TRAFFIC IMPACT STUDY

5160-5170 NINTH LINE
RESIDENTIAL DEVELOPMENT
CITY OF MISSISSAUGA,
REGIONAL MUNICIPALITY OF PEEL

PREPARED FOR:
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SEPTEMBER 2022

CFCA FILE NO. 1871-6159

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CROZIER
CONSULTING ENGINEERS

Revision Number	Date	Comments
Rev. 1	December 2021	Issued for 1st Submission
Rev. 2	September 2022	Issued for 2nd Submission

1.0 Executive Summary

Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Branthaven Developments to prepare a Traffic Impact Study (TIS) in support of the development application for the proposed residential development located at 5160-5170 Ninth Line in the City of Mississauga, Regional Municipality of Peel. The site is bound by a woodlot to the north, Ninth Line to the east, two low-rise detached buildings to the south and vacant lands to the west.

A Traffic Impact Study was originally submitted in December 2021 in support of the proposed development. This Traffic Impact Study resubmission addresses the City of Mississauga comments received in April 2022 regarding the 1st TIS submission.

The purpose of the study is to evaluate the transportation-related impacts of the proposed development on the boundary road network and to recommend any required mitigation measures, if warranted. Given the expected two-way trip generation during peak hours is less than 100 trips, the Ministry of Transportation (MTO) noted that a separate Traffic Letter highlighting the immaterial impact of the proposed development on the nearest Highway ramps is adequate and was provided to the MTO accordingly.

Per the Site Plan by ZO1 Architects (dated August 16, 2022), the development scope consists of a 6-storey apartment building. **Table E1** summarizes the proposed development statistics.

Table E1: Development Proposal

Apartment Building Statistics			
Building Storey	One Bedroom Units	Two Bedroom Units	**Total**
Level 1	17	2	19
Level 2	26	5	31
Level 3	27	7	34
Level 4	27	8	35
Level 5	28	6	34
Level 6	28	6	34
Total	**153**	**34**	**187**
Parking Supply			
	Resident Spaces	**Visitor Spaces**	**Total**
Vehicle Parking	187	32	**219**
Bicycle Parking	112	10	**122**

The study has been completed in accordance with the City of Mississauga Traffic Impact Study Guidelines. The study has also been completed in accordance with Terms of Reference established with City of Mississauga staff.

Further, previously conducted studies were reviewed and incorporated into the analysis herein. The studies include: the Ninth Line Environmental Study Report (HDR, June 2021), the Ninth Line Corridor Study Transportation Assessment (MMM Group, July 2017), the 5080, 5054, and 5034 Ninth Line Traffic

Impact Study (C.F. Crozier & Associates, October 2021), the 5150 Ninth Line Traffic Impact Study (C.F. Crozier & Associates, June 2022) and the 407 Transitway – West of Brant Street to West of Hurontario Street Environmental Project Report (Parsons, August 2020).

The TIS analyzed the following study intersections:

- Ninth Line and Eglinton Avenue West / East Lower Base Line
- Ninth Line and Skyview Street / Mahoney Gate
- Ninth Line and Candlelight Drive
- Ninth Line and Erin Centre Boulevard
- Ninth Line and Viola Desmond Drive

Existing Conditions

The boundary road network is operating at a LOS "D" or better at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line, and LOS "C" or better at all other study intersections during the weekday a.m. and p.m. peak hours.

The Ninth Line and Eglinton Avenue West / East Lower Base Line intersection operations are attributed to several movements operating near capacity. The southbound and eastbound through movements experience high volumes in the a.m. peak hour, while the northbound and westbound through movements experience high volumes in the p.m. peak hour. These findings within the existing conditions traffic analysis support the need for roadway expansion on Ninth Line, as recommended in the Ninth Line EA.

A few movements at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line are operating at or above capacity under the existing conditions scenario. This is not typically expected for existing conditions analysis. However, the approach to arrive at existing conditions traffic volumes used for analysis employed growth rates to adjust 2019 traffic data to 2021 levels. The results show that the volumes used for the existing conditions analysis herein are higher than practically possible under the existing configuration as operations can only be at or near capacity under existing conditions, but not above.

Future Background Conditions

As confirmed in the Terms of Reference, a horizon year five years from the original 2021 study date (ie. 2026) was used for the purposes of analysis.

Growth rates provided by the City of Mississauga were applied at the study intersections for through movements, while local roads were assigned a growth rate of 0.5%. Further, the following background developments were identified and are accounted for under future background conditions:

- Erin Mills Development
- Emerging Land Use Concept on Ninth Line
- 5080, 5054, and 5034 Ninth Line
- 5150 Ninth Line

Roadway improvements per the Ninth Line Environmental Study Report were incorporated into the future background analysis.

Under the 2026 future background conditions, which incorporates roadway improvements outlined in the Ninth Line EA:

- The signalized intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is projected to operate at a LOS "C" and "D" during the weekday a.m. and p.m. peak hours.
- The turn queues are forecast to occasionally exceed the turn storage lanes at the intersection during the peak hours as identified by the MMM Group and the Ninth Line EA Studies. These queues may occasionally obstruct some movements at adjacent intersections during the peak hours. These operations are however typical for high traffic arterial intersections during the peak hours and operations are expected to return to acceptable levels during the off-peaks.
- The remaining study intersections are expected to operate efficiently at a LOS "C" or better during the weekday peak hours.

Site Generated Traffic

The proposed development is expected to generate a total of 71 and 73 total two-way trips during the weekday a.m. and p.m. peak hours, respectively. The proposed development trips were assigned to the boundary road network using a combination of 2016 Transportation Tomorrow Survey (TTS) data, existing travel patterns and convenience with regards to ingress/ egress at the accesses.

Future Total Conditions

Under the 2026 future total conditions, the study intersections are forecast to operate at similar levels of services with minor changes.

- The signalized intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is projected to operate at a LOS "C" and "D" during the weekday a.m. and p.m. peak hours, respectively. Compared to 2026 future background conditions, there is a control delay increase of 0.8 and 1.4 seconds in the a.m. and p.m. peak hours, respectively; therefore, operational issues are largely background related as highlighted in the future background section.

- The remaining study intersections are expected to continue to operate efficiently at a LOS "C" or better. A maximum control delay increment of 2.1 seconds is forecast.

- Signal Warrants were evaluated at the intersection of Ninth Line and Viola Desmond Drive. Signalization was not found to be warranted. This finding is consistent with prior analysis undertaken in the Ninth Line Environmental Project Report.

- Left-turn warrants were evaluated for the northbound left-turn movement at the intersection of Ninth Line and Viola Desmond Drive. A left-turn storage lane is warranted for the aforementioned movement. This finding is consistent with previous studies.

- Given the above results of the traffic analysis, the proposed development can be supported from a traffic operations perspective.

Sensitivity for delayed Ninth Line Widening

It is expected that the Ninth Line widening will be implemented by 2026 when the subject site is fully built, however, a sensitivity analysis was conducted for a delayed widening scenario. Some operational concerns were identified in the 2026 future background and future total delayed widening sensitivity scenarios and are summarized below:

- The intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is projected to operate above intersection capacity in both the future background and future total. An intersection control delay of above 100 s in the a.m. peak and several movement volume-to-capacity above one are forecast in both the a.m. and p.m. peak hours.

- Under minor stop control, the intersection of Ninth Line and Skyview Street / Mahoney Gate is forecast to operate at a LOS "F" during the peak hours, while the Ninth Line and Viola Desmond Drive intersection is forecast to operate at a LOS "E" or better during the peak hours. Signal Warrants were checked at both of the intersections and were found to be not warranted under the 2026 future total sensitivity scenario. Furthermore,

    - Though a maximum control delay of 222.2s is forecast in the a.m. peak hour, this delay is attributable to only five westbound left-turning vehicles from the Skyview Street approach. Given the low number of vehicle movements attributable to this movement, it is expected that vehicles will become familiar with constrained operations for a left turn onto Ninth Line under the existing lane configurations and will primarily opt to reroute to Eglinton Avenue via Intrepid Drive, which will offer comparable travel times. In addition, the approach delay at the Mahoney Gate eastbound approach is more acceptable at 55.3s in the a.m. peak hour.

    - During the p.m. peak hour, an average approach delay of 67.4s is forecast for the Mahoney Gate site access. However, it is expected the average delay is overstated herein given the operational forecast projects a LOS "C" at the Viola Desmond Drive connection to Ninth Line during the p.m. peak hour. It is anticipated that some vehicle will opt to use the Viola Desmond Drive connection more frequently than the analysis projection herein, and that both access connections to Ninth Line will operate adequately in the interim before Ninth Line widening is implemented.

    - The traffic model results indicate that traffic operations are projected to be acceptable under minor stop intersection control in the interim at the Skyview Street / Mahoney Gate and Viola Desmond Drive connections to Ninth Line before the Ninth Line widening improvement is implemented.

- The remaining study intersections are expected to operate at a LOS "D" or better during the peak hours. The through movements on Ninth Line are near capacity as is expected given the high volumes.

- A comparison between 2026 future background and future total traffic operations under the sensitivity scenario demonstrates that the operational issues on the Ninth Line corridor described herein are primarily background related and is consistent with findings of the Ninth Line EA and related background studies which indicate the need for widening of Ninth Line earlier than 2026.

- Notwithstanding the above, no material changes in traffic operations on the boundary roads is forecast with or without the proposed development under a delayed construction of the Ninth Line widening.

Safety Review

A safety review regarding the proposed Viola Desmond Drive and Mahoney Gate was conducted as required by the City of Mississauga's guidelines. Based on the safety review:

- The available sight distance at the site access connections exceeds the minimum sight distance requirements set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017.

- The site satisfies the minimum corner clearance and access spacing requirements per the TAC-GDGCR.

- There are no expected maneuverability constraints for waste collection.

Therefore, the access connection and the ultimate connections from the lands to Ninth Line is expected to operate safely and functionally serve the site.

Proposed Parking Supply Review

The proposed parking supply is deficient by five spaces compared to the minimum vehicle parking space requirements of the City's recent Zoning By-law No. 0117-2022. However, the marginal parking supply deficiency is immaterial to the functionality of the site and is a result of a City staff request for some modification to the underground parking lot. Furthermore, the site provides the required barrier free accessible parking spaces and bicycle parking spaces.

Recommendations

The findings arising from the analysis have resulted in the following recommendations:

- It is recommended that the Ninth Line widening be implemented as soon as possible to address forecasted capacity concerns. A comparison between 2026 future background and future total operations for the Ninth Line study intersections demonstrates that development traffic imposes an immaterial impact to traffic operations.

- It is recommended that minor stop control be implemented at the Mahoney Gate and Viola Desmond Drive access connections to Ninth Line in the interim prior to the Ninth Line widening. Further, implementation of an interim signal control is not advisable at either of the Ninth Line access connections as this measure would result in substantially less effective green time for the through movements, which are already operationally constrained under free-flow conditions.

- It is recommended that the signal timing plans at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line be modified as needed to optimize future intersection performance.

- Should adequate right-of-way exist, it is recommended that the City investigate potential dual-left turn lanes for the southbound left-turn movement at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line as part of the Ninth Line EA roadway improvements or in the future. The movement has peak hour volumes in excess of 300, a threshold identified to warrant dual left turn lanes per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR).

- It is recommended that consideration be given to providing a continuous two-way left turn

(TWLT) median lane between Viola Desmond Drive and Mahoney Gate to provide left turn opportunities for the closely spaced connections on the segment. This is aligned with the Ninth Line EA, as a TWLT lane is expected along most of the Ninth Line corridor.

- It is recommended that the Viola Desmond Drive connection to Ninth Line include a northbound left-turn lane with a minimum storage length of 25m.

Conclusion

The analysis contained within this report was prepared using the Site Plan prepared by ZO1 Architects (dated August 16, 2022). Minor revisions to the development concept are not expected to affect the conclusions contained with this report. In conclusion, the proposed development can be supported from a transportation operations and safety perspective.

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2.0 Introduction

2.1 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Branthaven Developments to prepare a Traffic Impact Study (TIS) in support of the development application for the proposed residential development located at 5160-5170 Ninth Line in the City of Mississauga, Regional Municipality of Peel. The site is bound by a woodlot to the north, Ninth Line to the east, two low-rise detached buildings to the south and vacant lands to the west.

A Traffic Impact Study was originally submitted in December 2021 in support of the proposed development. This Traffic Impact Study addresses the City of Mississauga comments received on April 29, 2022. A separate comment response letter has been submitted separately and addresses each of the comments received from the City.

2.2 Development Proposal

Per the Site Plan by ZO1 Architects (dated August 16, 2022, provided within **Appendix A**), the development scope consists of a 6-storey apartment building with a total of 187 residential dwelling units. A total of 229 parking spaces are proposed, including 7 accessible parking spaces. The site is proposed to be serviced by two full-move accesses connecting to CEC Road "F" as indicated in the site plan provided in **Appendix A**. The site connects ultimately to the external roadway via Viola Desmond Drive and Mahoney Gate at Ninth Line as illustrated in the composite plan provided in **Appendix A**. **Table 1** outlines the proposed development statistics.

Table 1: Development Proposal

Apartment Building Statistics			
Building Storey	One Bedroom Units	Two Bedroom Units	**Total**
Level 1	17	2	19
Level 2	26	5	31
Level 3	27	7	34
Level 4	27	8	35
Level 5	28	6	34
Level 6	28	6	34
Total	**153**	**34**	**187**
Parking Supply			
	Resident Spaces	**Visitor Spaces**	**Total**
Vehicle Parking	187	32	**219**
Bicycle Parking	**Long Term Bicycle Parking**	**Short Term Bicycle Parking**	**Total**
Building Storey	112	10	122

2.3 Purpose and Scope

The purpose of the study is to evaluate the transportation-related impacts of the proposed development on the boundary road network and to recommend any required mitigation measures, if warranted.

The study reviews the following main aspects of the proposed development from a transportation engineering perspective:

- Existing, future background, and future total traffic operations on the boundary road network during the weekday a.m. and p.m. peak hours
- Forecasted trip generation and distribution of the proposed development
- Mitigation measures to support the proposed development, if required
- Transportation safety components, including: sight distance requirements at the site accesses, access spacing and restrictions, and general safety issues pertaining to road users

The study has been completed in accordance with the City of Mississauga Traffic Impact Study Guidelines. The study has also been completed in accordance with Terms of Reference established with City of Mississauga staff. Per correspondence with the MTO, a separate traffic brief focusing on MTO requirements was requested and has been submitted under a separate cover. **Appendix B** contains the correspondence outlining the approved terms of reference.

The following previously conducted studies were reviewed and incorporated into the analysis herein:

- Ninth Line Environmental Study Report (HDR, June 2021, herein referred to as the "Ninth Line EA")
- Ninth Line Corridor Study Transportation Assessment (MMM Group, July 2017, herein referred to as the "MMM study")
- 5080, 5054, and 5034 Ninth Line Traffic Impact Study (C.F. Crozier & Associates, October 2021, herein referred to as the "5080 Ninth Line TIS")
- 5150 Ninth Line Traffic Impact Study (C.F. Crozier & Associates, June 2022, herein referred to as the "5150 Ninth Line TIS")
- 407 Transitway – West of Brant Street to West of Hurontario Street Environmental Project Report (Parsons, August 2020)

Further, a comprehensive Transportation Demand Management (TDM) Plan has been prepared and submitted separately to support the development application. The TDM Plan analyzes existing and future TDM opportunities to reduce single-occupant vehicle (SOV) trips to and from the site and promote alternative non-auto modes of transportation.

3.0 Existing Conditions

3.1 Development Lands

The subject property forms part of the Ninth Line composite lands located north of Eglinton Avenue. The site is located in a primarily residential area and is bound by a woodlot to the north, Ninth Line to the east, two low-rise detached buildings to the south and vacant lands to the west. The development lands include the following property parcels, with their respective existing conditions outlined:

- 5160 Ninth Line, a 0.295 ha property that currently consists of a single-storey animal hospital
- 0 Ninth Line (located between the 5160 and 5170 Ninth Line parcels), a 0.137 ha property that currently consists of a laneway
- 5170 Ninth Line, a 0.295 ha property that currently consists of a two-storey detached dwelling

Refer to **Appendix A** for City of Mississauga property reports. See **Figure 1** for the site location.

3.2 Study Intersections

The TIS analyzes the following intersections, as confirmed through the Terms of Reference correspondence (provided in **Appendix B**):

- Ninth Line and Eglinton Avenue West / East Lower Base Line
- Ninth Line and Skyview Street / Mahoney Gate
- Ninth Line and Candlelight Drive
- Ninth Line and Erin Centre Boulevard
- Ninth Line and Viola Desmond Drive

The weekday a.m. and p.m. peak hours were analyzed for the study intersections above.

3.3 Boundary Road Network

The boundary road network within the study area is described in **Table 2**.

