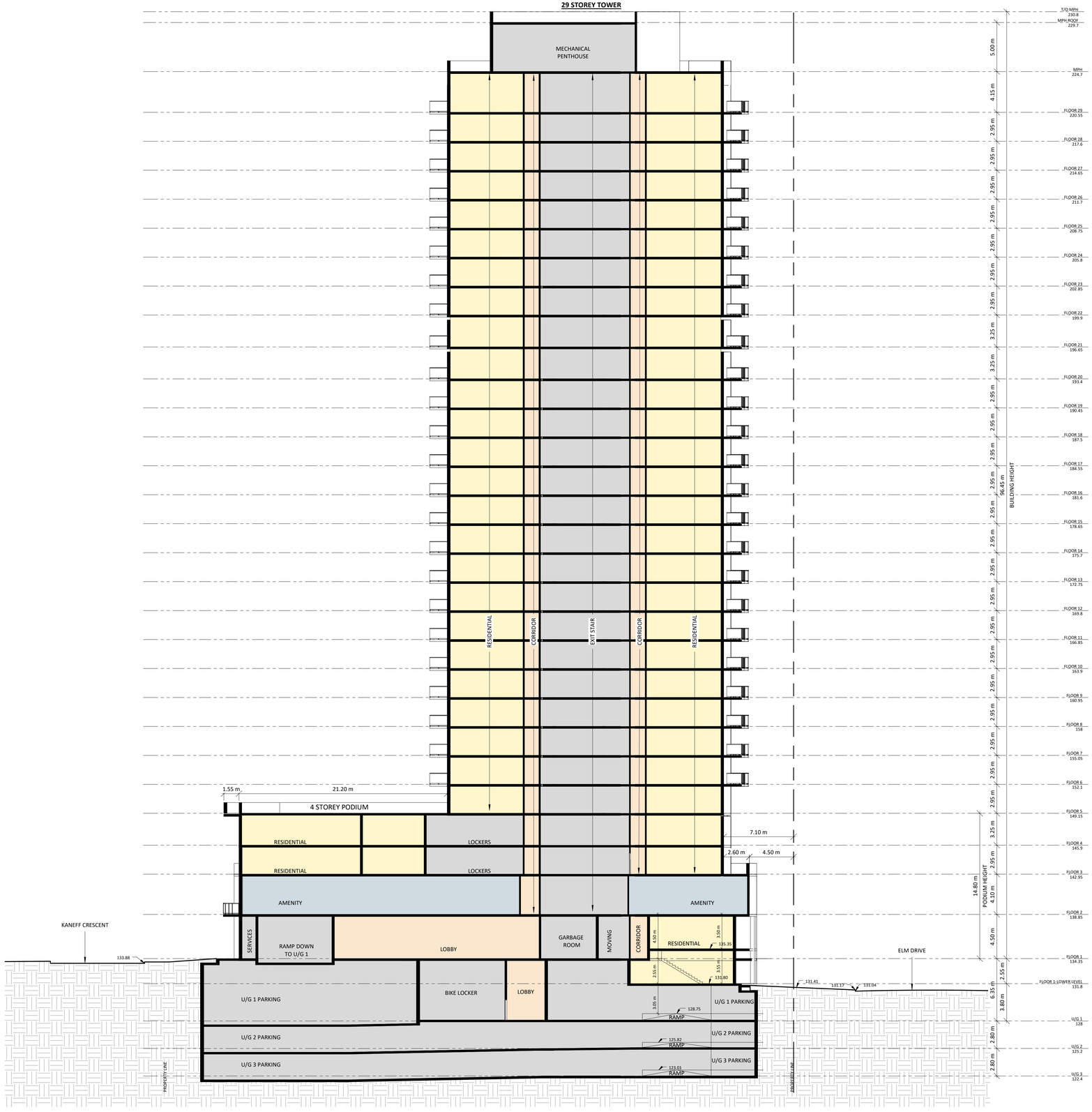
PROJECT
KANEFF CRESCENT
MISSISSAUGA, ON

DRAWING
ELEVATIONS

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	Author
CHECKED BY	Checker
SCALE	1 : 250

DRAWING NO.
SPA302

2020-05-08 4:07:40 PM



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#	DATE	DESCRIPTION	BY

PROJECT

KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING

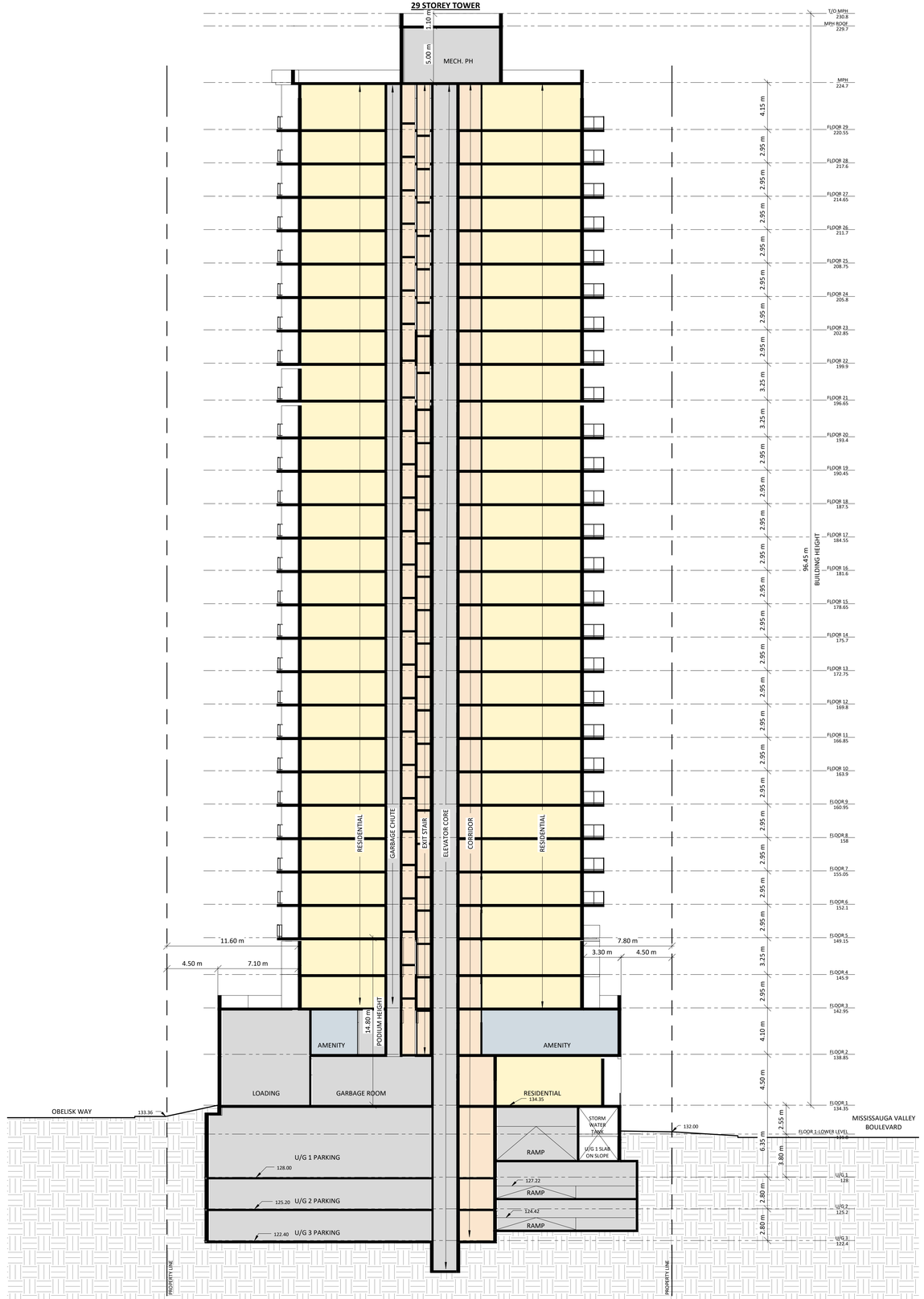
SECTION

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	MPA
CHECKED BY	RMM
SCALE	1 : 200

DRAWING NO.

SPA401

2020-05-06 4:07:42 PM



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#	DATE	DESCRIPTION	BY

PROJECT

KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING

SECTION

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	CPI
CHECKED BY	RMM
SCALE	1 : 200

DRAWING NO.

SPA402

2020-05-06 4:07:43 PM

VIEW LOOKING SOUTH-WEST FROM MISSISSAUGA VALLEY BOULEVARD

VIEW OF ELM STREET (EAST) ELEVATION

VIEW LOOKING NORTH-WEST ON ELM DRIVE

VIEW LOOKING NORTH-EAST FROM KANEFF CRESCENT

2020-05-06 4:07:43 PM

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#	DATE	DESCRIPTION	BY

PROJECT

KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING

3D PERSPECTIVES

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	Author
CHECKED BY	Checker
SCALE	

DRAWING NO.