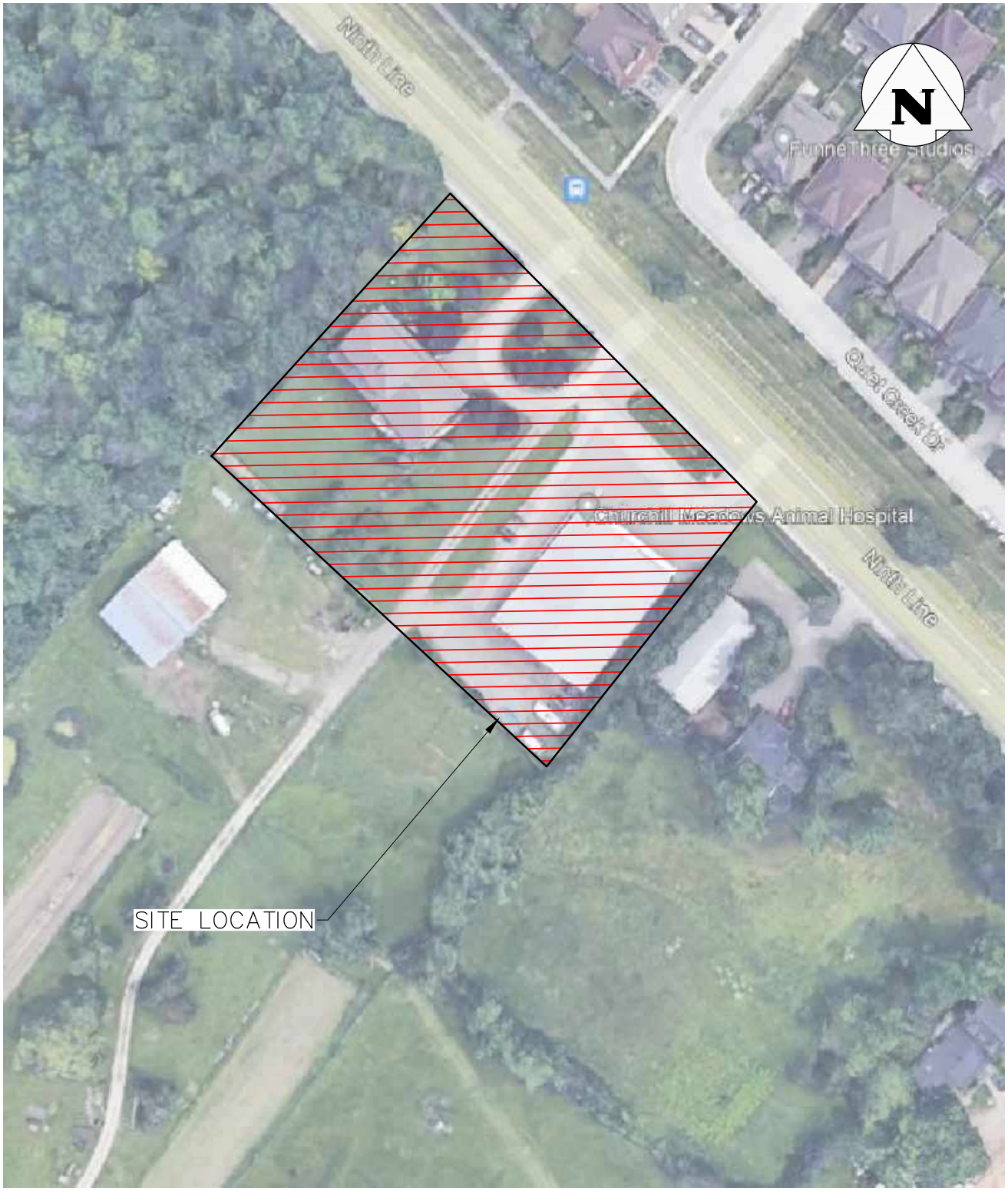


Figure 1: Site Location

Table 2: Boundary Road Network

Feature	Roadways					
	Ninth Line	**Eglinton Avenue West**	**East Lower Base Line**	**Skyview Street**	**Candlelight Drive**	**Erin Centre Boulevard**
Direction	Two-way (North-South)	Two-way (East-West)	Two-way (East-West)	Two-way (East-West)	Two-way (East-West)	Two-way (East-West)
Classification	Arterial	Arterial	Arterial	Local	Local	Minor Collector – west of Tenth Line Major Collector – East of Tenth Line
Jurisdiction	City of Mississauga – North of Dundas Street Town of Oakville – South of Dundas Street	City of Mississauga	City of Mississauga – Highway 407 to Ninth Line Town of Milton – West of Highway 407	City of Mississauga	City of Mississauga	City of Mississauga
Surrounding Uses	Residential	Residential	Rural	Residential	Residential	Residential and commercial
Speed Limit	70 km/h (north of Hwy 403/407 interchange bridge) 60 km/h (south of Hwy 403/407 interchange bridge)	60 km/h	60 km/h	50 km/h[1]	50 km/h[1]	50 km/h[1]
Number of travel lanes	Two[2]	Four	Two	Two	Two	Two
Median type	Two-way left-turn lane	None	None	None	None	None

Note 1: A jurisdictional speed limit of 50 km/h is assumed on the roadways with no posted speed limit.
Note 2: A three lane cross-section, with two northbound travel lanes and one southbound travel lane, is present between Eglinton Avenue West and Skyview Street, and a two lane cross-section is currently present elsewhere.

Table 3 outlines the existing traffic control, configurations, and pedestrian crossing provisions at the study intersections on the boundary road network.

Table 3: Existing Boundary Road Network – Study Intersections

Intersection	Control	App. [1]	Major Street	Lane Configurations	Pedestrian Crossing
Ninth Line and Eglinton Avenue West / East Lower Base Line	Signal Semi-Actuated	4	Eglinton Avenue West	EBL; EBTR WBL; WBT; WBR NBL; NBT; NBR; SBL; SBTR	Marked crosswalks – all approaches
Ninth Line and Erin Centre Boulevard	Signal Semi-Actuated	3	Ninth Line	WBL; WBR; NBT; SBL; SBT	Marked crosswalks, north & east approaches
Ninth Line and Candlelight Drive	Stop (Minor Street)	3	Ninth Line	WBL[2]; WBR[2]; NBT; SBL; SBT	East approach (not marked)
Ninth Line and Skyview Street	Stop (Minor Street)	3	Ninth Line	WBLTR; NBT; NBR; SBL; SBT	None

Note 1: Column refers to number of approaches at the intersection.
Note 2: Although not delineated, the width of Candlelight Drive allows for simultaneous westbound left-turns and right-turns.

Figure 2 illustrates the existing boundary road network, including lane configurations, storage lengths, and intersection control.

3.4 Existing Transit Operations

There are several MiWay Transit and GO Transit bus routes in proximity of the proposed development. **Tables 4 and 5** outline the existing transit routes, direction, days of operation, peak hour headways, and the location of bus stops near the proposed development. The transit services described in **Table 5** outline the MiWay service pattern as of July 6th, 2022. Local and express bus routes that possess stops within 400m and 800m walking distance of the site, respectively, are included as per the MTO's Transit Supportive Guidelines (2012). Although further than typical walking distances for transit access, bus routes at Winston Churchill Transitway Station were included within existing transit services. This was due to the station possessing high accessibility for bicycle and vehicle transportation with a carpool parking lot and a covered bicycle lock-up area.

Table 4: Existing GO Transit Services

Route	Start and End Points	Times of Operation	Peak Hour Headways (min)	Direction 1 Transit Stop[1]	Direction 2 Transit Stop[1]
25 GO Transit Waterloo / Mississauga	University of Waterloo to Square One	Monday – Sunday	~60 min	Winston Churchill Station (~3.5km ; ~15min by bike)	Winston Churchill Station (~3.5km ; ~15min by bike)
29 GO Transit Guelph / Mississauga	Guelph Central to Square One	Monday – Sunday	~60 min	Winston Churchill Station (~3.5km ; ~15min by bike)	Winston Churchill Station (~3.5km ; ~15min by bike)

Note1: The calculated walking distance to each transit stop was determined from a baseline origin/destination point at the current 5170 Ninth Line driveway connection to Ninth Line. A 1.2m/s average walking speed as outlined in the City of Mississauga TIS guidelines was used. An average speed of 4.0m/s was assumed for biking.

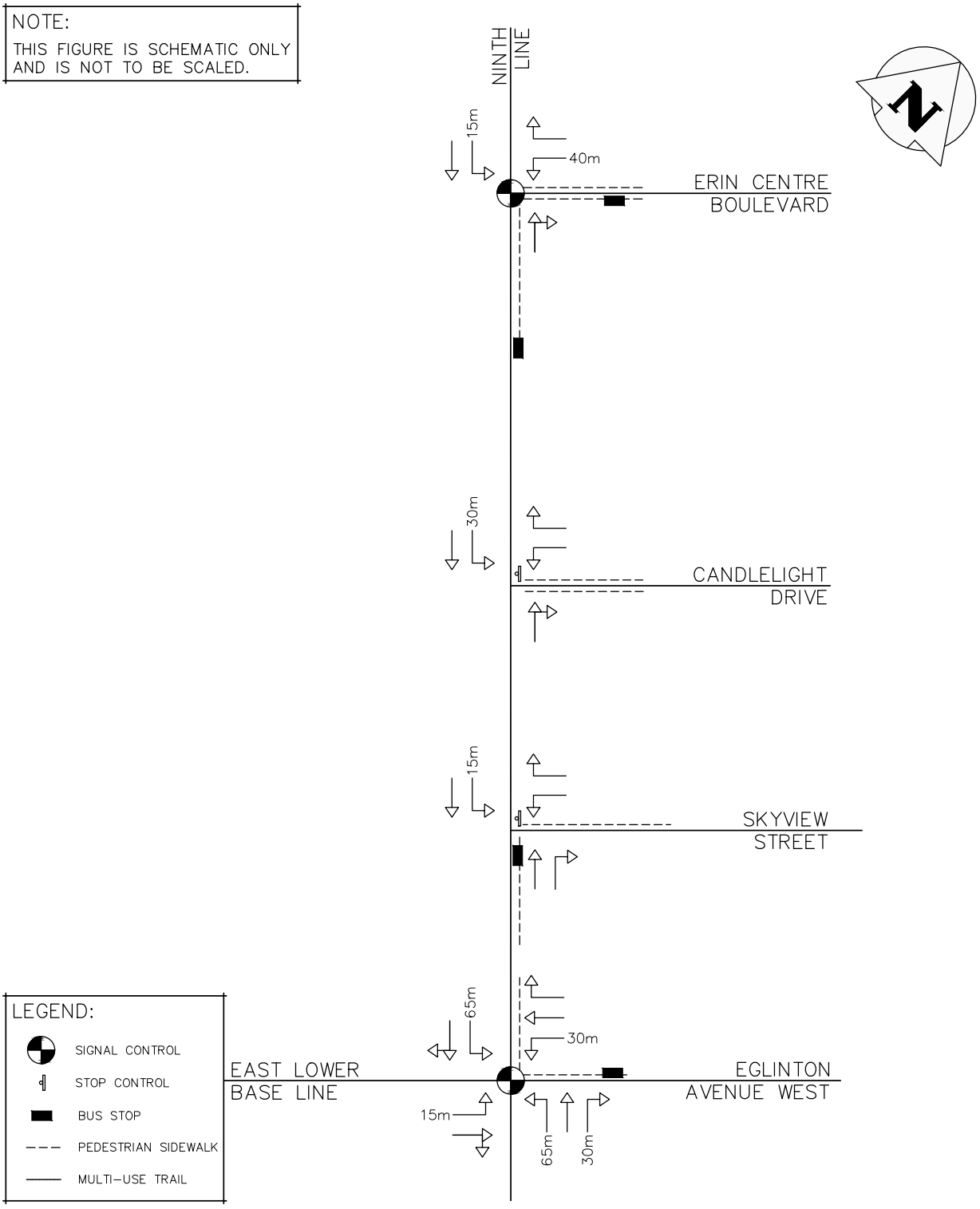


Figure 2: Existing Boundary Road Network

Table 5: Existing MiWay Transit Services

Route	Start and End Points	Times of Operation	Peak Hour Headways (min)	Direction 1 Transit Stop[1]	Direction 2 Transit Stop[1]
9 Rathburn – Thomas	City Centre Transit Terminal to Churchill Meadows Community Centre	Monday - Sunday	~20 min	Erin Centre Boulevard at Longford Drive (400m; ~5.5min walk)	Erin Centre Boulevard at Longford Drive (450m; 6min walk)
35 Eglinton-Ninth Line	Kipling Bus Terminal to Churchill Meadows Community Centre	Monday - Sunday	8-10 min	Ninth Line at Skyview Street (80m ; <2min walk)	N/A
36 Colonial-Ridgeway	Winston Churchill Station to South Common Centre	Monday - Sunday	~30 min	Winston Churchill Station (~3.5km ; ~15min by bike)	N/A
45 Winston Churchill	Meadowvale Town Centre to Clarkson GO Station	Monday - Sunday	~15 min	Winston Churchill Station (~3.5km ; ~15min by bike)	Winston Churchill Station (~3.5km ; ~15min by bike)
109 Meadowvale Express	Meadowvale Town Centre to Kipling Station	Monday – Sunday	10-15 min	Winston Churchill Station (~3.5km ; ~15min by bike)	Winston Churchill Station (~3.5km ; ~15min by bike)

Note1: The calculated walking distance to each transit stop was determined from a baseline origin/destination point at the current 5170 Ninth Line driveway connection to Ninth Line. A 1.2m/s average walking speed as outlined in the City of Mississauga TIS guidelines was used. An average speed of 4.0m/s was assumed for biking.

The two local routes within walking distance from the subject site offers good transit access to local destinations such as Erin Mills Town Centre, Mississauga City Centre, along with Middle and High schools in proximity to the subject site. Route 35 is a major crosstown route that connects with plenty of north-south bus routes. Further, MiWay route 9 provides connectivity to GO Transit at Streetsville GO along the Milton GO line.

Further, the Winston Churchill Station is an excellent transit attractor due to its location along the Mississauga Transitway. The route provides express service to several major destinations within Mississauga. Additionally, the station includes North-South transit service that connects with the Lakeshore GO line. This allows for good transit access both into Toronto to the east and towards Halton Region and Hamilton to the west.

Therefore, the existing transit services in the study area are sufficient to promote transit as a viable mode of transportation.

The boundary road network in **Figure 2** illustrates the existing bus stop locations in the study area. **Appendix C** contains relevant transit information.

3.5 Active Transportation Network

The existing active transportation facilities on the boundary road network are described in **Table 6**. The boundary road network in **Figure 2** illustrates the existing pedestrian and cycling facilities in the study area.

Table 6: Existing Active Transportation Network

Roadway	Pedestrian Facilities	Separation from Roadway	Cycling Facilities	Separation from Roadway
Ninth Line	1.5 metre concrete sidewalk (east side from Eglinton Avenue West to Skyview Street) Asphalt sidewalk (east side from bus stop north of Candlelight Drive to Erin Centre Boulevard)	Grass boulevard	None	N/A
Eglinton Avenue West	1.5 metre concrete sidewalk (north side)	Grass boulevard and Parking Lay-By	None	N/A
E. Lower Base Line	None	N/A	None	N/A
Erin Centre Boulevard	1.5 metre concrete sidewalk (both sides)	Grass boulevard	Bike Lane (both sides)	None
Candlelight Drive	1.5 metre concrete sidewalk (both sides)	Grass boulevard	None	N/A
Skyview Street	1.5 metre concrete sidewalk (north side)	Grass boulevard	None	N/A

3.6 Traffic Data

Turning movement counts were conducted by Spectrum Traffic Data Inc. staff at the study intersections on Tuesday July 16, 2019, between 6:00 a.m. – 10:00 a.m. and 3:00 p.m. – 7:00 p.m.

These time periods are reflective of commuter peak hours and thus were considered appropriate for traffic analysis of the proposed development.

Intersection analysis was conducted utilizing peak hour factors (PHFs) as calculated for each intersection from the collected traffic data during each time period. **Table 7** outlines the calculated peak hour factors at each intersection during each peak hour.

Table 7: Intersection Count Peak Hour Factors

Intersection	Count Date	Peak Hour	Peak Hour Factor
Ninth Line and Eglinton Avenue West / East Lower Base Line	Tuesday July 16, 2019	Weekday A.M. 7:45 a.m. – 8:45 a.m.	0.99
		Weekday P.M. 5:00 p.m. – 6:00 p.m.	0.96
Ninth Line and Skyview Street	Tuesday July 16, 2019	Weekday A.M. 7:45 a.m. – 8:45 a.m.	0.99
		Weekday P.M. 5:00 p.m. – 6:00 p.m.	0.96
Ninth Line and Candlelight Drive	Tuesday July 16, 2019	Weekday A.M. 7:45 a.m. – 8:45 a.m.	0.97
		Weekday P.M. 5:00 p.m. – 6:00 p.m.	0.94
Ninth Line and Erin Centre Boulevard	Tuesday July 16, 2019	Weekday A.M. 7:45 a.m. – 8:45 a.m.	0.98
		Weekday P.M. 5:00 p.m. – 6:00 p.m.	0.96

The traffic count data are contained in **Appendix D**. **Figure 3** illustrates the 2019 traffic volumes recorded by Spectrum Traffic.

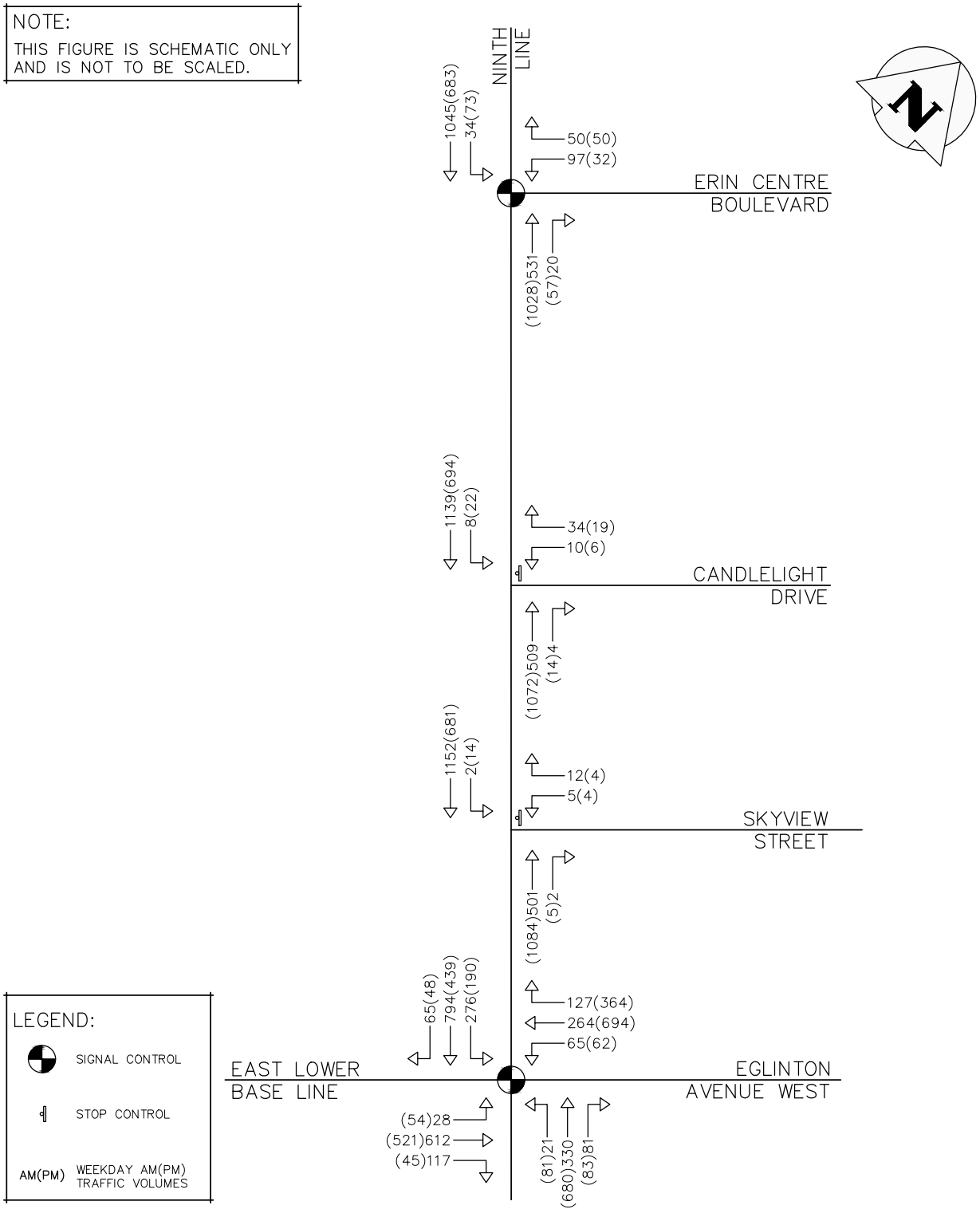


Figure 3: 2019 Spectrum Traffic Volumes

3.7 Collision Analysis

To understand existing collision patterns near the subject site, historical collision data was obtained from the City for the Ninth Line segment between Stardust Drive and Candlelight Drive for the most recent available five year period (i.e., from 2015-2019). A collision analysis was conducted to identify any existing collision trends in the area. The collision data is included in **Appendix E**. **Table 8** outlines the collision frequency by type, severity and weather conditions.

Table 8: Collision History

Intersection	Collision Type	Severity	Environment
Ninth Line at Stardust Drive	Rear End – 1	P.D. Only – 1	Clear – 1
Ninth Line at Skyview Street	SMV Other – 1	P.D. Only – 1	Snow – 1
Ninth Line at Candlelight Drive	Turning Movement – 1	P.D. Only – 1	Clear – 1

As shown in **Table 8**, there does not appear to be a pattern of collisions at any of the intersections near the subject site. Therefore, collisions are not expected to be a significant issue for the proposed development.

3.8 Traffic Modelling

3.8.1. Synchro Modelling Guidelines

The boundary road network was modelled in Synchro 11 in conformance with the modelling guidelines per the City of Mississauga's "Traffic Impact Study Guidelines." **Table 9** summarizes the Synchro modelling parameters set out by the City's guidelines. These modelling parameters were applied to all study intersections.

Table 9: City of Mississauga Synchro Modelling Parameters

Parameter	Value
Ideal (base) saturation flow rate	Protected left-turn: 1,860 veh/hr/lane Exclusive through: 1,900 veh/hr/lane Exclusive right-turn: 1,640 veh/hr/lane
Lost Time [1]	Protected left-turn: 1.0 s Back-to-back left-turns: 1.0 s Main Phase: 5.0 s
Peak Hour Factor	As calculated, presented in **Table 7**
Lane widths	Per the Ninth Line EA (June 2021), or as measured

Note 1: Lost time refers to the total lost time for the respective phase (intergreen minus lost time adjustment). Lost time adjustments were calculated so that the total lost time for the respective phases are equal to the values set out in the City's guidelines.

The April 2022 City comments concerning the 1st submission TIS stated that the lost time adjustments outlined in **Table 9** were inconsistent with the Synchro reports provided in the appendices. As part of this TIS resubmission, the lost times adjustments were adjusted appropriately to correspond with the City of Mississauga preferred lost times for each signal timing phase.

3.8.2. Signal Timing Plans

Signal Timings Plans were obtained from the City of Mississauga for the following intersections:

- Ninth Line and Eglinton Avenue / East Lower Base Line
- Ninth Line and Erin Centre Boulevard

As the intersection of Ninth Line and Eglinton Avenue / East Lower Base Line is operating near capacity under the 2021 existing conditions scenario, while the signal timing cycle length was maintained, the timing splits were optimized for scenario volumes. For all remaining intersections, the existing conditions scenario maintained the existing signal timing plans for analysis.

For future background and future total scenarios, signal timings along Ninth Line that were used for study intersections within the Ninth Line EA Transportation Report were adapted for traffic modelling use (excerpts provided in **Appendix F**). This includes the intersection of Ninth Line and Skyview Street / Mahoney Gate, which is signalized during all future scenarios. The signal timing cycle lengths were maintained for the intersections, with splits being optimized.

Existing timing plans are included within **Appendix D.** Timing plans used for traffic modelling within this study are included within the detailed capacity analysis Synchro worksheets, provided as **Appendix G**.

3.8.3. Critical Volume-To-Capacity Thresholds

The City of Mississauga considers a movement to be critical when the volume-to-capacity exceeds 0.85 for through movements or shared through/turning movements, and 0.90 for exclusive movements. Therefore, in the traffic operations analysis, the maximum volume-to-capacity ratio along with the ratios which exceed the critical thresholds identified herein

3.9 Intersection Operations

The existing intersection operations at the study intersections were analyzed using the 2021 existing traffic volumes illustrated in **Figure 4.** As the TMC traffic data was obtained in 2019, growth rates were applied to all traffic movements at the study intersections**.** Detailed capacity analysis worksheets are included in **Appendix G**. Level of Service Definitions are provided within **Appendix H**.

Table 10 outlines the 2021 existing traffic operations. Volume-to-capacity ratios which exceeded the critical thresholds outlined in **Section 3.8.3** are bolded within the table.

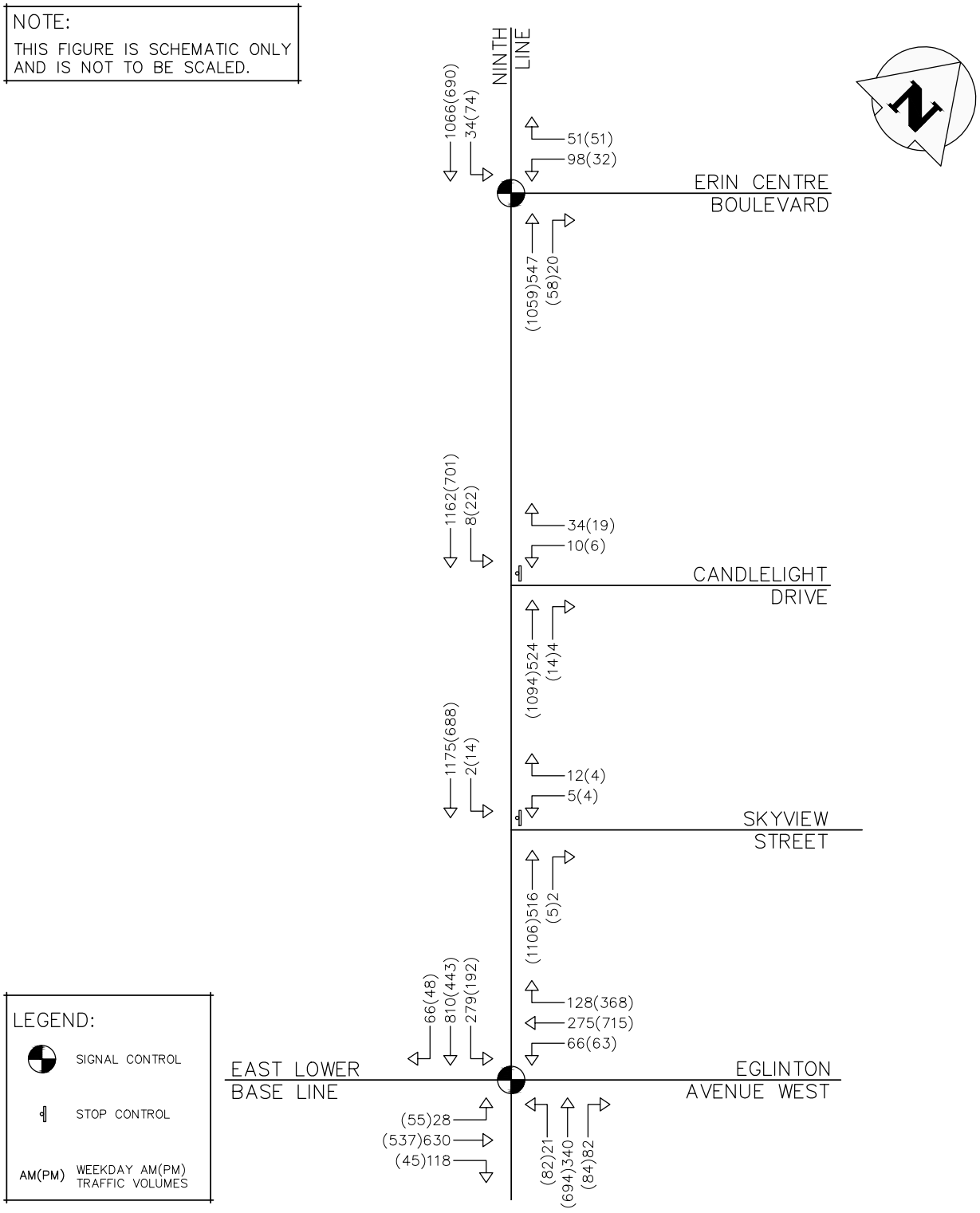


Figure 4: 2021 Existing Traffic Volumes

Table 10: 2021 Existing Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length [3]
Ninth Line and Eglinton Avenue West / East Lower Base Line	Signal	A.M.	E	62.3s	**1.04 (EBT)** **1.03 (SBT)**	25.5m > 15.0m (EBL) 35.5m > 30.0m (WBL) 54.2m > 30.0m (NBR) 101.3m > 65.0m (SBL)
		P.M.	D	53.3s	**1.03 (SBL)** **1.00 (NBT)** **0.90 (WBT)**	49.7m > 15.0m (EBL) 77.8m > 30.0m (WBL) 81.9m > 65.0m (NBL) 54.1m > 30.0m (NBR) 96.4m > 65.0m (SBL)
Ninth Line and Erin Centre Boulevard	Signal	A.M.	B	12.5s	0.76 (SBT)	35.3m > 15.0m (SBL)
		P.M.	B	16.6s	**0.88 (NBT)**	26.8m > 15.0m (SBL)
Ninth Line and Candlelight Drive	Stop (Minor)	A.M.	C	15.3s	0.70 (SBT)	None
		P.M.	D	25.4s	0.69 (NBT)	None
Ninth Line and Skyview Street	Stop (Minor)	A.M.	B	13.6s	0.70 (SBT)	None
		P.M.	C	24.6s	0.68 (NBT)	None

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

*Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection where the maximum v/c ratio does not exceed the critical thresholds. All v/c ratios that exceed the critical thresholds outlined in **Section 3.8.3** are bolded.*

Note 3: The 95th percentile queue lengths were derived from Sim-Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs. The 95th percentile queue lengths which are accommodated by the storage or a centre turn lane are not documented in this table.

The signalized intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is currently operating at a LOS "E" and LOS "D" during the weekday a.m. and p.m. peak hours, respectively. The intersection has a maximum control delay of 62.3s and volume-to-capacity ratio of 1.04 in the critical a.m. peak hour. Several movements, including all through movement lanes, are operating near or at capacity with volume-to-capacity ratios above one in the p.m. peak hour. These findings support the need for roadway expansion as recommended in the Ninth Line EA. The v/c ratios greater than 1.00 is not practical, but this can be expected as the 2021 existing traffic volumes were forecasted herein from 2019 data and was based on the City supplied growth rates (refer to **Appendix B**) which accounts for the future Ninth Line widening. The results show that the volumes used for the existing conditions analysis herein are higher than practically possible under the existing configuration.

The signalized intersection of Ninth Line and Erin Centre Boulevard is operating at a LOS "B" or better with a maximum control delay of 16.6s and volume-to-capacity ratio of 0.88 during the p.m. peak hour. The southbound-left movement has queue lengths occasionally exceeding the storage length of the lane onto the two-way left turn median lane.

The stop controlled minor connection of Candlelight Drive at Ninth Line is operating below capacity at a LOS "D" or better with a maximum control delay of 25.4s. Similarly, the stop controlled minor connection of Skyview Street at Ninth Line is operating below capacity at a LOS "C" or better with a maximum control delay of 24.6s.

4.0 Future Background Conditions

4.1 Horizon Year and Time Periods

Per the City of Mississauga's guidelines, the horizon year of analysis is typically five years from the date of study. Therefore, the 2026 horizon year was used for this study. This approach was confirmed through Terms of Reference correspondence with the City.

4.2 Roadway Improvements

In June 2021, a Class Environment Assessment Study was completed by the City of Mississauga concerning the Ninth Line corridor between Eglinton Avenue West and Derry Road West. The study identified roadway improvements to Ninth Line to accommodate future developmental growth on lands adjacent to Ninth Line. The roadway improvements, which included lane configurations and signalization, were identified in the supporting Transportation Report of the Environmental Study Report (Appendix D, Section 4.5 "Preferred Alternative"). The improvements are expected to be implemented in 2023 and/or 2024 (per the Ninth Line EA, Section 12.3 "Timing of Improvements").

Therefore, the future background and future total analysis in the first submission of this study and herein assumed that the roadway improvements recommended in the study will be implemented by the 2026 horizon year. However, City staff have noted that implementation and full operation of Ninth Line widening may be delayed and therefore a sensitivity analysis for the 2026 horizon assuming no Ninth Line widening was included in this updated study as well.

Provided in **Figure 5** are the forecasted future lane configurations at the study intersections herein. **Table 11** presents the forecasted roadway improvements at the study intersections.