SPA801

VIEW LOOKING SOUTH-WEST FROM MISSISSAUGA VALLEY BOULEVARD

VIEW OF ELM STREET (EAST) ELEVATION

VIEW LOOKING NORTH-WEST ON ELM DRIVE

VIEW LOOKING NORTH-EAST FROM KANEFF CRESCENT

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#	DATE	DESCRIPTION	BY

PROJECT

KANEFF CRESCENT

MISSISSAUGA, ON

DRAWING

3D PERSPECTIVES

PROJECT NO.	16.286
PROJECT DATE	2018-04-20
DRAWN BY	Author
CHECKED BY	Checker
SCALE	

DRAWING NO.

SPA802

2020-05-06 4:07:44 PM

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 %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

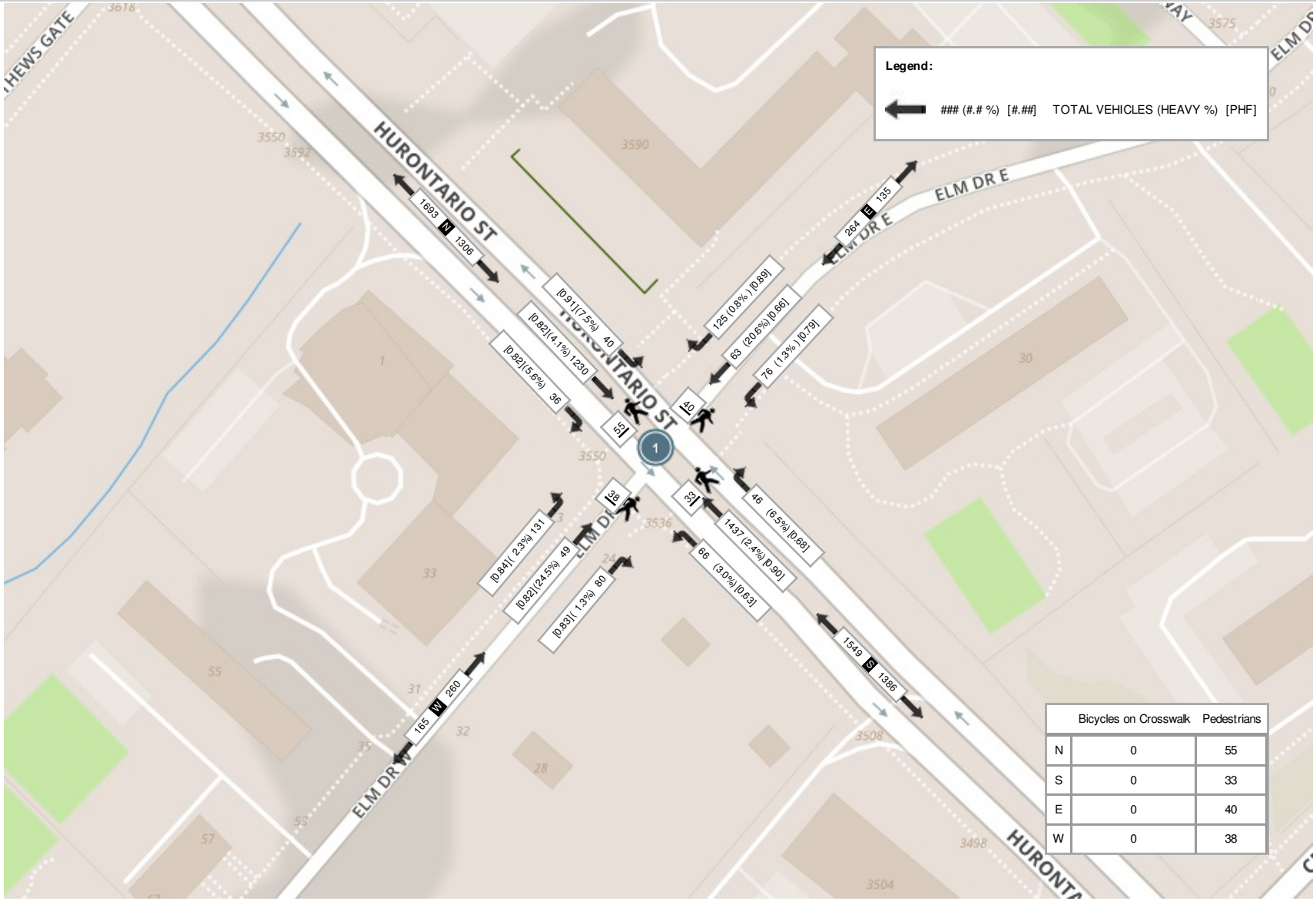
Peak Hour: 07:45 AM - 08:45 AM Weather: Few Clouds (-2.64 °C)

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)

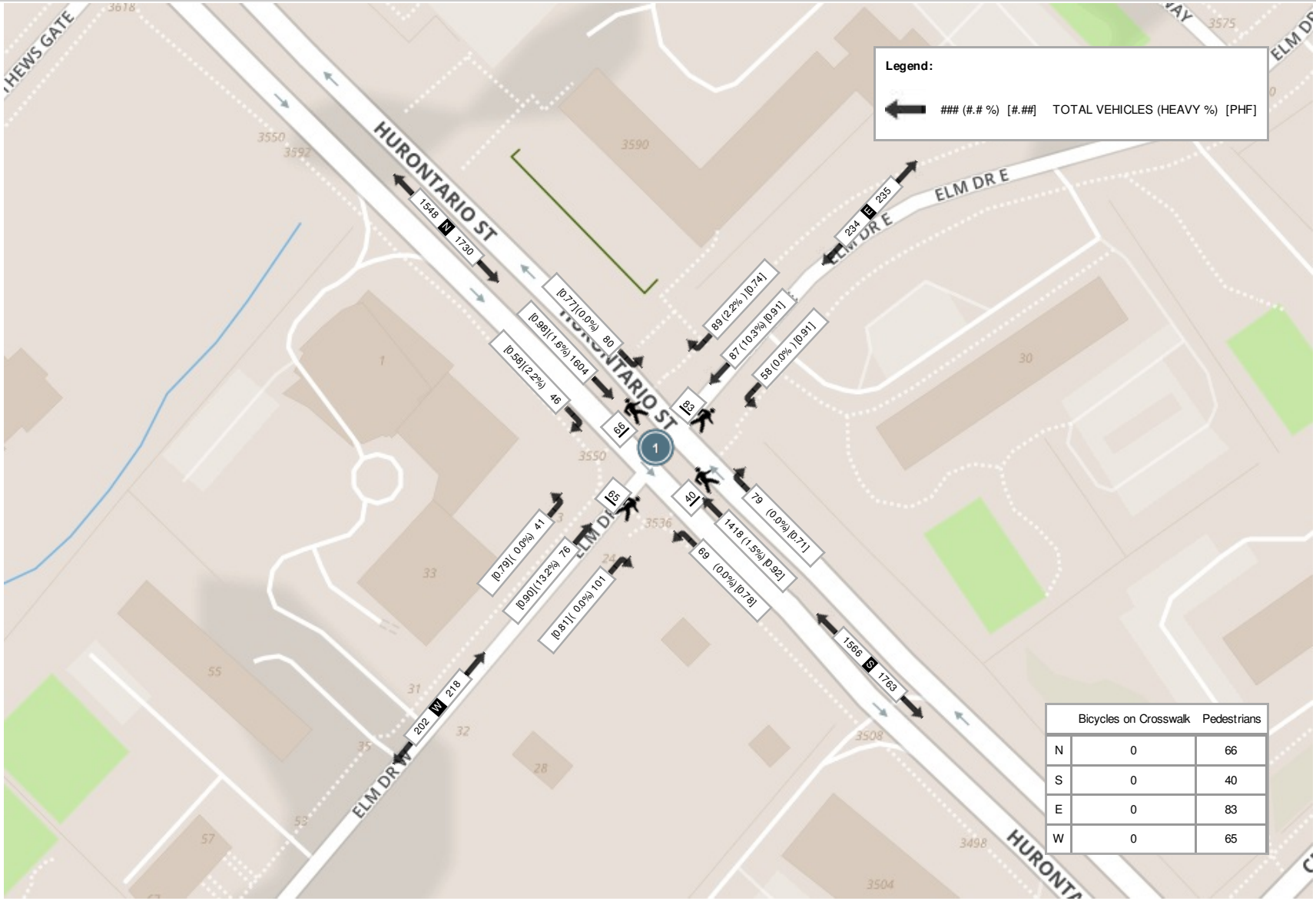
Start Time	N Approach HURONTARIO ST						E Approach ELM DR						S Approach HURONTARIO ST						W Approach ELM DR						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach 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)



	Bicycles on Crosswalk	Pedestrians
N	0	55
S	0	33
E	0	40
W	0	38

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 %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