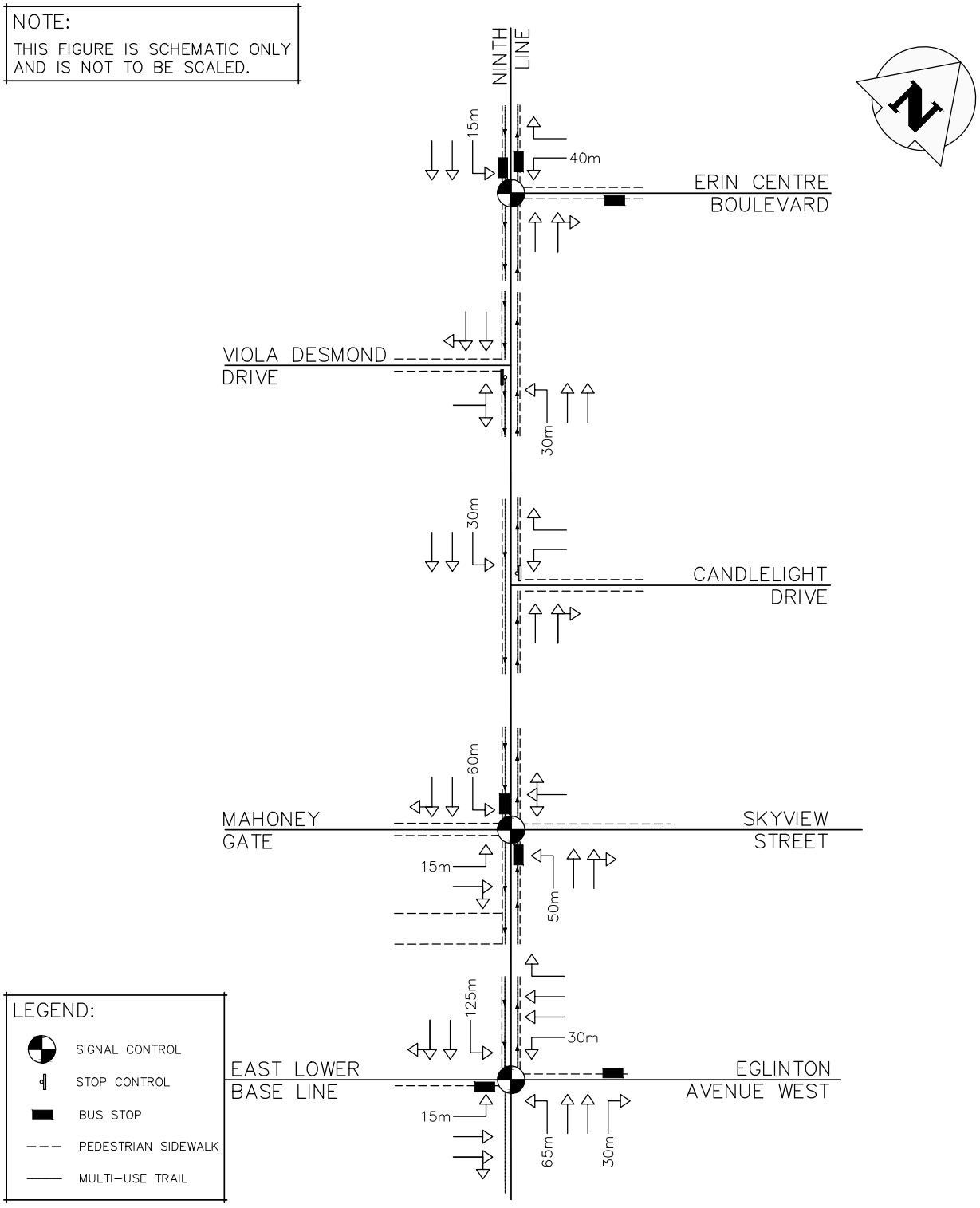


Figure 5: Future Boundary Road Network

Table 11: Boundary Road Network – Improvements at Study Intersections

Intersection/ Roadway	Future Roadway Improvements to Existing	Source
Ninth Line Corridor Widening	One additional NBT and SBT lane	Ninth Line EA / City of Mississauga[1]
Ninth Line and Eglinton Avenue West / East Lower Base Line	Ninth Line widening, and revising the current EBR lane to an EBTR.	Ninth Line EA / City of Mississauga[1]
Ninth Line and Skyview Street/Mahoney Gate (New approach)	Ninth Line widening, along with new NBL, EBL, and EBTR lanes for the new Mahoney Gate connection to Ninth Line	Ninth Line EA / City of Mississauga[1]
Ninth Line and Viola Desmond Drive (New intersection)	Ninth Line widening, along with new NBL and EBLTR lanes for the new Viola Desmond Drive connection to Ninth Line	Ninth Line EA / City of Mississauga[1]

Note 1: Confirmed through correspondence with City of Mississauga Traffic Modelling Department.

Refer to **Appendix F** for Ninth Line EA excerpts.

4.3 Growth Rates

To estimate future traffic on the boundary road network, growth rates were applied to existing traffic movements to account for future traffic growth passing through the boundary road network. Growth rates were applied separately for Arterial Roads, Local and Collector Roads. All growth rates discussed herein refer to the annual growth rate. Each growth rate is compounded annually to account for year over year background traffic growth. The growth rates herein were additionally applied to the 2019 traffic data to arrive at the 2021 existing conditions scenario.

4.3.1. Arterial Roads

As part of this TIS resubmission, growth rates were reconfirmed with the City. The growth rates used in the 1st TIS submission were changed in this resubmission, as the original growth rates included background developments along Ninth Line. The vehicle trips from background developments along Ninth Line are already incorporated through the "Emerging Land Use Concept" background development taken from the MMM study (refer to **Section 4.4.3**), therefore, the revised growth rates exclude growth attributable to these developments to avoid double counting future vehicle trips. The relevant discussion on growth rate revisions with the City of Mississauga Traffic Modelling can be found in the Terms of Reference correspondence (refer to **Appendix B**). The City provided through movement growth rates for Ninth Line and Eglinton Avenue West within the study area. The growth rates that were recommended for Ninth Line through movements between 2021 and 2031 assume lane widening occurring in the near future. As discussed in **Section 4.2,** this study incorporates lane widening for Ninth Line within the future background and future total analysis scenarios. Therefore, growth rates used in this study are expected to be reflective of traffic volume increases as a result of roadway widening.

Furthermore, to maintain consistency with **Section 4.3.2**, a 0.5% growth rate was applied to arterial road turning movements. It is expected that most of the turning movement traffic growth will be captured by the traffic projected from the background developments in **Section 4.4.**

Table 12 outlines the growth rates on the boundary road network for the 2021 to 2026 period.

Table 12: Boundary Road Network Growth Rates from 2021-2026

Street	Ninth Line	
Direction	**Northbound**	**Southbound**
A.M. Peak Hour	2.50% [1]	2.50% [1]
P.M. Peak Hour	2.00% [1]	2.50% [1]
Street	**Eglinton Avenue West**	
Direction	**Eastbound**	**Westbound**
A.M. Peak Hour	1.00%	1.00%
P.M. Peak Hour	1.00%	1.00%

*Note 1: A growth rate of 0.5% compounded annually was applied to movements entering and exiting Skyview Street, Candlelight Drive and Erin Centre Boulevard (see **Section 4.3.2**).*

4.3.2. Local and Collector Roads

At the Ninth Line intersections of Skyview Street, Candlelight Drive and Erin Centre Boulevard, the growth rates for Ninth Line outlined in **Table 12** were applied to through movements only. A growth rate of 0.5% compounded annually was applied to movements entering and exiting the local roads, as the surrounding residential neighbourhood east of Ninth Line is fully built-out and thus would not be expected to experience significant background traffic growth.

4.4 Background Developments

Background developments were confirmed through Terms of Reference correspondence with City staff. These background developments were accounted for under future background conditions. The developments are outlined in **Table 13.**

Table 13: Background Developments

Development	Location	Development Proposal	Statistics
Erin Mills Development[1]	North-east quadrant of Highway 403 and Highway 407	Industrial Park including retail and office uses	112,630 sq. m of industrial park 6,762 sq. m of retail 8,074 sq. m of office
407 Transitway	Future stations on Ninth Line: Britannia Road and Derry Road Future station on Trafalgar Road	Provincial transit system with exclusive right-of-way parallel to Highway 407; includes running way, stations, platforms, parking, and passenger pick-up and drop-off facilities.	---
Emerging Land Use Concept	Ninth Line (west side) from Highway 403 to Highway 401	Greenfield community consisting of residential, commercial retail, general office and general light industrial uses divided into seven zones along Ninth Line.	3,543 residential units 5,467 sq. ft of retail 40,009 sq. ft of general office 296,191 sq. ft of general light industrial
5150 Ninth Line	5150 Ninth Line (west side of Ninth Line north of Candlelight Drive)	Townhouse greenfield development	169 residential units
5080, 5054, 5034 Ninth Line	5080, 5054, 5034 Ninth Line (west of Ninth Line south of Candlelight Drive)	Residential development including retail uses	1287 residential units 7,000 sq. ft of retail

Note 1: Through Terms of Reference correspondence with City staff, an additional background development was added to the scope, located at the southwest corner of Eglinton Avenue and Ridgeway Drive. The Erin Mills background development includes this background development within its site location, and thus was considered to capture the associated background traffic. Refer to **Appendix B** for Correspondence and **Appendix F** for MMM study excerpts.

Appendix I contains excerpts from the MMM study on the background developments. The composite plan in **Appendix A** demonstrates the proposed development with the adjacent background developments. A proposed private road will connect the nearby 5080 and 5150 Ninth Line properties upon build-out of the proposed development, enabling vehicular access from the proposed development without needing to use Ninth Line. These developments have been accounted for under future background conditions (see **Sections 4.4.4 and 4.4.5**).

4.4.1. Erin Mills Development

According to the MMM study, the Erin Mills Development is an industrial park development located within the area bounded by Eglinton Avenue West to the north, Ridgeway Drive to the east, Highway 403 to the south and Highway 407 to the west. The development statistics are noted in **Table 13.**

The timing of the Erin Mills development is unknown; although a review of the google street view near the background development showed ongoing construction within the site footprint with portions currently built. Therefore, this development was accounted for under future background conditions.

In Terms of Reference correspondence, an additional background development at the southwest corner of Eglinton Avenue West and Ridgeway Drive was added to the TIS scope by City staff. However, the Erin Mills background development includes this background development within its site location, and thus was considered to capture the associated background traffic. Refer to **Appendix B** for correspondence. **Figure 6** illustrates the background traffic associated with the Erin Mills Development.

4.4.2. 407 Transitway

The MTO is planning the construction of an exclusive grade separated bus rapid transit (BRT) corridor, with the potential to be converted to a Light Rail Transit (LRT) corridor. The 407 Transitway will run parallel to Highway 407 and will span from Burlington to Pickering. The 407 Transitway infrastructure will provide infrastructure including an exclusive right-of-way, stations, park and ride, and passenger pick up and drop off services.

At the time of the writing of this report, the timing of 407 Transitway implementation is unknown. However, the first phase of the project is not expected to include the segment west of Hurontario Street. In addition, no mention of funding for the project is outlined in the 2022 Ontario and Region of Peel budgets, and the project is not outlined in the Region of Peel's 2021-2030 Capital Budget Map for the City of Mississauga (included in **Appendix F**, herein). Based on this review, it is assumed that the 407 Transitway background development will be implemented no earlier than 2031. Therefore, the 407 Transitway background development traffic volumes were not included in the traffic volumes projection herein.

Appendix F includes Highway 407 Transitway Environmental Assessment excerpts.

4.4.3. Emerging Land Use Concept (MMM Study)

The MMM study forecasted traffic for the Emerging Land Use Concept along the Ninth Line Corridor for various non-auto modal split scenarios: 5%, 10%, 15%, and 20%. For the purposes of conservative analysis, the site traffic volumes for the lowest non-auto modal split scenario (5%) was applied to this analysis. As the emerging land use concept was set for 2041 buildout, and the existing conditions year of the MMM study was 2015, the number of emerging land use background trips for a given scenario was factored proportionally to reflect ongoing development of Ninth Line properties between 2015 and 2041. This amounted to a factor of 0.423 being applied to the 2041 full buildout volumes.

Zone "1" of the Emerging Land Use Concept spans from Erin Centre Boulevard to Eglinton Avenue West and includes the subject property (see **Appendix F** for excerpts from the MMM study). The background site traffic associated with the area of Zone "1" was removed from the boundary road network. Except for a potential future 4087 Eglinton Avenue West development, all developments within Zone "1" with the exception site herein are included as background developments.

The sites which encompass Zone "1" include the subject site, the 5080 Ninth Line background development, the 5150 Ninth Line background development, and any future development occurring on the 4087 Eglinton Avenue West property. Therefore, removing background traffic associated with Zone "1" as per the MMM study from the boundary road network is an appropriate action as a more informed estimate of Zone "1" trips is provided per the site plans of the various developments as captured in this study.

Figure 7 illustrates the 2026 horizon background traffic volumes associated with the Emerging Land Use Concept background developments.

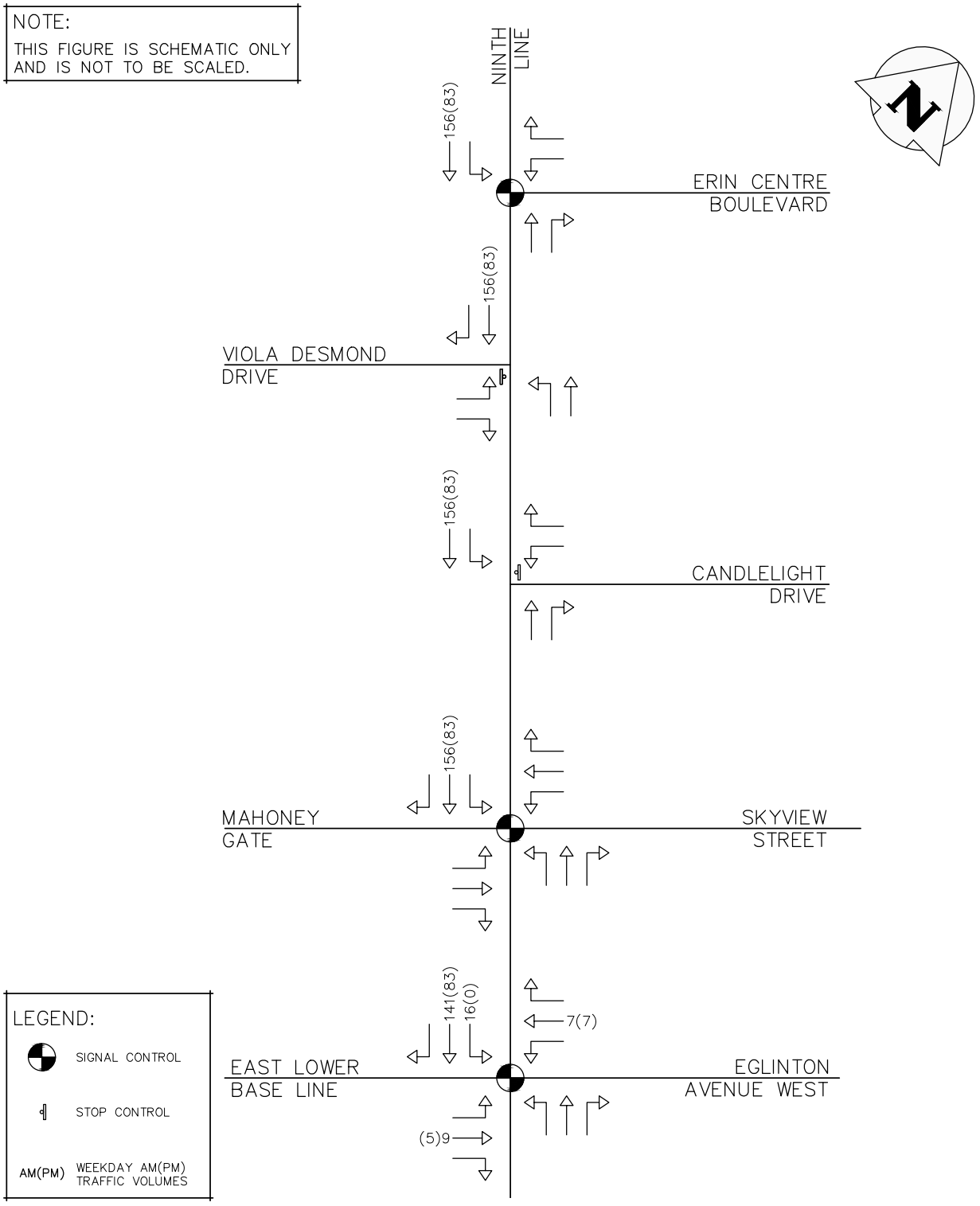


Figure 6: Background Traffic – Erin Mills Industrial Development Volumes

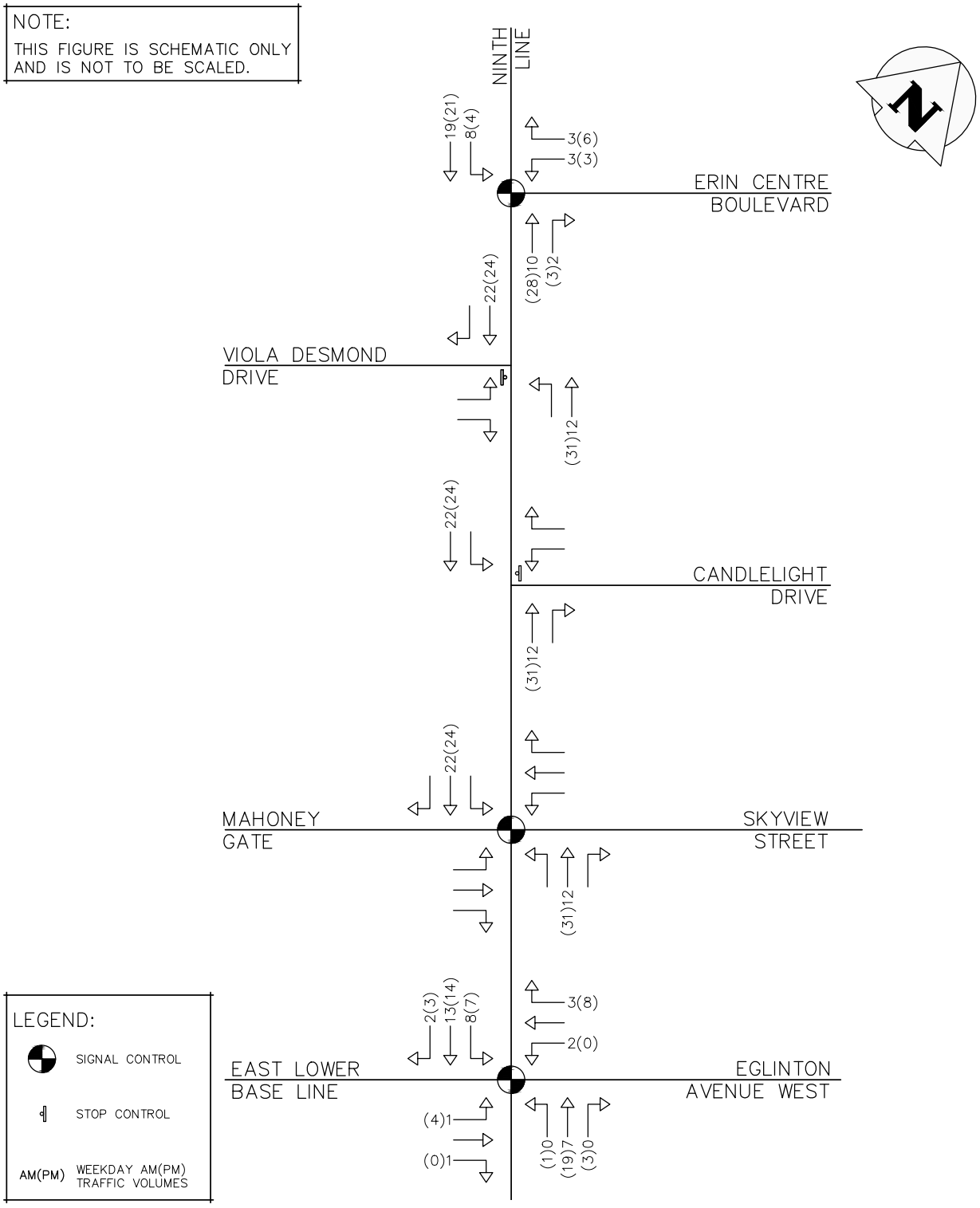


Figure 7: Background Traffic – 2026 Emerging Land Use Concept Volumes

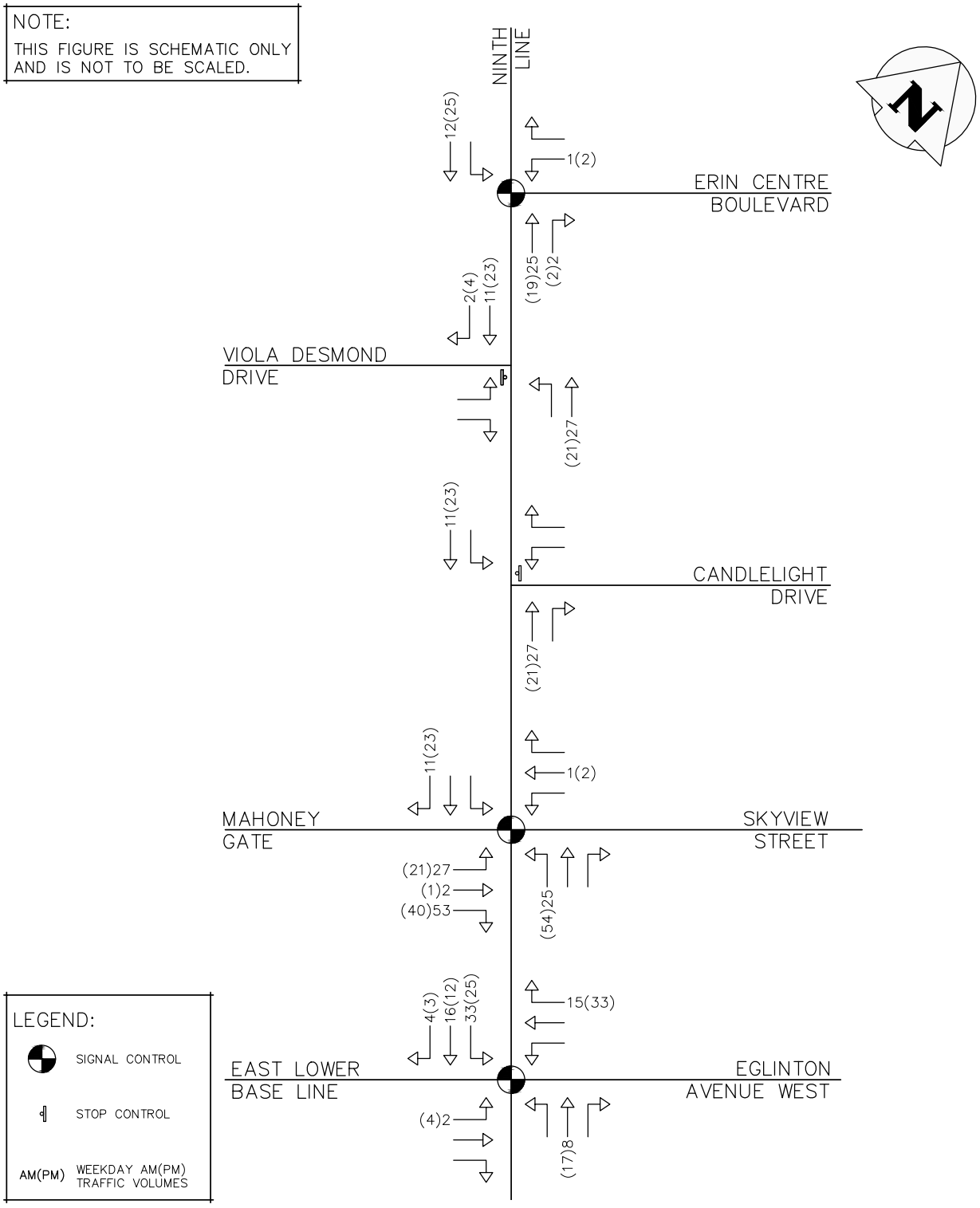


Figure 8: Background Traffic – 5080 Ninth Line Volumes (Phase 1 only)

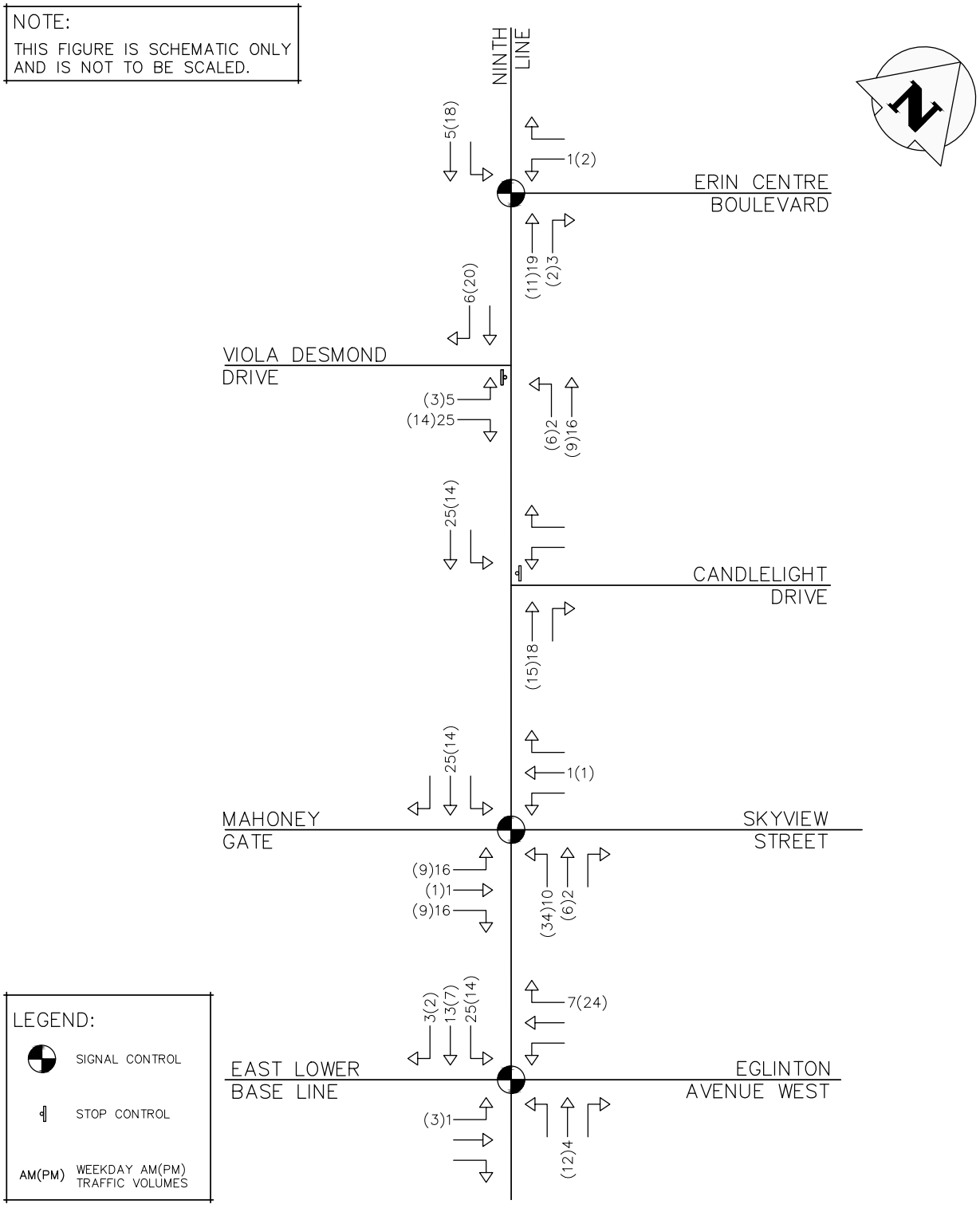


Figure 9: Background Traffic – 5150 Ninth Line Volumes

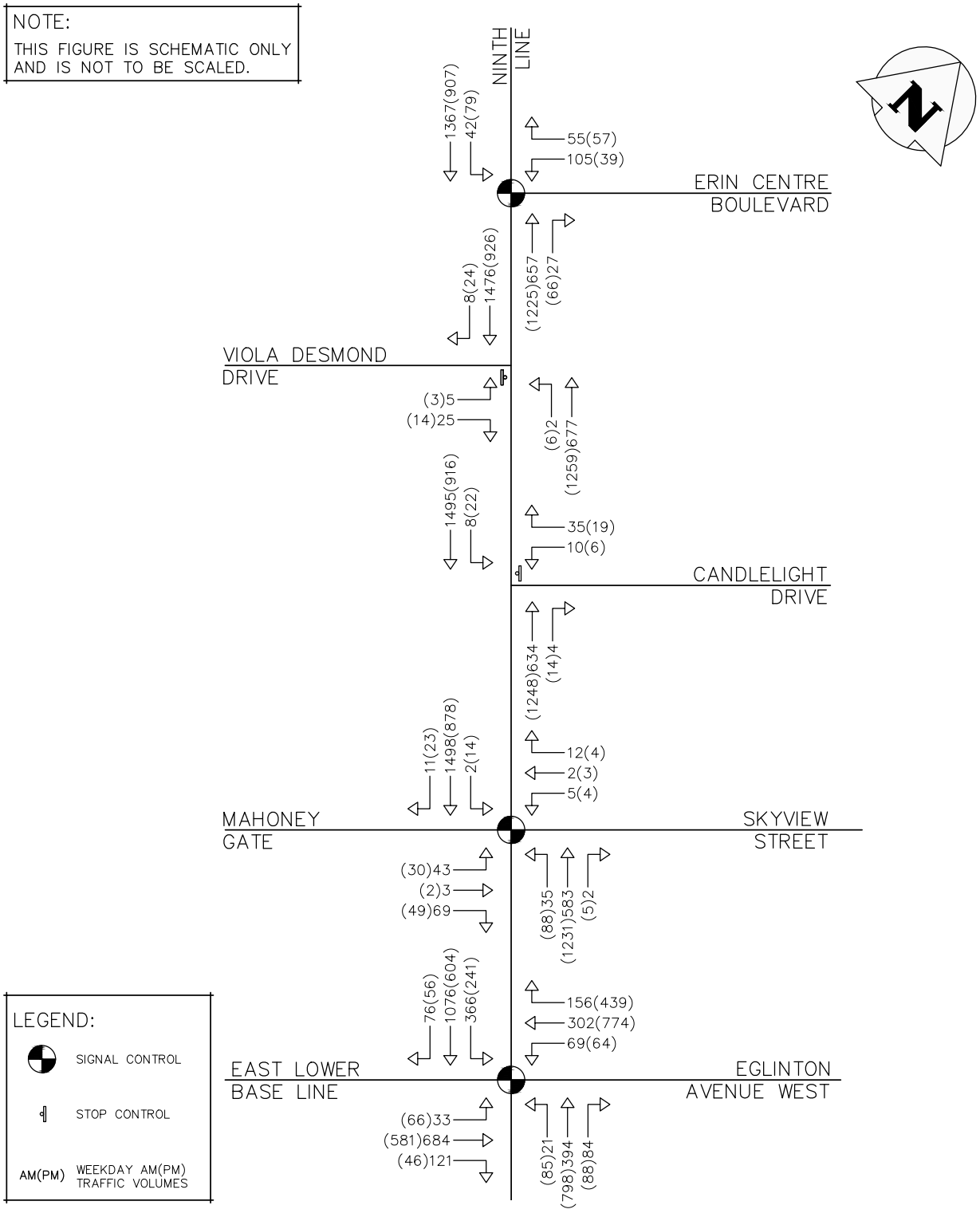


Figure 10: 2026 Future Background Traffic Volumes

4.4.4. 5080, 5054, and 5034 Ninth Line Development

Your Home Developments is proposing a residential development on the 5080, 5054, and 5034 Ninth Line parcels, as shown on the Composite plan in **Figure 2**. The development proposes a total of 1287 residential dwelling units and 7000 square feet of retail. Crozier prepared a Traffic Impact Study in support of the 5080, 5054, and 5034 Ninth Line development that was submitted to the City in October 2021.

Trip Generation and Trip Distribution for 5080, 5054, and 5034 Ninth Line were taken directly from the 5080 Ninth Line TIS. The 5080 Ninth Line TIS trip distribution accounted for demand induced travel patterns within the area that include the 5080, 5150, and 5160-70 developments. The distribution was based upon Transportation Tomorrow Survey Data, existing travel patterns and expected catchment areas.

Furthermore, it is understood that only the Phase 1 portion of the 5080, 5054, and 5034 Ninth Line background development is slated to be completed prior to the 2026 horizon year. Therefore, only the Phase 1 background trips were added to the future background traffic volume projection for this study.

Figure 8 outlines the traffic volumes from this background development. Excerpts from the 5080 Ninth Line TIS are provided in **Appendix F**.

4.4.5. 5150 Ninth Line Development

Mattamy Homes is proposing a residential development at the adjacent 5150 Ninth Line property as shown in the composite plan in **Appendix A**. The development proposes a total of 169 residential townhouse dwelling units to be constructed in two phases: Phase 1 (with an anticipated build-out of 2021) and Phase 2 (with an anticipated build-out of 2022). Crozier prepared a Traffic Impact Study in support of the 5150 Ninth Line development that was submitted to the City in June 2022.

Trip Generation for 5150 Ninth Line were taken directly from the 5150 Ninth Line TIS (excerpts provided within **Appendix F**). Trips were distributed to the boundary road network using the same trip distribution outlined for the proposed development in **Sections 5.2 and 5.3**. **Figure 9** outlines the traffic volumes from this background development.

4.5 Intersection Operations

Table 14 outlines the 2026 future background traffic operations at the study intersections. The future background intersection operations at the study intersections were analyzed using the 2026 future background traffic volumes illustrated in **Figure 10**. Level of Service Definitions are provided in **Appendix H**. Detailed capacity analysis worksheets are included in **Appendix G**.