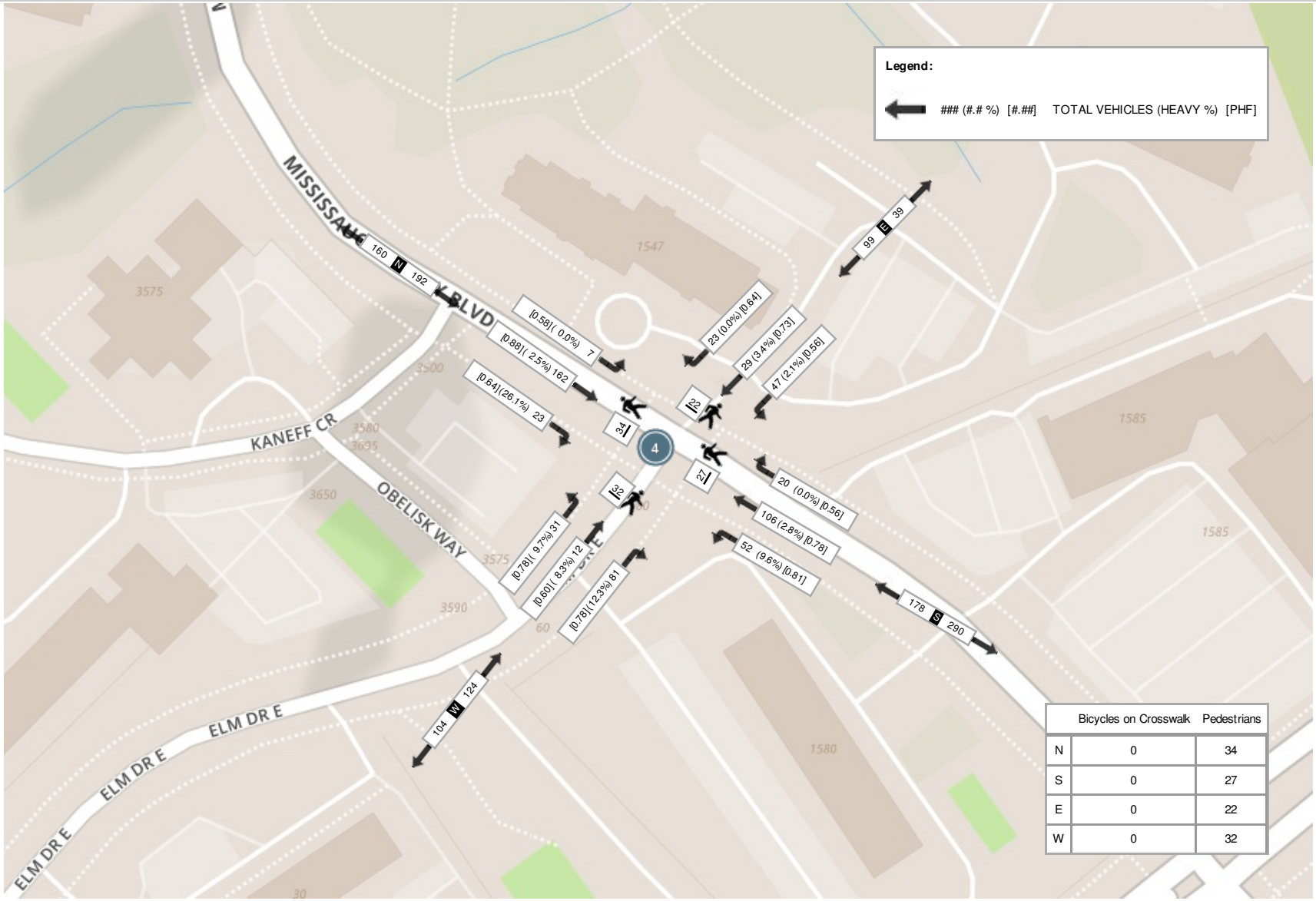
Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)

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%		-

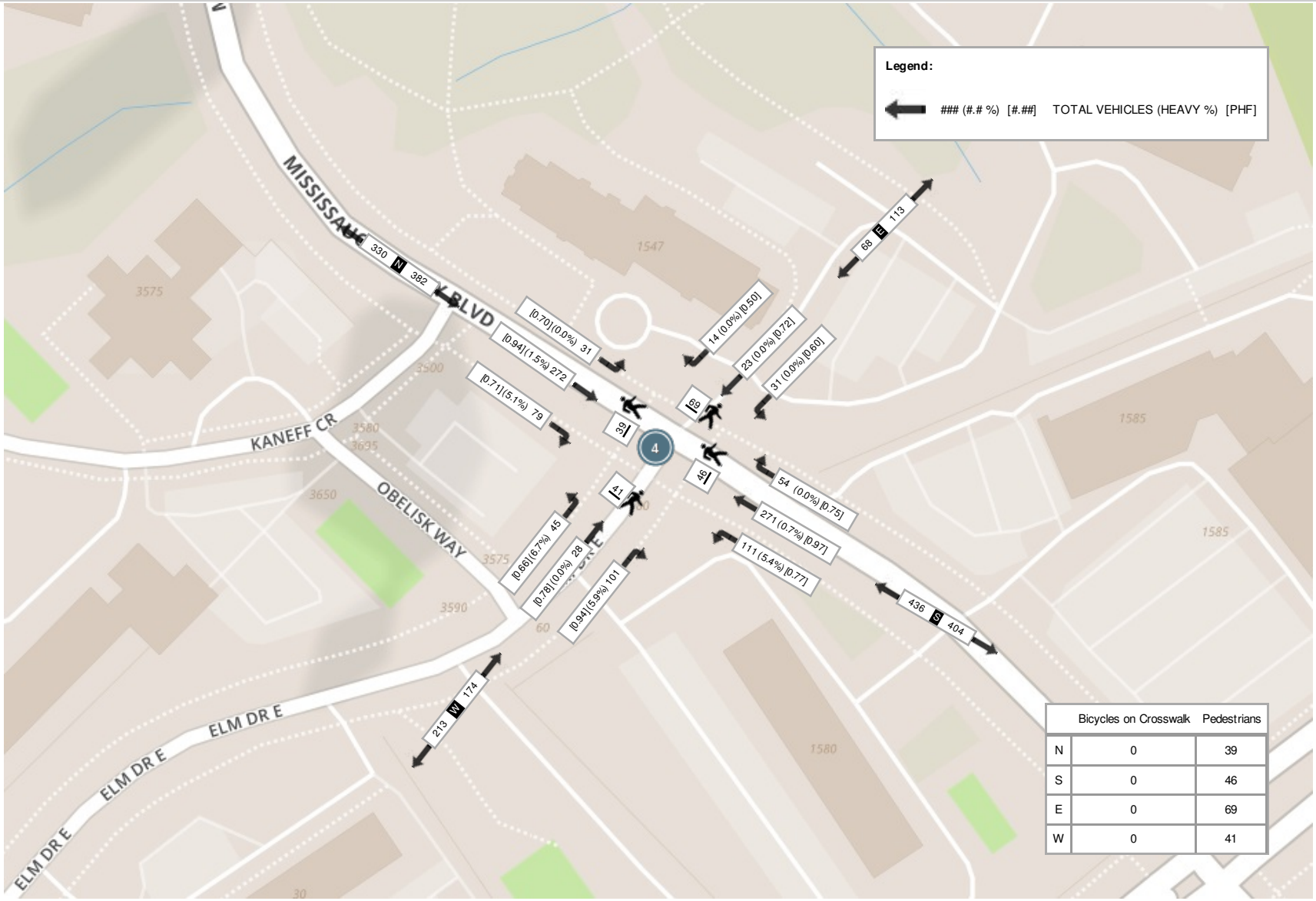
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (1.65 °C)

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)



	Bicycles on Crosswalk	Pedestrians
N	0	39
S	0	46
E	0	69
W	0	41

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 %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