Table 14: 2026 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length [3]
Ninth Line and Eglinton Avenue West / East Lower Base Line	Signal	A.M.	C	31.6s	0.78 (SBT)	36.2m > 15.0m (EBL)
		P.M.	D	40.8s	**0.90 (NBT)** **0.87 (SBL)** **0.85 (WBT)**	56.9m > 15.0m (EBL) 68.7m > 30.0m (WBL) 90.7m > 65.0m (NBL) 58.0m > 30.0m (NBR)
Ninth Line and Erin Centre Boulevard	Signal	A.M.	A	8.1s	0.55 (SBT)	18.8m > 15.0m (SBL)
		P.M.	A	9.3s	0.59 (NBT)	22.1m > 15.0m (SBL)
Ninth Line and Candlelight Drive	Stop (Minor)	A.M.	B	12.0s	0.45 (SBT)	None
		P.M.	C	18.8s	0.52 (NBT)	None
Ninth Line and Skyview Street / Mahoney Gate	Signal	A.M.	A	6.8s	0.57 (SBT)	18.0m > 15.0m (EBL)
		P.M.	A	4.1s	0.44 (NBT)	15.5m > 15.0m (EBL)
Ninth Line and Viola Desmond Drive	Stop (Minor)	A.M.	C	18.1s	0.63 (SBT)	None
		P.M.	B	13.4s	0.40 (NBT)	None

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

*Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection where the maximum v/c ratio does not exceed the critical thresholds. All v/c ratios that exceed the critical thresholds outlined in **Section 3.8.3** are bolded.*

Note 3: The 95th percentile queue lengths were derived from Sim-Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs. The 95th percentile queue lengths which are accommodated by the storage or a centre turn lane are not documented in this table.

Under 2026 future background conditions, the signalized intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is projected to operate at a LOS "C" and "D" during the weekday a.m. and p.m. peak hours. The turn queues are forecast to occasionally exceed the turn storage lanes at the intersection during the peak hours as identified by the MMM study and the Ninth Line EA Studies. These queues may occasionally obstruct some movements at adjacent intersections during the peak hours. These operations are however typical for high traffic arterial intersections during the peak hours and operations are expected to return to more acceptable levels during the off-peaks.

The high volumes and associated volume-to-capacity ratio for the southbound left movement is consistent with the MMM and Ninth Line EA Studies. It is recommended that the intersection be monitored by the City and that the signal timing plan be adjusted as needed in future for optimal performance including increasing effective green time for critical movements. Further, it is noted that Section 9.17.5 of the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) identifies the warrant for dual left turn lanes at peak hour volumes greater than 300. Given the southbound left turn traffic is forecast to be in excess of 300 trips in both the a.m. and p.m. peak hours dual southbound left turn lanes may be considered as part of the Ninth Line EA roadway improvements or investigated in the future as a long term measure to further improve the intersection operations.

Given several other planned roadway improvements on adjacent roadways as well as future transit intensification on the Ninth Line corridor, the forecasted issues at the intersection of Ninth Line and Eglinton Avenue / East Lower Base Line may be overstated herein.

The signalized intersection of Ninth Line and Erin Centre Boulevard Line is projected to operate at a LOS "A" or better with a maximum control delay of 9.3s and volume-to-capacity ratio of 0.59 during the peak hours. The southbound-left movement queue lengths are expected to occasionally exceed the storage length of the lane onto the two-way left turn median lane.

The stop controlled minor connection of Candlelight Drive at Ninth Line is projected to operate at a LOC "C" or better with a maximum control delay of 18.8s and volume-to-capacity ratio of 0.52.

The signalized intersection of Ninth Line and Skyview Street / Mahoney Gate is projected to operate at a LOS "A" with a maximum control delay of 6.8s and volume-to-capacity ratio of 0.57.

The stop controlled minor connection of Viola Desmond Drive at Ninth Line is projected to operate at a LOS "C" or better in the peak hours, with a maximum control delay of 18.1s. The maximum volume-to-capacity ratio is expected to be 0.63.

The forecasted future background operations herein at the study intersections are consistent with the findings of the MMM study and the Ninth Line EA Study. Further, the boundary road network is projected to operate effectively under the 2026 future background conditions with implementation of the roadway improvements outlined in this section, supported by the Ninth Line EA and the MMM study.

5.0 Site Generated Traffic

The proposed development will result in additional vehicles on the boundary road network that would otherwise not exist. The proposed development will also result in additional turning movements at the study intersections. This section outlines these additional vehicular movements.

5.1 Trip Generation

Trip generation for the proposed development was forecasted using published data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. The ITE Trip Generation Manual is a compendium of industry collected trip generation data across North America for a variety of land uses and is used industry-wide as a source for trip generation forecasts.

Per the site plan, the proposed residential development includes a total of 187 residential units. Multifamily Housing (Mid-Rise) was applied to the proposed development as outlined in **Table 15** below. The greater trip generation estimate of the fitted curve equation and the rate equation was used.

Table 15: Site Trip Generation

Units	Land Use	Peak Hour	Trips Generated		
			Inbound	Outbound	Total
187 Units	LUC 221 "Multifamily Housing (Mid-Rise)"	A.M.	16	55	71
		P.M.	44	29	73

The full build-out of the proposed development is expected to generate a total of 71 and 73 total two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

5.2 Boundary Road Network Trip Distribution

The trips generated by the proposed development were distributed to the boundary road network using a similar methodology employed in the 5150 Ninth Line TIS. Excerpts from this report have been provided in **Appendix F**.

The trip distribution was determined based on 2016 Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive survey of transportation characteristics of households in the Greater Toronto Area (GTA) and surrounding areas.

For the proposed development, TTS results were filtered to auto trips exiting 2006 GTA Zones 3615, 3616, 3809, 3810 and 3811 during the weekday a.m. peak period. These zones consist of the residential zones along the Ninth Line corridor, and thus were considered to be appropriate for trip distribution analysis. The row variable was set to "Planning District of Destination" and the column variable was set to "Use of 407" to quantify the number of trips travelling to each destination that use Highway 407 ETR.

From this query, trip destinations were determined, and percentage of trips assigned to each destination was accounted for. Trips were assumed to travel to and from their destination points based on the most convenient route, considering trips using Highway 407 ETR and trips not using Highway 407 ETR.

It was determined that approximately 65% of the total outbound trips exiting the study area during the weekday a.m. peak period are internal to Mississauga. Accordingly, trip distribution internal to Mississauga was determined using a combination of existing travel patterns, expected destinations, and TTS results for trips travelling within Planning District "Mississauga."

The resultant boundary road network trip distribution is outlined in **Table 16.**

Table 16: Boundary Road Network Trip Distribution

Arriving From / Departing To	Greater Toronto Area (GTA) Trip Locations	Total Percentage
Ninth Line (north)	Northern Mississauga, Brampton, Vaughan, Markham, Milton, etc.	**30%**
Ninth Line (south)	*Hamilton, Oakville, Burlington, Downtown Toronto, etc.*	**20%**
Eglinton Avenue West (east)	*Southern and Eastern Mississauga, Midtown Toronto*	**40%**
***Erin Centre Boulevard* (east)**	*Local Destinations*	**3%**
***Skyview Street* (east)**	*Local Destinations*	**2%**
East Lower Base Line (west)	Brantford, Niagara, etc.	**5%**
Total		**100%**

Trips arriving from and departing to the north via Ninth Line include trips using Highway 407 ETR (east), trips to and from areas internal to northern Mississauga (e.g., Meadowvale) and trips using Highway 401 west toward Milton and greater Waterloo. Trips arriving from and departing to the south via Ninth Line include trips using Highway 403 (west), the Queen Elizabeth Way (QEW), and trips to and from areas internal to Mississauga (e.g., Port Credit).

Trips arriving from and departing to the east via Eglinton Avenue West include trips using Highway 403 (east) via Winston Churchill Boulevard, and trips to and from areas internal to Mississauga along Eglinton Avenue West and Winston Churchill Boulevard. Trips arriving from and departing to the west via East Lower Base Line include trips using Highway 407 ETR (west) via Trafalgar Road.

Appendix I contains the TTS data.

5.3 Access Trip Distribution

Due to the subject site sharing an internal private roadway with the nearby 5080 and 5150 Ninth Line residential developments, it is expected that site traffic will access the site via both the Mahoney Gate and Viola Desmond Drive access connections, similar to the adjacent composite lands.

The site trip distribution (for traffic both entering or exiting the site) is based on the ease of ingress and egress at the two accesses considering traffic from the adjacent lands. For example, given Mahoney Gate is signalized, it is expected that more outbound left turn movements will favour using this access due to the resulting shorter expected delays. This was incorporated into the access trip distribution. which is presented in **Table 17**.

Table 17: Access Trip Distribution

Ninth Line Access	Roadway Arriving from / Leaving to	Inbound Trip Distribution	Outbound Trip Distribution
Viola Desmond Drive	Ninth Line (north)	**33%**	**8%**
Viola Desmond Drive	Ninth Line (south)	**10%**	**40%**
Mahoney Gate	Ninth Line (north)	**0%**	**25%**
Mahoney Gate	Skyview Street (east)	**2%**	**2%**
Mahoney Gate	Ninth Line (south)	**55%**	**25%**

Figure 11 outlines the trip distribution for the proposed development.

5.4 Trip Assignment

The trip distribution outlined in **Section 5.2** and **Section 5.3** was applied to the site trip generation to calculate the trip assignment for the proposed development. Trips were assumed to travel to and from their destination points based on the most convenient route. **Figure 12** outlines the trip assignment for the proposed development.

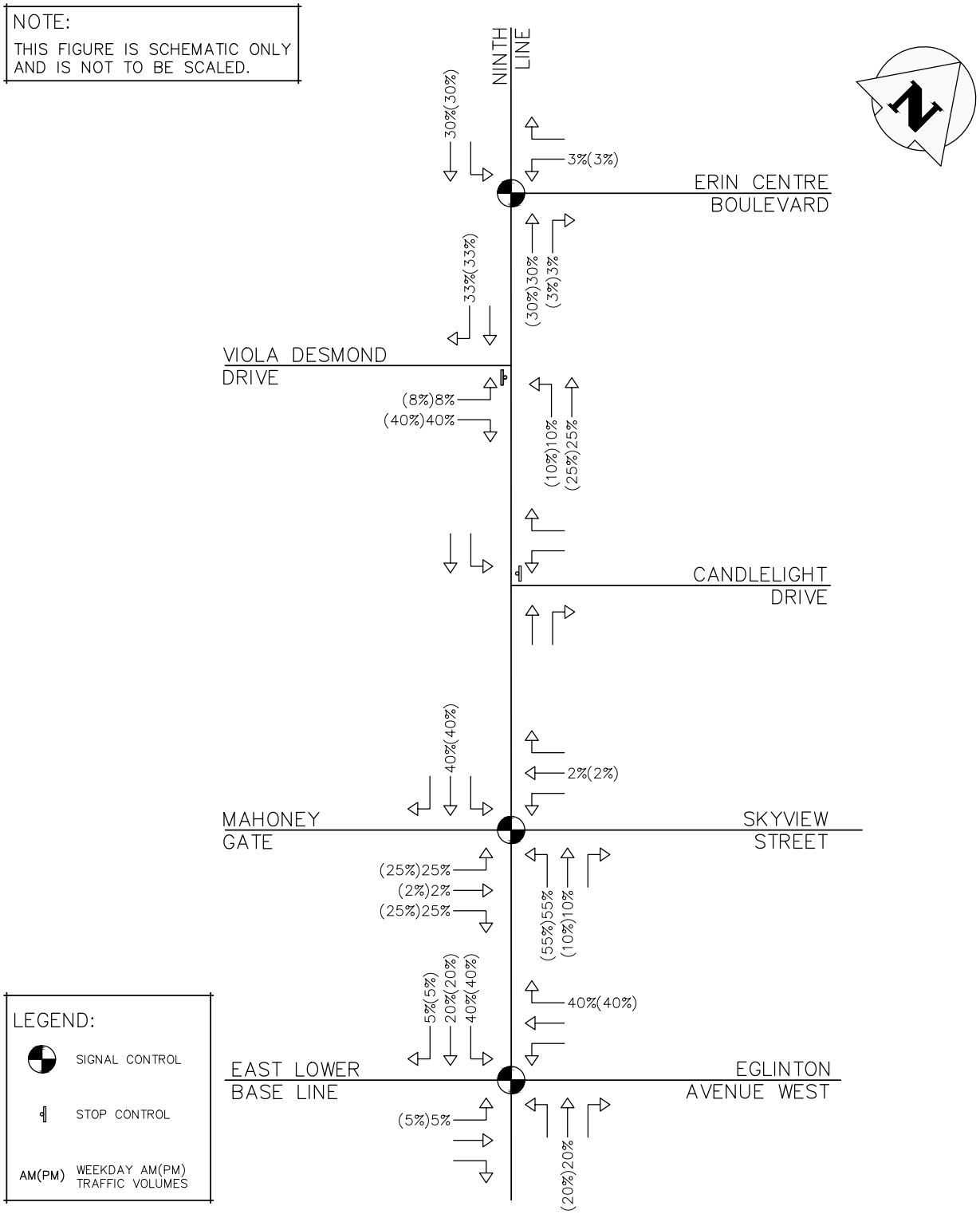


Figure 11: Site Trip Distribution

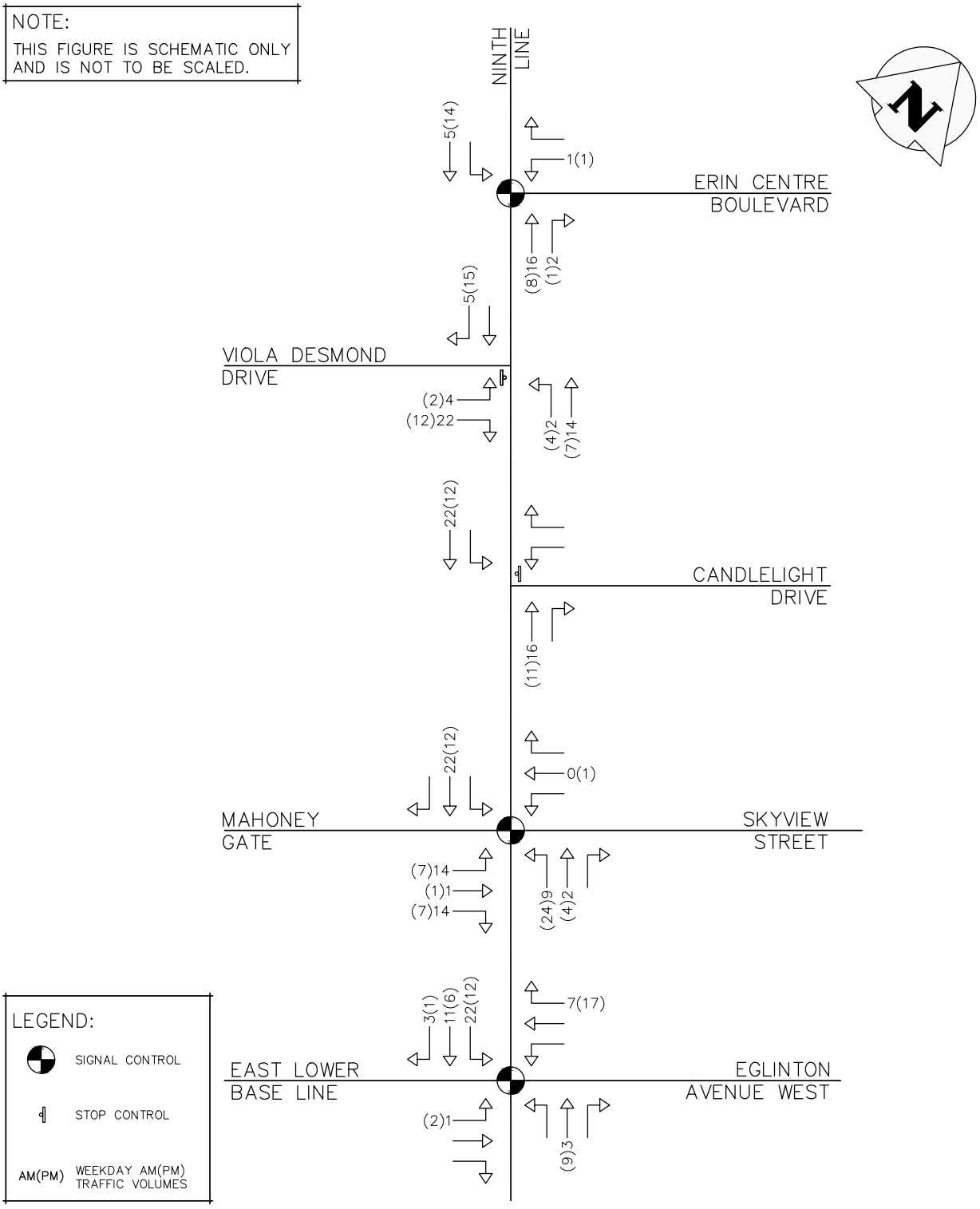


Figure 12: Site Trip Assignment

6.0 Future Total Conditions

6.1 Signal Warrant Analysis

A signal warrant analysis was conducted for the following cases:

- Ninth Line and Viola Desmond Drive – 2026 Future Total (widening and delayed widening)

The analysis followed the procedures specified in Chapter 4 of the "Ontario Traffic Manual – Book 12", March 2012. Justifications 1 (Minimum Vehicular Volume), 2 (Delay to Cross Traffic), 3 (Combination of Justifications 1 and 2), and 4 (4-Hour Volume) were selected as the most appropriate warrants with which to assess the site connections.