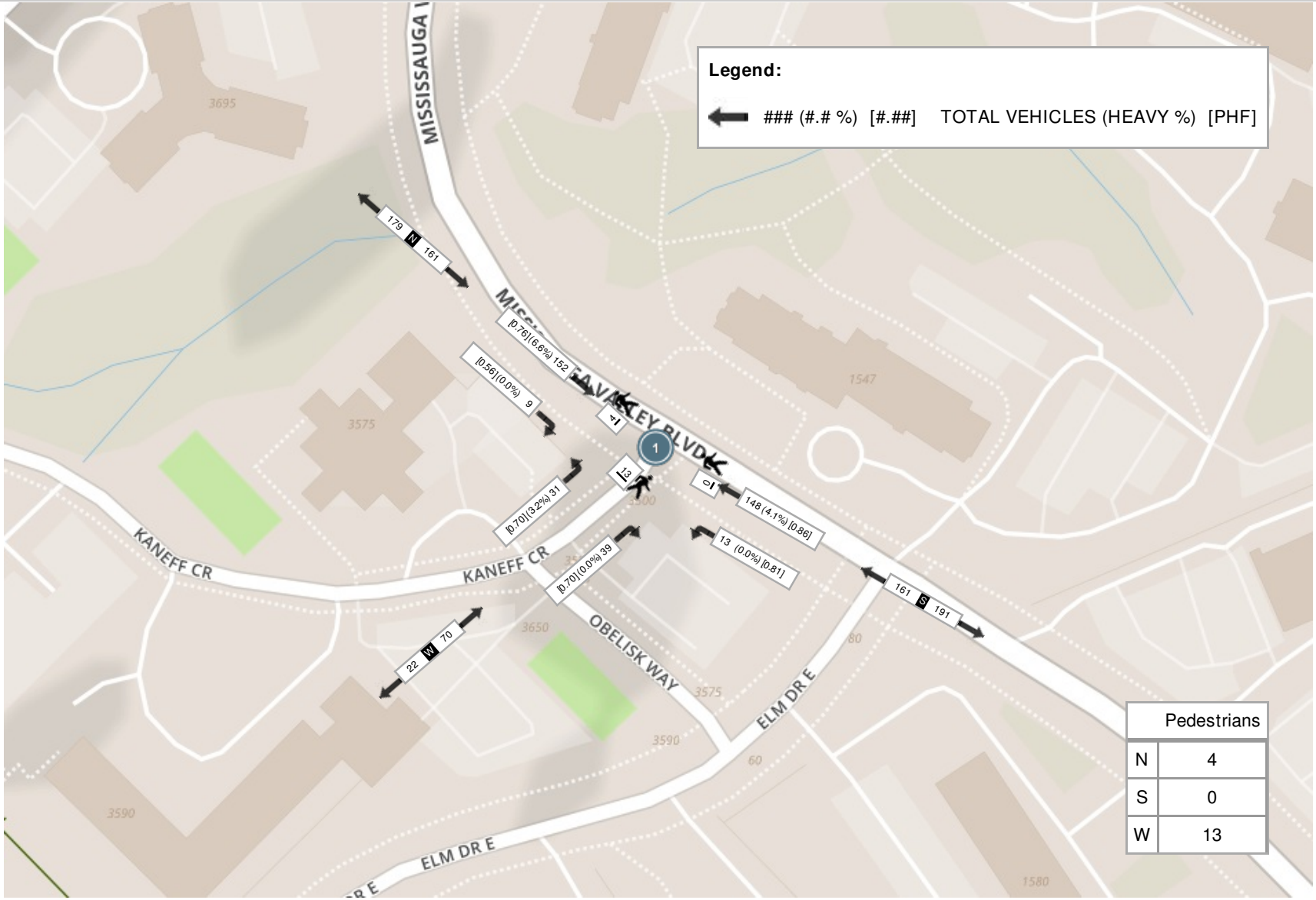
Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)

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%		-

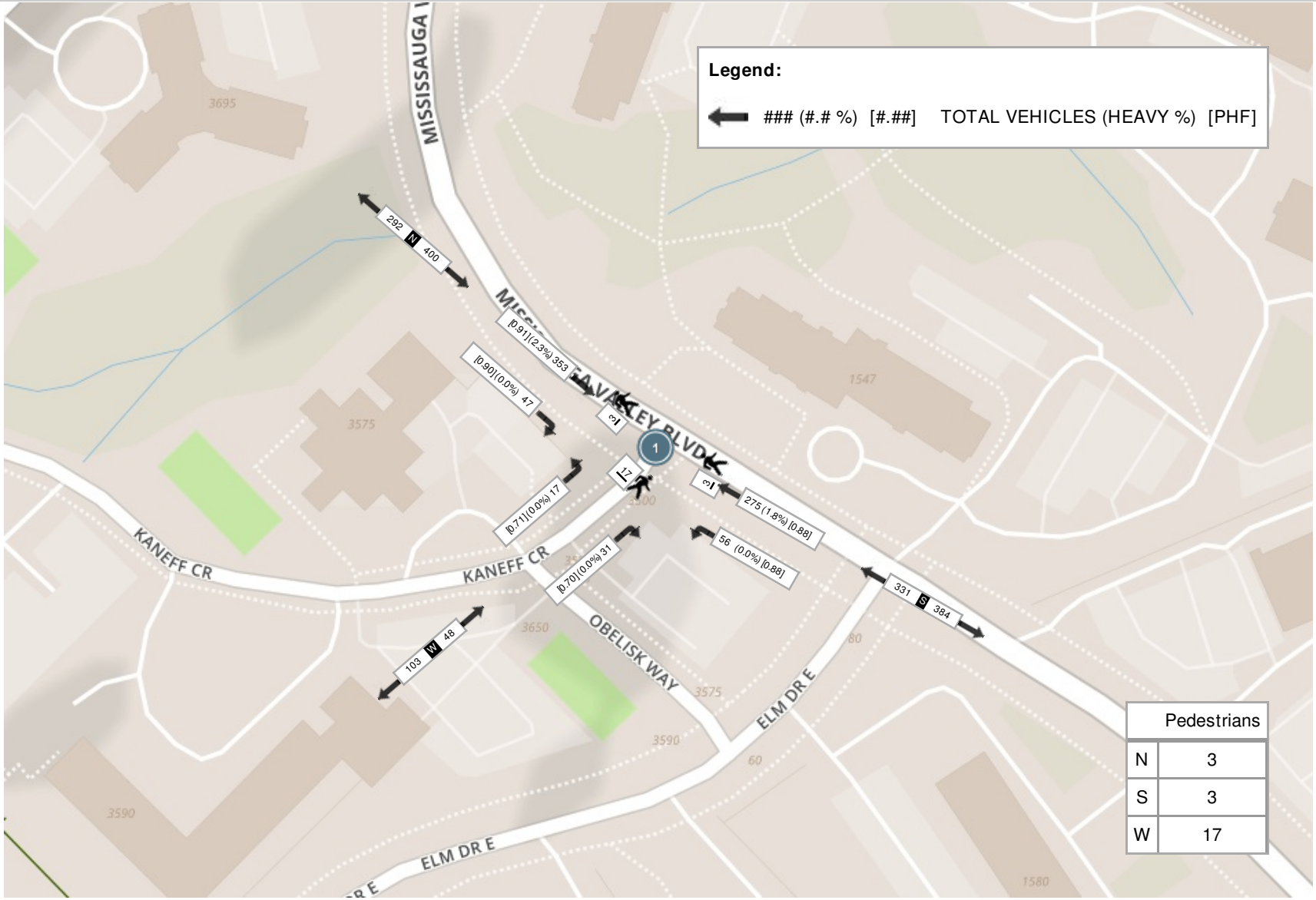
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (1.65 °C)

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 %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

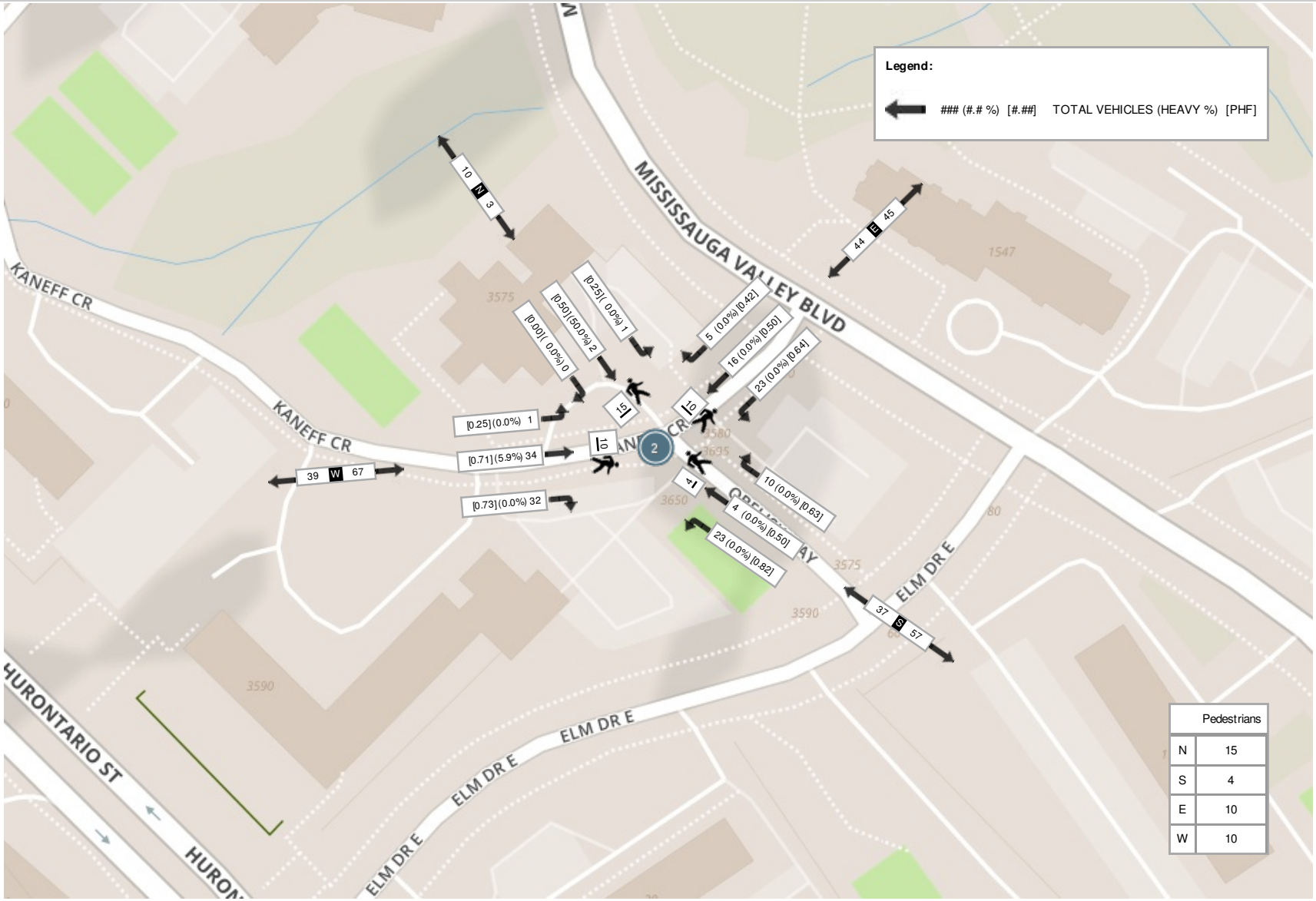
Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (1 °C)

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%	3.3%	10.5%	15.1%	0%		28.9%	6.6%	2.6%	15.1%	0.7%		25%	21.1%	22.4%	0.7%	0%		44.1%	**-**
PHF	0	0.5	0.25	0		0.38	0.42	0.5	0.64	0		0.85	0.63	0.5	0.82	0.25		0.73	0.73	0.71	0.25	0		0.84	**-**
Heavy	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	**-**
Heavy %	0%	50%	0%	0%		33.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	5.9%	0%	0%		3%	**-**
Lights	0	1	1	0		2	5	16	23	0		44	10	4	23	1		38	32	32	1	0		65	**-**
Lights %	0%	50%	100%	0%		66.7%	100%	100%	100%	0%		100%	100%	100%	100%	100%		100%	100%	94.1%	100%	0%		97%	**-**
Single-Unit Trucks	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	50%	0%	0%		33.3%	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	2	0	0		2	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	5.9%	0%	0%		3%	**-**
Pedestrians	-	-	-	-	15	-	-	-	-	-	10	-	-	-	-	-	4	-	-	-	-	-	10	-	**-**
Pedestrians%	-	-	-	-	38.5%		-	-	-	-	25.6%		-	-	-	-	10.3%		-	-	-	-	25.6%		**-**

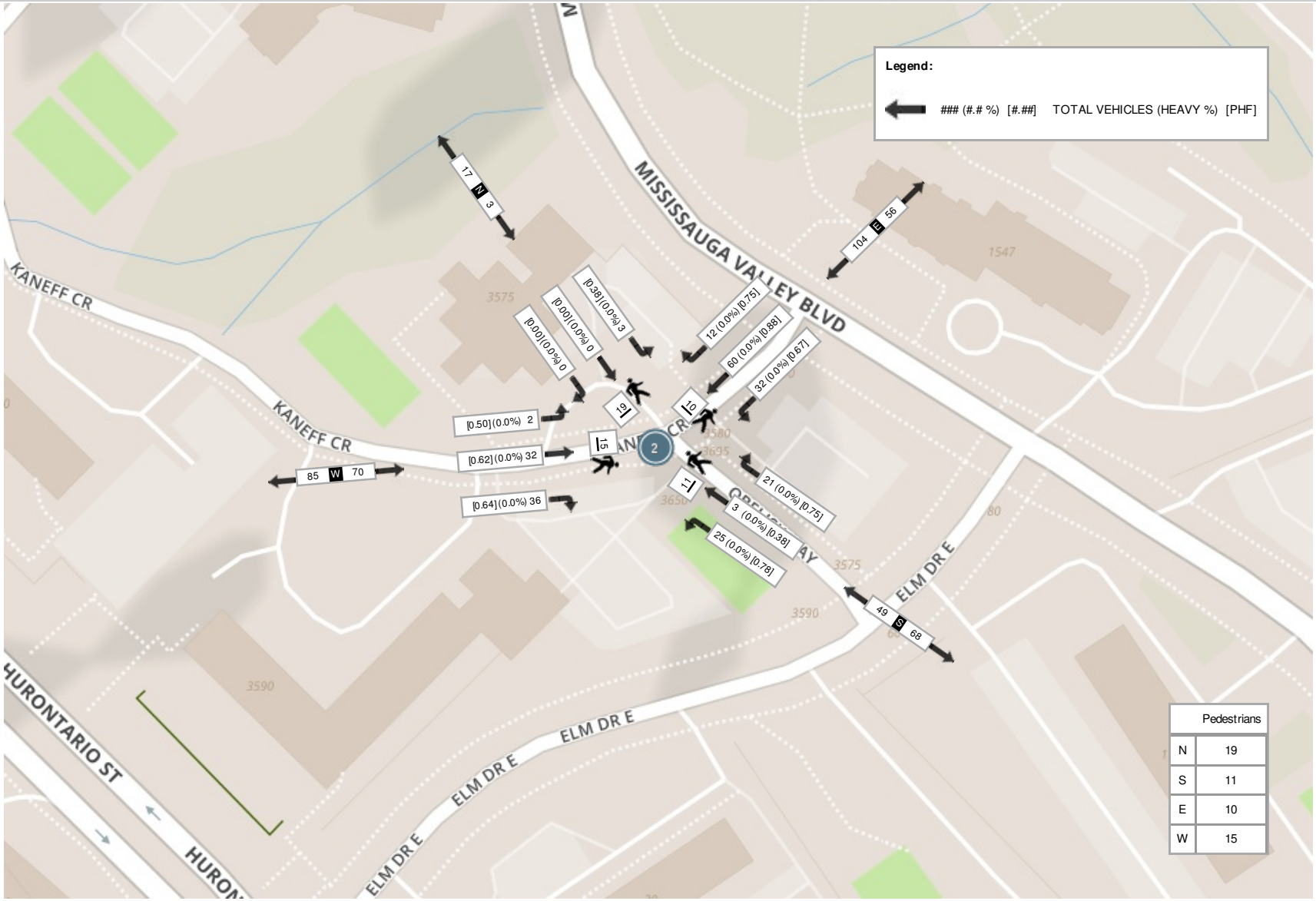
Peak Hour: 05:45 PM - 06:45 PM Weather: Overcast Clouds (1.65 °C)

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%	5.3%	26.5%	14.2%	0%		46%	9.3%	1.3%	11.1%	0%		21.7%	15.9%	14.2%	0.9%	0%		31%	-
PHF	0	0	0.38	0		0.38	0.75	0.88	0.67	0		0.87	0.75	0.38	0.78	0		0.77	0.64	0.62	0.5	0		0.76	-
Heavy	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%	-
Lights	0	0	3	0		3	12	60	32	0		104	21	3	25	0		49	36	32	2	0		70	-
Lights %	0%	0%	100%	0%		100%	100%	100%	100%	0%		100%	100%	100%	100%	0%		100%	100%	100%	100%	0%		100%	-
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	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%	-
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 %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