The average hour volume was determined using the following formula from OTM Book 12:

AHV = (amPHV + pmPHV) / 4

Where;
AHV = average hour volume
PHV = peak hour volume

Despite the existing speed limit of 70 km/h on Ninth Line being considered "free flow" in the signal warrant analysis, an "urban" operating environment was applied to the signal warrant analysis to reflect the urbanization of the Ninth Line corridor. **Table 18** outlines the results of the signal warrant analysis.

Table 18: Signal Warrant Analysis Results

Location	Operating Environment	Horizon Year	Number of lanes on major road	Traffic Signals Warranted?
Ninth Line and Viola Desmond Drive	Urban	2026 Future Total	Two	No
			One	No

The results of the signal warrant analysis indicate that traffic signals are not warranted at the intersection of Ninth Line with Viola Desmond Drive under either the widening or delayed widening scenarios. This conclusion reflects the assessment within Section 4.2 of the Traffic Analysis undertaken by HDR in support of the Ninth Line EA (excerpts are provided in **Appendix F**) and the 5080, 5054, and 5034 Ninth Line TIS which recommends stop-control at the Ninth Line and Viola Desmond Drive intersection through the 2035 horizon year.

Within this analysis, traffic signals were assumed to be implemented at the intersection of Ninth Line and Mahoney Gate during the 2026 horizon year. The Ninth Line EA and 5080 Ninth Line TIS performed traffic analysis with signals at the noted study intersection. Therefore, it is reasonable to assume that signals will be implemented at the intersection of Ninth Line and Skyview Street / Mahoney Gate in the 2026 horizon year.

Appendix J contains the signal warrant sheets.

6.2 Left-Turn Lane Analysis

A left-turn warrant analysis was conducted for the northbound left movement at Ninth Line and Viola Desmond Drive under 2026 Future Total conditions. This was performed in order to compare the results with the 5150 Ninth Line TIS and the 5080 Ninth Line TIS and recommend improvements as needed.

The analysis was conducted using the Ministry of Transportation (MTO)'s "Design Supplement for TAC Geometric Design Guide for Canadian Roads – June 2017." (TAC-GDGCR). The analysis was conducted using the warrant for "Left Turn Storage Lanes for Four-Lane Undivided Highways Unsignalized." As Viola Desmond Drive will be located on the west side Ninth Line, the northbound left-turn movement was analyzed for left-turn lane requirements. **Table 19** outlines the results of the left-turn lane warrant analysis.

Table 19: Left-Turn Lane Warrant Analysis Results

Location	Movement	Horizon Year	Number of lanes on major road	Left-Turn Lane Storage Requirement?
Ninth Line and Viola Desmond Drive	NBL	2026 Future Total	Four	Yes – 15m storage length

The results of the left-turn lane analysis indicate that an auxiliary northbound left-turn lane is warranted at the intersection under 2026 future total conditions, with a storage length of 15m. This forecast is lower than the 1st submission due to lower forecasted through movements, where a 25m storage length was warranted. Nevertheless, given future traffic growth beyond the 2026 horizon will result in less gaps for traffic to make this turning movements, a recommendation of a minimum 25m left-turn storage lane is still carried. This is the same conclusion to what was identified in the 5150 Ninth Line TIS under 2024 Future Total conditions, and the 5080 Ninth Line TIS under full buildout conditions. Even though a storage length of 15m is still appropriate to accommodate queuing along the corridor based on operational analysis, for Synchro modelling purposes, a 30m storage length for the northbound left movement was used to maintain consistency with the aforementioned traffic impact studies. Given the proposed southbound left-turn storage lane for the Ninth Line and Candlelight Drive intersection per the Ninth Line EA design drawings (provided within **Appendix F**), it is recommended the approximately 100m distance between the two intersections be distributed at 25m per left turn and the remaining length be a shared two-way taper; alternatively, as is expected for most of the Ninth Line corridor, a two-way left turn lane median marking may be implemented along the segment from Viola Desmond Drive to Mahoney Gate to provide left turning storage opportunities in both directions at the intersections involved.

Appendix K contains the Left-turn Warrants.

6.3 Right-Turn Lane Warrant Analysis

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GFGCR), June 2017, a right-turn auxiliary lane on an urban or rural road should be implemented at unsignalized intersections when the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard. Similarly, consideration for a right turn storage is typically expected for a signalized intersection when there are operational issues and where repurposing a shared lane is expected to greatly improve operations at the intersection. It is also common practise in traffic engineering that an auxiliary right-turn lane be considered where right-turn volumes exceed 60 vehicles per hour.

Per the 5080 Ninth Line TIS findings, no auxiliary right-turn lanes are required on Ninth Line at the proposed Viola Desmond Drive and Mahoney Gate connections to Ninth Line all through to the 2035 future horizon. Accordingly, no auxiliary right-turn lanes are projected at full buildout or the 2026 horizon of the development herein.

6.4 Intersection Operations

The future total intersection operations at the study intersections were analyzed using the 2026 future total traffic volumes illustrated in **Figure 13**, and revised signal timings as outlined in **Section 3.8.2**. Detailed capacity analysis worksheets are included in **Appendix G** and Level of Service definitions are provided in **Appendix H**. **Table 20** outlines the 2026, future total traffic operations for the study intersections.

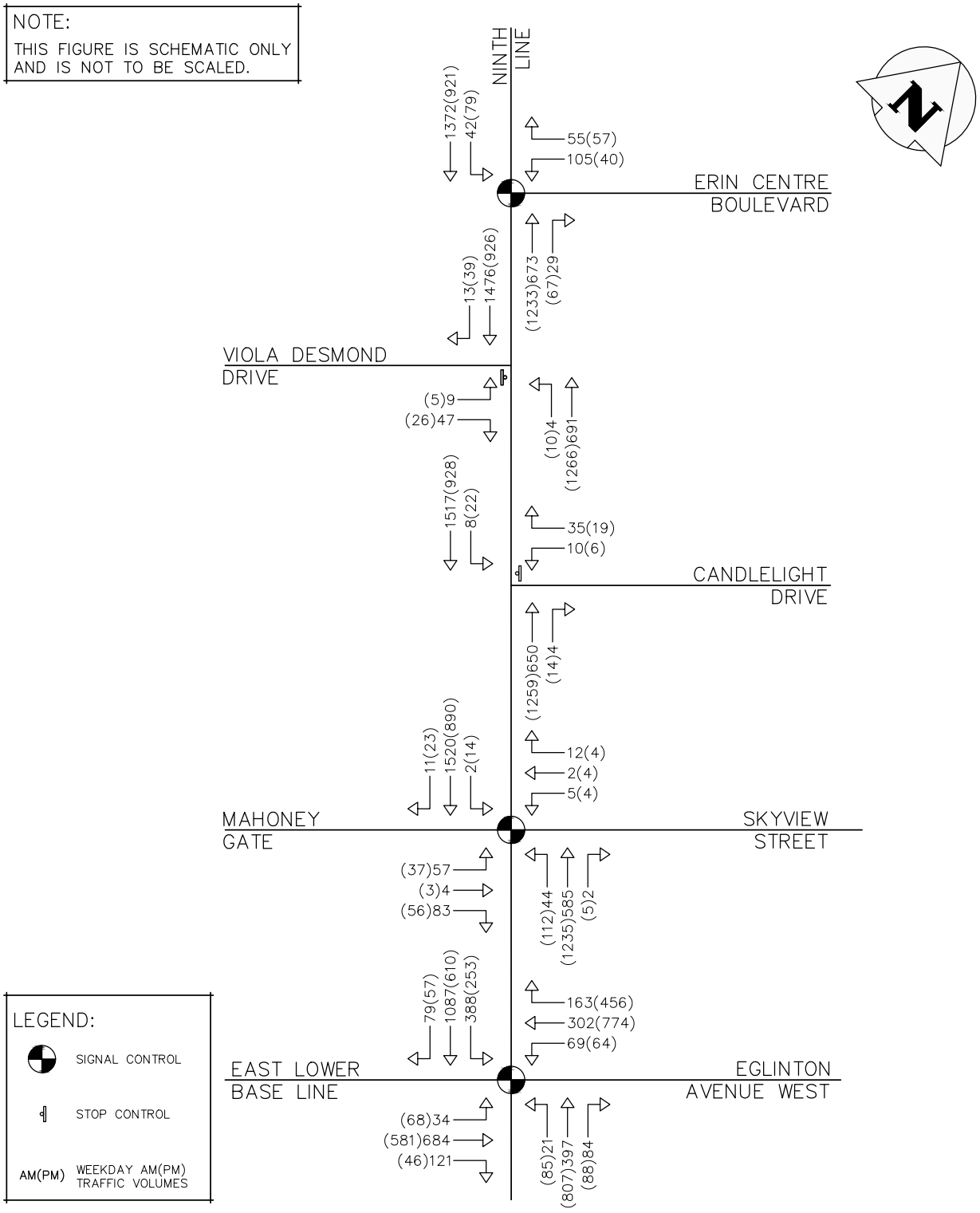


Figure 13: 2026 Future Total Traffic Volumes

Table 20: 2026 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length [3]
Ninth Line and Eglinton Avenue West / East Lower Base Line	Signal	A.M.	C	32.4s	0.77 (SBT)	39.2m > 15.0m (EBL) 39.7m > 30.0m (WBL) 130.4m > 125.0m (SBL)
		P.M.	D	42.2s	**0.92 (NBT)** **0.90 (SBL)** **0.85 (WBT)**	55.8m > 15.0m (EBL) 73.6m > 30.0m (WBL) 98.4m > 65.0m (NBL) 64.7m > 30.0m (NBR) 175.9m > 125.0m (SBL)
Ninth Line and Erin Centre Boulevard	Signal	A.M.	A	8.5s	0.56 (SBT)	21.5m > 15.0m (SBL)
		P.M.	A	9.5s	0.60 (NBT)	20.1m > 15.0m (SBL)
Ninth Line and Candlelight Drive	Stop (Minor)	A.M.	B	12.1s	0.46 (SBT)	None
		P.M.	C	18.8s	0.53 (NBT)	None
Ninth Line and Skyview Street / Mahoney Gate	Signal	A.M.	A	7.6s	0.59 (SBT)	20.0m > 15.0m (EBL)
		P.M.	A	4.7s	0.47 (NBT)	16.2m > 15.0m (EBL)
Ninth Line and Viola Desmond Drive	Stop (Minor)	A.M.	C	20.2s	0.63 (SBT)	None
		P.M.	B	13.4s	0.40 (NBT)	None

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

*Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection where the maximum v/c ratio does not exceed the critical thresholds. All v/c ratios that exceed the critical thresholds outlined in **Section 3.8.3** are bolded.*

Note 3: The 95th percentile queue lengths were derived from Sim-Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs. The 95th percentile queue lengths which are accommodated by the storage or a centre turn lane are not documented in this table.

Under the 2026 future total conditions, the signalized intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is projected to operate at a LOS "C" and "D" during the weekday a.m. and p.m. peak hours, respectively. Compared to 2026 future background conditions, the control delay increment is expected to be 0.8 and 1.4 seconds in the a.m. and p.m. peak hours, respectively; therefore, operational issues are largely background related. Similar to the future background conditions, the turn queues are forecast to occasionally exceed the turn storage lanes at the intersection during the peak hours as identified by the MMM Group and the Ninth Line EA Studies. Considering several other planned roadway improvements on adjacent roadways as well as future transit intensification on the Ninth Line corridor, these forecasted issues may be overstated herein. Nonetheless, it is recommended that the signal timing plans at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line be revised as needed to optimize future intersection performance.

Should adequate right-of-way exist, it is recommended that the City investigate potential dual-left turn lanes for the southbound left-turn movement at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line as part of the Ninth Line EA roadway improvements or in future. The movement has peak hour volumes in excess of 300, a threshold identified to warrant dual left turn lanes per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR).

The signalized intersection of Ninth Line and Erin Centre Boulevard Line is projected to operate at a LOS "A" or better with a maximum control delay of 9.5s seconds and volume-to-capacity ratio of 0.60 during the a.m. peak hour. A control delay increment of 0.4 seconds and volume-to-capacity ratio increase of 0.01 is expected. The southbound-left movement queue lengths are expected to occasionally exceed the storage length of the lane onto the two-way left turn median lane.

The stop controlled minor connection of Candlelight Drive at Ninth Line is projected to operate at a LOC "B" or better with a maximum control delay of 18.8s and volume-to-capacity ratio of 0.53. The southbound-left movement queue lengths are expected to occasionally exceed the storage length of the lane in the p.m. peak hour.

The signalized intersection of Mahoney Gate / Skyview Viola Desmond Drive Ninth Line is projected to operate at a LOS "A" or better with a maximum control delay of 7.6 seconds and volume-to-capacity ratio of 0.59.

The stop controlled minor connection of Viola Desmond Drive at Ninth Line is projected to operate below capacity at a LOS "C" and "B" in the a.m. and p.m. peak hours, with a maximum control delay of 20.2 seconds in the a.m. peak hour. This represent a control delay increment of 2.1 seconds and no maximum volume-to-capacity ratio increase compared to future background conditions.

Given the close spacing between the three aforementioned study intersections, it is recommended that consideration be given to providing a continuous two-way left turn (TWLT) median lane between Viola Desmond Drive and Mahoney Gate to provide left turn opportunities for the closely spaced connections on the segment. This is aligned with the Ninth Line EA, as a TWLT lane is expected along most of the Ninth Line corridor.

The study intersections operations are similar to the future background and consistent with the findings of the MMM study and the Ninth Line EA study. The proposed development does not materially impact traffic operations within the boundary road network and therefore can be supported from a traffic operations perspective.

6.5 Sensitivity Analysis

The comments from the City of Mississauga concerning the 1st TIS submission requested a sensitivity analysis scenario where the planned widening of Ninth Line is delayed beyond the assumed target buildout of the proposed development in 2026. The noted sensitivity scenario analysis is summarized under this section.

The following changes to volume forecasting and to the boundary road network have been made for the sensitivity analysis:

- New growth rates for a no Ninth Line widening scenario per City models were obtained from the City of Mississauga Traffic Modelling Department and are summarized in **Table 21**. (refer to correspondence in **Appendix B**)
- The lane configurations were revised back to the existing boundary road network in **Figure 2** to reflect the pre-widening situation of Ninth Line.

Table 21: Sensitivity Analysis – Growth Rates

Street	Ninth Line	
Direction	**Northbound**	**Southbound**
A.M. Peak Hour	1.50% [1]	1.00% [1]
P.M. Peak Hour	1.00% [1]	0.50% [1]
Street	**Eglinton Avenue West**	
Direction	**Eastbound**	**Westbound**
A.M. Peak Hour	1.50%	2.00%
P.M. Peak Hour	1.50%	1.50%

Note 1: The growth rate applies only to through movements. A growth rate of 0.5% was applied to turning movements entering and exiting the arterials along with Erin Centre Boulevard, Candlelight Drive and Skyview Street.

With the outlined sensitivity analysis changes to the standard analysis approach, the sensitivity analysis 2026 future background traffic volumes are outlined in **Figure 14**, and the 2026 future total traffic volumes are outlined in **Figure 15**. The 2026 future background and future total traffic operations on the boundary road network are summarized in **Tables 22 and 23** below.

Table 22: Sensitivity Analysis – 2026 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length [3]
Ninth Line and Eglinton Avenue West / East Lower Base Line	Signal	A.M.	F	104.0s	**1.27 (SBT)** **1.16 (EBT)** **0.90 (SBL)**	23.7m > 15.0m (EBL) 45.1m > 30.0m (WBL) 56.5m > 30.0m (NBR) 99.9m > 65.0m (SBL)
		P.M.	E	76.9s	**1.38 (EBL)** **1.29 (SBL)** **1.18 (NBT)** **0.94 (WBT)**	52.7m > 15.0m (EBL) 80.2m > 30.0m (WBL) 84.3m > 65.0m (NBL) 52.2m > 30.0m (NBR) 82.6m > 65.0m (SBL)
Ninth Line and Erin Centre Boulevard	Signal	A.M.	C	20.8s	**0.93 (SBT)**	50.6m > 40.0m (WBL) 35.7m > 15.0m (SBL)
		P.M.	C	27.5s	**1.00 (NBT)**	43.6m > 15.0m (SBL)
Ninth Line and Candlelight Drive	Stop (Minor)	A.M.	D	27.6s	**0.87 (SBT)**	None
		P.M.	D	31.8s	0.77 (NBT)	46.7m > 30.0m (SBL)
Ninth Line and Skyview Street / Mahoney Gate	Stop (Minor)	A.M.	E	45.2s	**0.86 (SBT)**	None
		P.M.	E	46.8s	0.73 (NBT)	19.0m > 15.0m (SBL)
Ninth Line and Viola Desmond Drive	Stop (Minor)	A.M.	E	36.4s	**0.91 (SBT)**	None
		P.M.	C	19.3s	0.78 (NBT)	None

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

*Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection where the maximum v/c ratio does not exceed the critical thresholds. All v/c ratios that exceed the critical thresholds outlined in **Section 3.8.3** are bolded.*

Note 3: The 95th percentile queue lengths were derived from Sim-Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs. The 95th percentile queue lengths which are accommodated by the storage or a centre turn lane are not documented in this table.