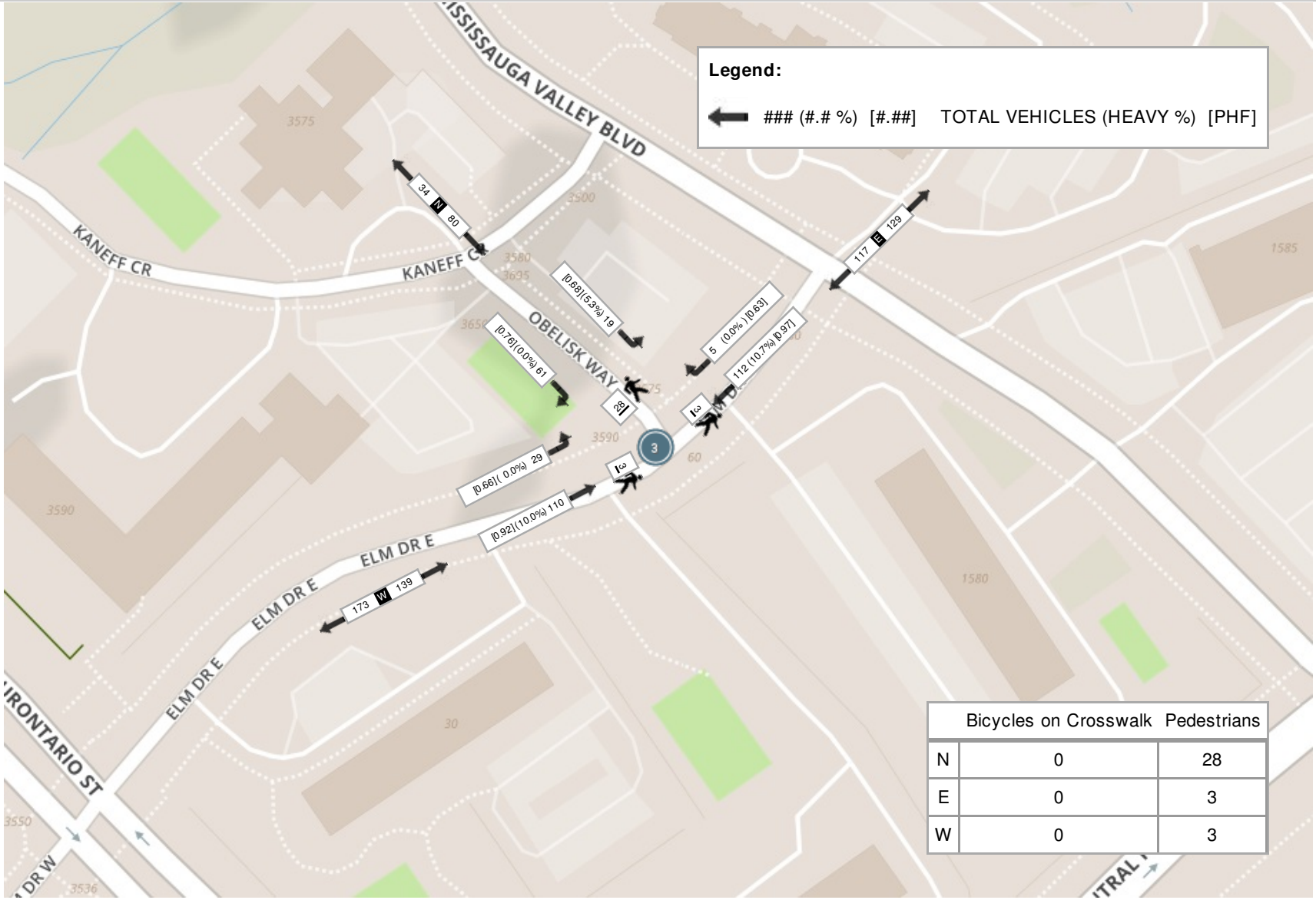
Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (1 °C)

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)

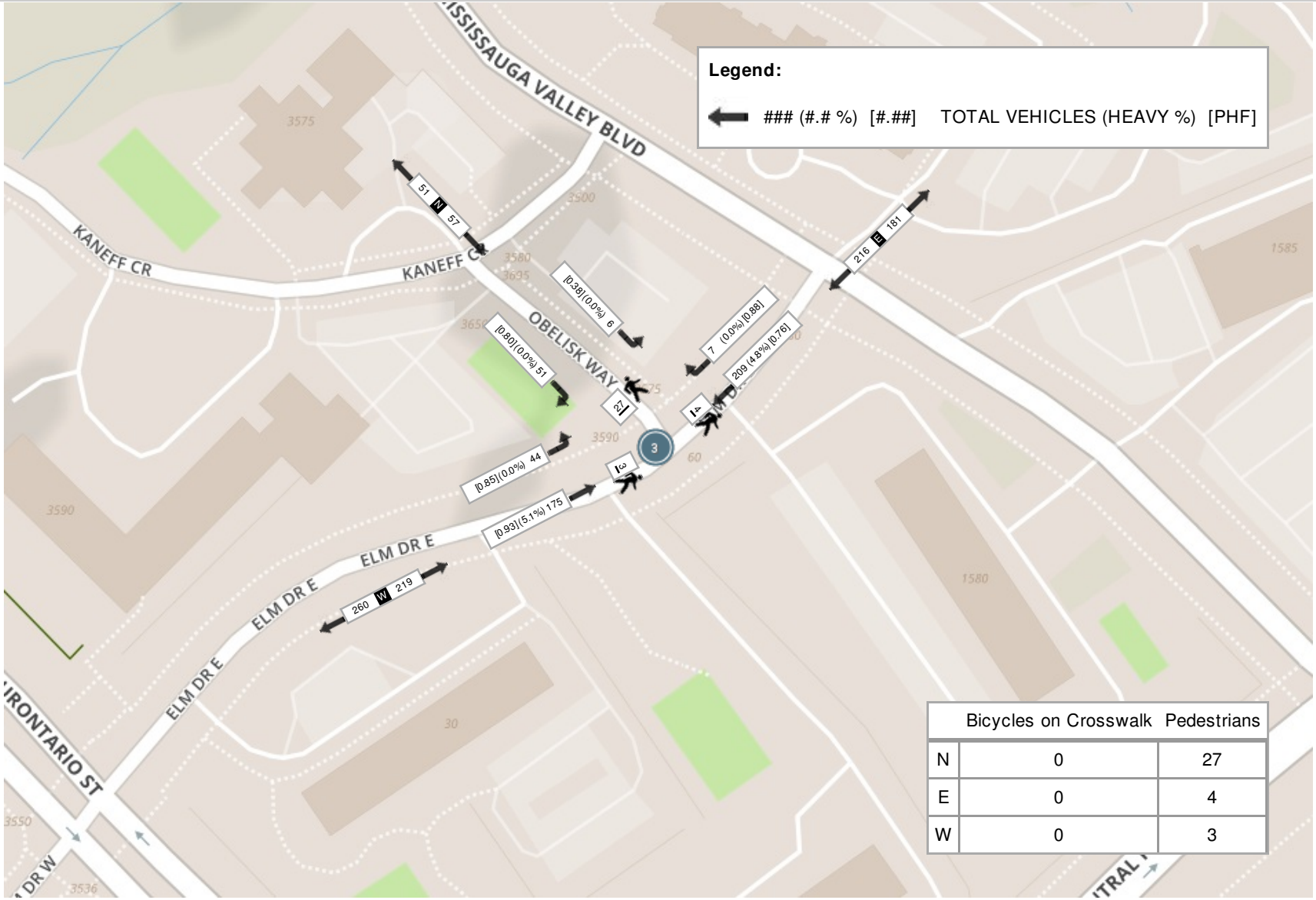
Start Time	N Approach					E Approach					W Approach					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
17:00:00	12	0	0	5	12	1	45	0	0	46	42	8	0	0	50	108
17:15:00	16	1	0	6	17	2	47	0	1	49	41	13	0	0	54	120
17:30:00	9	4	0	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)



	Bicycles on Crosswalk	Pedestrians
N	0	28
E	0	3
W	0	3

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



	Bicycles on Crosswalk	Pedestrians
N	0	27
E	0	4
W	0	3

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	12345678901234567890123456789011	12345678901234567890123456789011	12345678901234567890123456789011	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

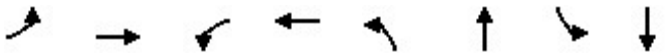
TB Schedule	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F---------	---A-------	----M------	-----J-----
Day of Week	Bit	-MTWTF-	S------	-----S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	123456789012345678901	123456789012345678901	123456789012345678901	1-------	--------7-------	--------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

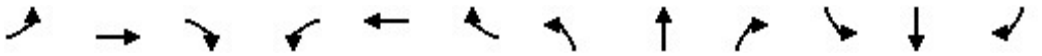
Existing Traffic Level of Service Calculations



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	142	140	83	204	72	1612	43	1376
Act Effct 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.



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	

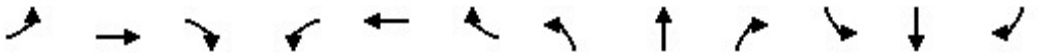
Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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			

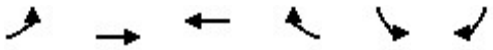
Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		



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			



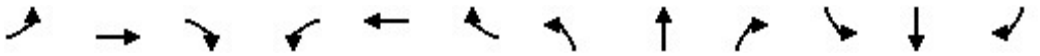
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	110	112	5	19	61
Future Volume (Veh/h)	29	110	112	5	19	61
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	120	122	5	21	66
Pedestrians		28	28		3	
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		

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	101	108	57	137	8	201
Act Effct 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	



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	

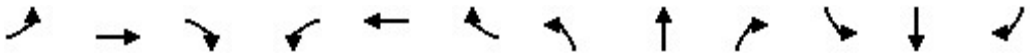
Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	39.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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				TWLTL	TWLTL	
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			

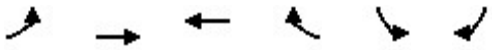
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		



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			



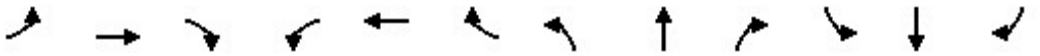
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	175	209	7	6	51
Future Volume (Veh/h)	44	175	209	7	6	51
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	190	227	8	7	55
Pedestrians		28	28		3	
Lane 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		

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	140	74	121	354	34	382
Act Effct 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

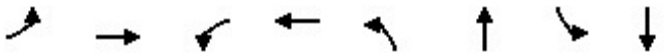
Intersection Summary	
Cycle Length: 74.5	
Actuated Cycle Length: 45.1	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 12.1	Intersection LOS: B
Intersection Capacity Utilization 73.3%	ICU Level of Service D
Analysis Period (min) 15	



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		

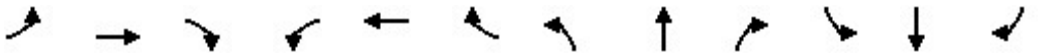
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	193	63	192	75	1627	87	1793
Act Effct 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.



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 or 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

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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,

MISSISSAUGA

Lahini Senthil-Kumaran, B.Eng
Traffic Planning Technologist

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

City of Mississauga |

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

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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

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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
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w: www.nextrans.ca

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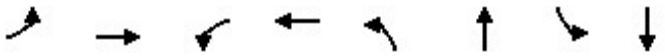
APPENDIX E

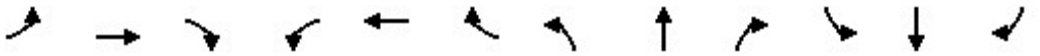
Future Background Traffic Level of Service Calculations



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	142	140	83	204	72	1612	43	1376
Act Effct 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.



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	

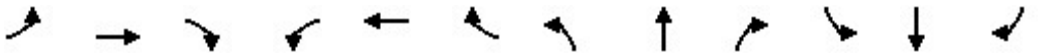
Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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				TWLTL	TWLTL	
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			

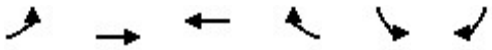
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		



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			



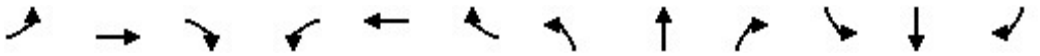
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	121	124	6	19	61
Future Volume (Veh/h)	32	121	124	6	19	61
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	132	135	7	21	66
Pedestrians		28	28		3	
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		

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	111	108	62	151	9	222
Act Effct 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	



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	

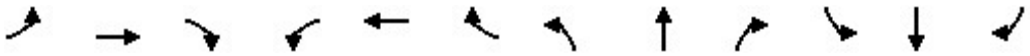
Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	40.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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				TWLTL	TWLTL	
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			

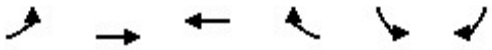
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		



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			



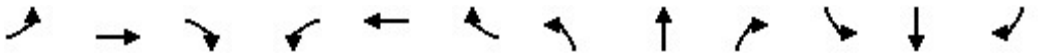
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	193	231	8	6	51
Future Volume (Veh/h)	49	193	231	8	6	51
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	210	251	9	7	55
Pedestrians		28	28		3	
Lane 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		

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

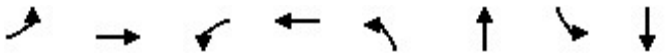
Intersection Summary	
Cycle Length: 74.5	
Actuated Cycle Length: 46.8	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 73.7%	ICU Level of Service D
Analysis Period (min) 15	



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

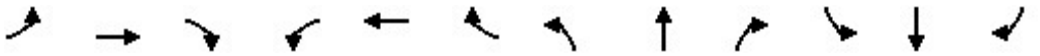


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	193	63	192	75	1627	87	1793
Act Effct Green (s)	10.2	10.2	10.2	10.2	6.7	29.3	6.8	29.3
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.11	0.49	0.11	0.49
v/c Ratio	0.22	0.52	0.31	0.54	0.38	0.95	0.43	1.04
Control Delay	24.6	18.1	26.5	21.0	32.1	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.



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 trav 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	Mississaug	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 trav 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	Mississaug	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 onl	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

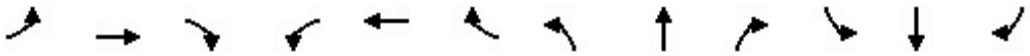
APPENDIX E

Future Total Traffic Level of Service Calculations

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	77	14	163	168	10
Future Volume (Veh/h)	66	77	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)	72	84	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				TWLTL	TWLTL	
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 %	90	90	99			
cM capacity (veh/h)	718	828	1382			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	156	15	177	194
Volume Left	72	15	0	0
Volume Right	84	0	0	11
cSH	773	1382	1700	1700
Volume to Capacity	0.20	0.01	0.10	0.11
Queue Length 95th (m)	5.7	0.3	0.0	0.0
Control Delay (s)	10.8	7.6	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	10.8	0.6		0.0
Approach LOS	B			

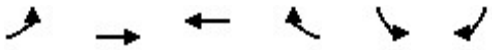
Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	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			



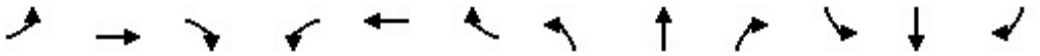
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	121	150	13	19	61
Future Volume (Veh/h)	45	121	150	13	19	61
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	132	163	14	21	66
Pedestrians		28	28		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	180				431	201
vC1, stage 1 conf vol					173	
vC2, stage 2 conf vol					258	
vCu, unblocked vol	180				431	201
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 %	97				97	92
cM capacity (veh/h)	1404				679	822

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	49	132	177	87
Volume Left	49	0	0	21
Volume Right	0	0	14	66
cSH	1404	1700	1700	782
Volume to Capacity	0.03	0.08	0.10	0.11
Queue Length 95th (m)	0.8	0.0	0.0	2.8
Control Delay (s)	7.7	0.0	0.0	10.2
Lane LOS	A			B
Approach Delay (s)	2.1		0.0	10.2
Approach LOS				B

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	111	108	65	151	9	268
Act Effct 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	0.29	0.32	0.10	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		10.7	15.5		5.2		16.1
Approach LOS		B	B		A		B
Queue Length 50th (m)	2.3	0.9	5.1	1.7	4.7	0.5	15.6
Queue Length 95th (m)	8.8	11.2	17.0	5.0	11.8	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)	981	952	977	683	1469	772	1085
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	0.10	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 56.5%	ICU Level of Service B
Analysis Period (min) 15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	13	89	47	29	23	60	117	22	8	191	55
Future Volume (vph)	34	13	89	47	29	23	60	117	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			1715		1623	1777		1744	1673	
Flt Permitted	0.91	1.00			0.79		0.48	1.00		0.66	1.00	
Satd. Flow (perm)	1509	1406			1395		818	1777		1213	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	97	51	32	25	65	127	24	9	208	60
RTOR Reduction (vph)	0	83	0	0	19	0	0	8	0	0	15	0
Lane Group Flow (vph)	37	28	0	0	89	0	65	143	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		22.3	22.3		12.5	12.5	
Effective Green, g (s)	6.2	6.2			8.2		22.3	22.3		12.5	12.5	
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)	222	207			272		564	943		361	497	
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		0.12	0.15		0.02	0.51	
Uniform Delay, d1	15.6	15.6			14.5		4.9	5.0		10.4	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	0.8	
Delay (s)	16.0	15.9			15.2		5.0	5.1		10.5	13.0	
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)	42.0	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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	38	20	0	80
Future Volume (Veh/h)	0	0	38	20	0	80
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)	0	0	41	22	0	87
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	139	52			63	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	139	52			63	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	854	1016			1540	

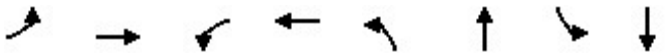
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	63	87
Volume Left	0	0	0
Volume Right	0	22	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.04	0.05
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	7.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	45	0	0	24	0	74
Future Volume (Veh/h)	45	0	0	24	0	74
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)	49	0	0	26	0	80
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			49		75	49
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			49		75	49
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			1558		928	1020

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	49	26	80
Volume Left	0	0	0
Volume Right	0	0	80
cSH	1700	1700	1020
Volume to Capacity	0.03	0.02	0.08
Queue Length 95th (m)	0.0	0.0	1.9
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		

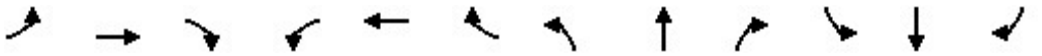


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	142	140	98	218	72	1620	50	1376
Act Effct Green (s)	13.3	13.3	13.3	13.3	6.7	31.5	6.6	29.5
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.11	0.50	0.11	0.47
v/c Ratio	0.58	0.33	0.38	0.46	0.38	0.92	0.27	0.84
Control Delay	33.0	11.8	25.9	11.3	34.9	29.1	32.4	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	11.8	25.9	11.3	34.9	29.1	32.4	22.9
LOS	C	B	C	B	C	C	C	C
Approach Delay		22.5		15.9		29.3		23.2
Approach LOS		C		B		C		C
Queue Length 50th (m)	15.4	5.2	10.1	6.8	8.1	~102.8	5.6	73.0
Queue Length 95th (m)	30.9	17.2	21.6	21.8	20.9	#178.3	15.8	#139.2
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)	688	1039	739	1052	199	1755	199	1643
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	0.21	0.13	0.13	0.21	0.36	0.92	0.25	0.84

Intersection Summary	
Cycle Length: 88	
Actuated Cycle Length: 62.6	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 25.3	Intersection LOS: C
Intersection Capacity Utilization 84.6%	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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	49	80	90	63	138	66	1437	53	46	1230	36
Future Volume (vph)	131	49	80	90	63	138	66	1437	53	46	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	0.90		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	1670		1750	1652		1750	3481		1750	3485	
Flt Permitted	0.62	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1146	1670		1230	1652		1750	3481		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	98	68	150	72	1562	58	50	1337	39
RTOR Reduction (vph)	0	69	0	0	119	0	0	2	0	0	2	0
Lane Group Flow (vph)	142	71	0	98	99	0	72	1618	0	50	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)	13.3	13.3		13.3	13.3		5.3	28.5		3.9	27.1	
Effective Green, g (s)	13.3	13.3		13.3	13.3		5.3	31.5		3.9	30.1	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		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)	239	348		256	344		145	1721		107	1646	
v/s Ratio Prot		0.04			0.06		c0.04	c0.46		0.03	0.39	
v/s Ratio Perm	c0.12			0.08								
v/c Ratio	0.59	0.20		0.38	0.29		0.50	0.94		0.47	0.84	
Uniform Delay, d1	22.8	20.8		21.7	21.2		27.9	15.2		28.9	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.3		1.0	0.5		2.7	10.6		3.2	3.8	
Delay (s)	26.7	21.1		22.6	21.7		30.6	25.9		32.1	18.5	
Level of Service	C	C		C	C		C	C		C	B	
Approach Delay (s)		23.9			22.0			26.1			18.9	
Approach LOS		C			C			C			B	

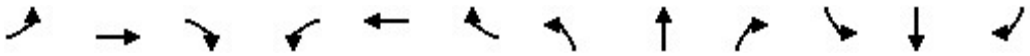
Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	63.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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				TWLTL	TWLTL	
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			

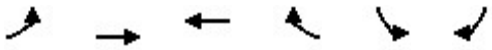
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		



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			



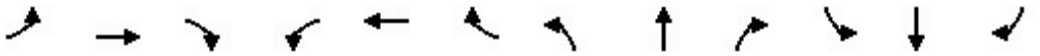
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	81	193	243	25	6	51
Future Volume (Veh/h)	81	193	243	25	6	51
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	88	210	264	27	7	55
Pedestrians		28	28		3	
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)		224	69			
pX, platoon unblocked						
vC, conflicting volume	294				694	308
vC1, stage 1 conf vol					280	
vC2, stage 2 conf vol					414	
vCu, unblocked vol	294				694	308
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				99	92
cM capacity (veh/h)	1276				544	716

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	88	210	291	62
Volume Left	88	0	0	7
Volume Right	0	0	27	55
cSH	1276	1700	1700	691
Volume to Capacity	0.07	0.12	0.17	0.09
Queue Length 95th (m)	1.7	0.0	0.0	2.2
Control Delay (s)	8.0	0.0	0.0	10.7
Lane LOS	A			B
Approach Delay (s)	2.4		0.0	10.7
Approach LOS				B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	54	156	74	141	390	37	451
Act Effct Green (s)	9.6	9.6	10.1	33.8	32.1	18.9	18.9
Actuated g/C Ratio	0.20	0.20	0.21	0.70	0.66	0.39	0.39
v/c Ratio	0.24	0.40	0.25	0.23	0.33	0.10	0.69
Control Delay	23.5	11.0	18.1	4.6	6.4	11.2	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	11.0	18.1	4.6	6.4	11.2	18.9
LOS	C	B	B	A	A	B	B
Approach Delay		14.2	18.1		6.0		18.3
Approach LOS		B	B		A		B
Queue Length 50th (m)	4.5	2.8	4.6	3.8	15.4	2.1	31.2
Queue Length 95th (m)	13.5	16.3	14.5	9.9	32.9	7.1	62.9
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)	676	925	862	620	1297	547	940
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	0.09	0.23	0.30	0.07	0.48

Intersection Summary	
Cycle Length: 74.5	
Actuated Cycle Length: 48.4	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 74.7%	ICU Level of Service D
Analysis Period (min) 15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	31	112	31	23	14	130	299	60	34	306	109
Future Volume (vph)	50	31	112	31	23	14	130	299	60	34	306	109
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	0.95			0.99		1.00	0.99		1.00	0.98	
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	0.96	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	1512			1721		1700	1797		1745	1642	
Flt Permitted	0.71	1.00			0.79		0.36	1.00		0.53	1.00	
Satd. Flow (perm)	1181	1512			1394		648	1797		976	1642	
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	141	325	65	37	333	118
RTOR Reduction (vph)	0	106	0	0	12	0	0	7	0	0	16	0
Lane Group Flow (vph)	54	50	0	0	62	0	141	383	0	37	435	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		29.4	29.4		19.1	19.1	
Effective Green, g (s)	6.6	6.6			8.6		29.4	29.4		19.1	19.1	
Actuated g/C Ratio	0.13	0.13			0.17		0.59	0.59		0.39	0.39	
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)	157	201			242		540	1067		376	633	
v/s Ratio Prot		0.03					0.04	c0.21			c0.26	
v/s Ratio Perm	c0.05				0.04		0.12			0.04		
v/c Ratio	0.34	0.25			0.25		0.26	0.36		0.10	0.69	
Uniform Delay, d1	19.5	19.2			17.7		4.9	5.2		9.7	12.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.7			0.6		0.3	0.2		0.1	3.1	
Delay (s)	20.8	19.9			18.2		5.2	5.4		9.8	15.8	
Level of Service	C	B			B		A	A		A	B	
Approach Delay (s)		20.1			18.2			5.3			15.4	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	49.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	222	49	0	57
Future Volume (Veh/h)	0	0	222	49	0	57
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)	0	0	241	53	0	62
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	330	268			294	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	330	268			294	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	665	771			1268	

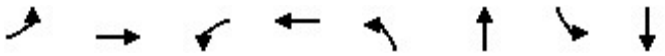
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	294	62
Volume Left	0	0	0
Volume Right	0	53	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.17	0.04
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	38	0	0	114	0	34
Future Volume (Veh/h)	38	0	0	114	0	34
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)	41	0	0	124	0	37
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			41		165	41
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			41		165	41
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			1568		826	1030

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	41	124	37
Volume Left	0	0	0
Volume Right	0	0	37
cSH	1700	1700	1030
Volume to Capacity	0.02	0.07	0.04
Queue Length 95th (m)	0.0	0.0	0.8
Control Delay (s)	0.0	0.0	8.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

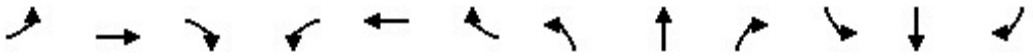


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	193	71	198	75	1645	103	1793
Act Effct Green (s)	10.5	10.5	10.5	10.5	6.8	29.3	7.0	29.3
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.11	0.49	0.12	0.49
v/c Ratio	0.22	0.52	0.34	0.55	0.38	0.96	0.50	1.05
Control Delay	24.3	17.8	27.2	20.6	32.4	33.0	36.7	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	17.8	27.2	20.6	32.4	33.0	36.7	54.2
LOS	C	B	C	C	C	C	D	D
Approach Delay		19.0		22.3		32.9		53.3
Approach LOS		B		C		C		D
Queue Length 50th (m)	4.5	10.0	7.2	12.4	7.9	89.2	11.0	~121.8
Queue Length 95th (m)	11.9	25.7	17.1	28.8	20.2	#163.6	#29.4	#185.4
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)	731	1092	735	1094	207	1709	207	1715
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	0.10	0.18	0.36	0.96	0.50	1.05

Intersection Summary	
Cycle Length: 88	
Actuated Cycle Length: 59.6	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 40.8	Intersection LOS: D
Intersection Capacity Utilization 87.0%	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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	76	101	65	87	95	69	1418	96	95	1604	46
Future Volume (vph)	41	76	101	65	87	95	69	1418	96	95	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	1698		1750	3467		1750	3485	
Flt Permitted	0.63	1.00		0.64	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1167	1685		1172	1698		1750	3467		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	71	95	103	75	1541	104	103	1743	50
RTOR Reduction (vph)	0	78	0	0	64	0	0	4	0	0	2	0
Lane Group Flow (vph)	45	115	0	71	134	0	75	1641	0	103	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)	10.5	10.5		10.5	10.5		5.4	26.3		5.4	26.3	
Effective Green, g (s)	10.5	10.5		10.5	10.5		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)	203	293		204	296		156	1687		156	1696	
v/s Ratio Prot		0.07			c0.08		0.04	0.47		c0.06	c0.51	
v/s Ratio Perm	0.04			0.06								
v/c Ratio	0.22	0.39		0.35	0.45		0.48	0.97		0.66	1.06	
Uniform Delay, d1	21.3	22.0		21.8	22.3		26.1	15.1		26.5	15.5	
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		1.0	1.1		2.3	15.8		10.0	38.4	
Delay (s)	21.9	22.9		22.9	23.4		28.4	30.9		36.5	53.9	
Level of Service	C	C		C	C		C	C		D	D	
Approach Delay (s)		22.7			23.3			30.8			53.0	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group