Table 23: Sensitivity Analysis – 2026 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length [3]
Ninth Line and Eglinton Avenue West / East Lower Base Line	Signal	A.M.	F	106.2s	**1.28 (SBT)** **1.18 (EBT)** **0.93 (SBL)**	29.5m > 15.0m (EBL) 39.0m > 30.0m (WBL) 60.3m > 30.0m (NBR) 100.3m > 65.0m (SBL)
		P.M.	F	80.8s	**1.29 (SBL)** **1.26 (NBT)** **1.11 (EBL)** **0.91 (WBT)**	53.6m > 15.0m (EBL) 74.7m > 30.0m (WBL) 84.5m > 65.0m (NBL) 56.4m > 30.0m (NBR) 87.8m > 65.0m (SBL)
Ninth Line and Erin Centre Boulevard	Signal	A.M.	C	21.1s	**0.94 (SBT)**	34.0m > 15.0m (SBL)
		P.M.	C	28.6s	**1.01 (NBT)**	41.0m > 15.0m (SBL)
Ninth Line and Candlelight Drive	Stop (Minor)	A.M.	D	29.8s	**0.88 (SBT)**	None
		P.M.	D	32.0s	0.78 (NBT)	41.4m > 30.0m (SBL)
Ninth Line and Skyview Street / Mahoney Gate	Stop (Minor)	A.M.	F	222.2s[4]	**0.87 (SBT)**	None
		P.M.	F	67.4s	0.74 (NBT)	17.9m (SBL)
Ninth Line and Viola Desmond Drive	Stop (Minor)	A.M.	E	46.4s	**0.91 (SBT)**	None
		P.M.	C	20.3s	0.79 (NBT)	None

Ditto Notes Table 22.

Note 4: The 222.2s delay is attributable to the Skyview Viola Desmond Drive approach. The site access approach delay is forecast at 55.3s.

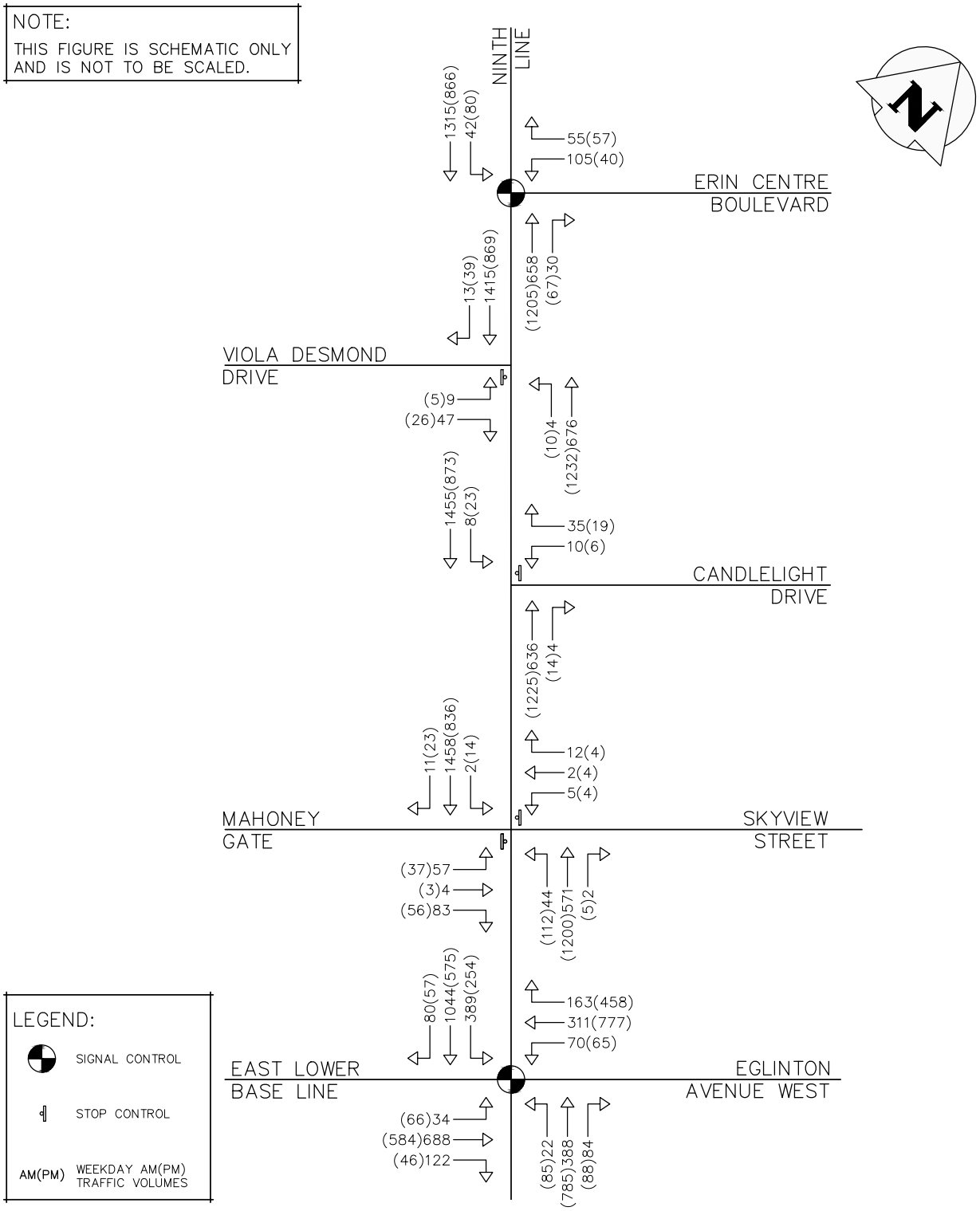


Figure 14: Sensitivity Analysis – 2026 Future Background Traffic Volumes

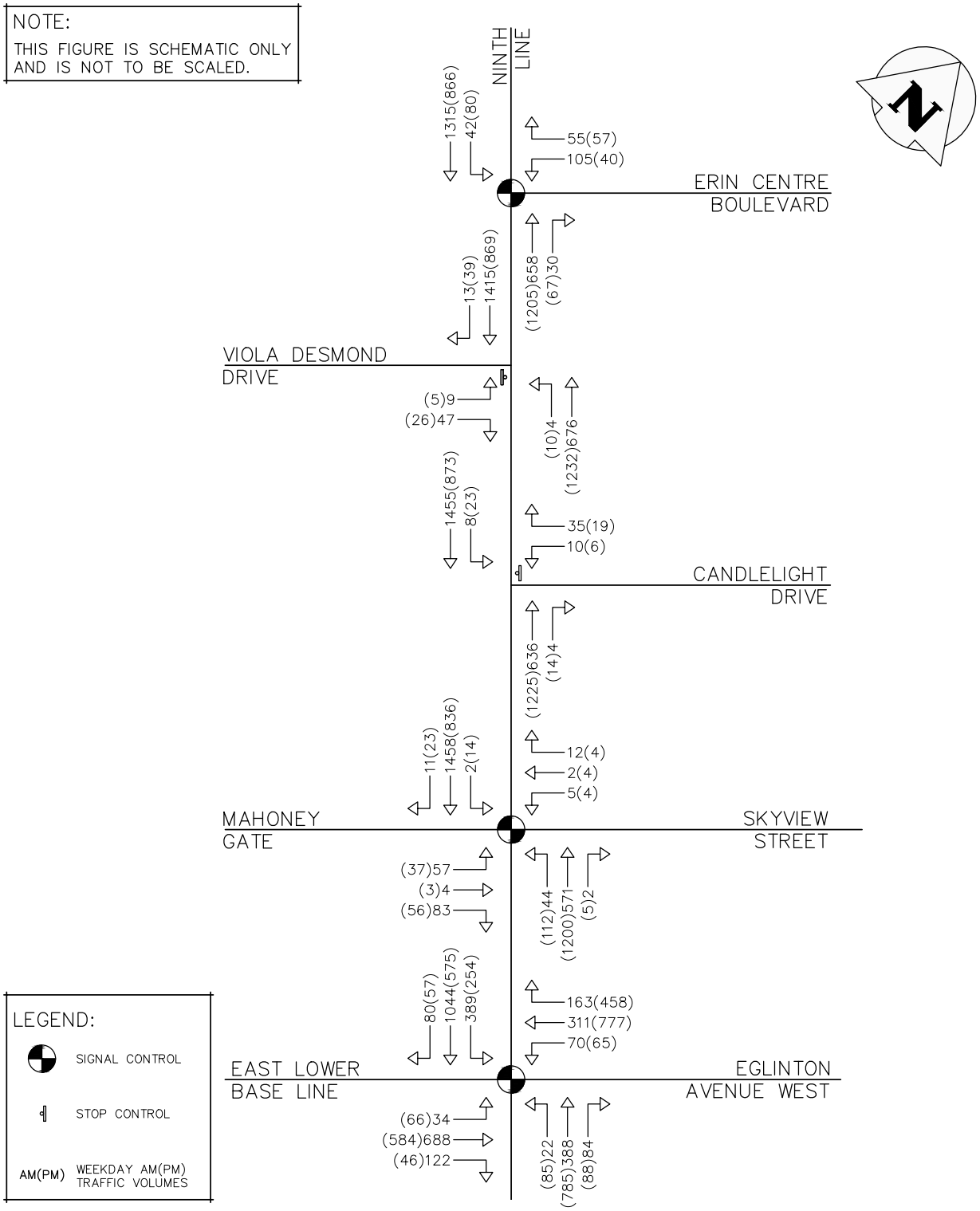


Figure 15: Sensitivity Analysis – 2026 Future Total Traffic Volumes

As shown in **Tables 22 and 23**, operations are projected to be worse along Ninth Line without the planned widening.

The intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is forecast to operate poorly under the current configuration, at a LOS "F" during the peak hours under the current configuration. An intersection volume-to-capacity ratio of 1.30 and 1.19 in the a.m. and p.m. peak hours, respectively, is forecast. A maximum movement volume-to-capacity ratio of 1.29 is projected. These findings strongly support the need to add intersection capacity to mitigate potential operational and safety concerns. It is therefore recommended that the Ninth Line widening be implemented as soon as possible to address forecasted capacity concerns; similar to findings of the Ninth Line EA and related background studies. A comparison between 2026 future background and future total operations for the Ninth Line and Eglinton Avenue West / East Lower Base Line intersection demonstrates that the operational issues described herein are primarily background related and development traffic imposes an immaterial impact to traffic operations at the intersection.

At the intersection of Ninth Line and Skyview Street / Mahoney Gate, the intersection is projected to operate at a LOS "F" under sensitivity scenario a.m. peak hour conditions. Though a maximum control delay of 222.2s is forecast in the a.m. peak hour, this delay is attributable to only five westbound left-turning vehicles from the Skyview Street approach. Under a cursory analysis, the removal of these five trips would results in efficient operations for the Skyview Street approach, with a LOS "B" being forecast. Given the low number of vehicle movements attributable to this movement, it is expected that vehicles will become familiar with constrained operations along Ninth Line under existing lane configurations and will primarily opt to reroute to Eglinton Avenue via Intrepid Drive, which will offer comparable travel times. In addition, the average approach delay at the Mahoney Gate eastbound approach is more acceptable at 55.3s in the a.m. peak hour.

Similarly, approach delay at the Mahoney Gate access connection to Ninth Line / Skyview Street is forecast at 67.4s in the p.m. peak hour. Signal Warrants were checked for the intersection and were found to be not warranted (refer to **Section 6.1**). Furthermore, implementation of signals would result in reduced green time for through traffic along Ninth Line which is already operationally constrained in free flow conditions. Therefore, implementation of an interim signal control is not advisable at the Ninth Line and Skyview Street / Mahoney Gate study intersection.

In addition, the Ninth Line and Viola Desmond Drive intersection is projected to operate at a LOS "E" and LOS "C" during the a.m. and p.m. peak hours, respectively. Given this, it is anticipated that some vehicles attributable to the development proposal and the 5150 Ninth Line site will opt to use the Viola Desmond Drive access to Ninth Line more frequently than the analysis projection herein in the p.m. peak hour (and to a lesser extent in the a.m. peak hour), given higher delays are forecast for the Mahoney Gate access connection to Ninth Line.

Therefore, based on the above, traffic operations are projected to be acceptable under minor stop intersection control in the interim at the Skyview Street / Mahoney Gate and Viola Desmond Drive connections to Ninth Line prior to the Ninth Line widening. It is recommended that minor stop control be implemented at the Mahoney Gate and Viola Desmond Drive access connections to Ninth Line in the interim prior to the Ninth Line widening.

The remaining study intersections are forecast to operate acceptably under existing intersection controls, at a LOS "D" or better during the peak hours. The through movements on Ninth Line are near capacity as is expected given the high volumes.

7.0 Safety Review

Per the City of Mississauga's guidelines, a safety review of the proposed development is required. The purpose of the safety review is to identify any safety deficiencies for auto drivers, pedestrians and cyclists for the proposed development, and to identify how the development proposes to maximize safety for all road users.

7.1 Sight Distance Analysis

The available sightlines at the proposed CEC Road "F" connections were measured and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR). Sight distance was measured from the proposed site accesses using the following assumptions:

- A standard driver eye height of 1.08 metres for a passenger car, and
- A 4.4 metre setback from the approximate extension of the outer curb to represent a vehicle waiting to exit the site.

Intersection sight distance is calculated using equation 9.9.1 from the GDGCR as outlined below:

*ISD = 0.278 * V major * tg*

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

The CEC Road "F" is a local roadway and is assumed to have a design speed of 50km/h for the sight distance analysis. The connection at CEC Road "G" and the outbound only access were evaluated. Furthermore, the main ingress/egress points to Ninth Line at Viola Desmond Drive and Mahoney Gate also underwent sight distance analysis.

Table 24 outlines the sight distance analysis for the proposed CEC Road "F" connections.

Table 24: Sight Distance Analysis

Feature	Site Accesses at "CEC Road F"	Viola Desmond Drive connection to Ninth Line	Mahoney Gate connection to Ninth Line
Access Type	Full-Moves	Full-Moves	Full-Moves
Intersection Control	Stop (Minor Street)	Stop (Minor Street)	Signalized
Assumed Speed Limit of Roadway	40 km/h	70 km/h	70 km/h
Assumed Design Speed	50 km/h	90 km/h	90 km/h
Base Time Gap	7.5 s [1]	7.5 s [1]	7.5 s [1]
Additional Time Gap	N/A	1.0 s (time to cross additional through lane and centre turn lane)	1.0 s (time to cross additional through lane and centre turn lane)
Grade of Roadway	Less than 3%	Less than 3%	Less than 3%
Horizontal Alignment of Roadway	Straight	Straight	Straight
Sight Distance Required	105m [2]	215 m [2]	215 m [2]
Measured Sight Distance	Entire "CEC Road F" visible	>400m (to north and south)	>300m (to north and south)
Minimum Sight Distance Satisfied?	Yes	Yes	Yes

Note 1: Time gap for left-turning vehicles from a stop onto a two-lane highway with no median and with a grade less than 3%. Value from Table 9.9.3 in the GDGCR.
Note 2: Sight distance values calculated from Intersection Sight Distance equation 9.9.1 in the GDGCR.

As outlined in **Table 24**, minimum sight distance requirements are satisfied at the proposed site accesses and at the Ninth Line connections. Therefore, the proposed development is supportable from a sight distance perspective.

7.2 Access Spacing and Corner Clearance

The TAC GDGCR was used to review access spacing for the proposed site accesses along CEC Road "F". The site access spacing requirements and proposed spacing are presented in **Table 25**.

Table 25: Access Spacing Review

Site Access	Available Spacing	Minimum Spacing and Corner Clearance Requirements	Evaluation	Source
Southern two-way access	>40m (to the north and south)[1]	15m corner clearance (from stop intersection	Satisfied	TAC-GDGCR Figure 8.8.2
		Minimum of 1 m spacing between driveways	Satisfied	TAC-GDGCR Figure 8.9.2
Northern one-way access	>20m (to the north) >50m (to the south)[1]	15m corner clearance(from stop intersection	Satisfied	TAC-GDGCR Figure 8.8.2
		Minimum of 1 m spacing between driveways	Satisfied	TAC-GDGCR Figure 8.9.2
Viola Desmond Drive	>80m (to the north and south)	15m corner clearance (from stop intersection	Satisfied	TAC-GDGCR Figure 8.8.2
Mahoney Gate	>60m (to the north and south)	15m corner clearance (from stop intersection	Satisfied	TAC-GDGCR Figure 8.8.2

Note 1: Assumes the intersection of CEC Road "F" and CEC Road "G" is stop controlled on the minor approaches only (ie. CEC Road "G" and the southern two-way access).

As presented in **Table 25**, the minimum spacing and corner clearance requirements have been satisfied. No operational safety issues are forecasted.

7.3 Internal Site Circulation

Detailed vehicle turning diagrams using vehicle turning analysis have been provided to illustrate internal site circulation. The most constrained vehicle profiles expected to navigate the site was analyzed, which is a Peel front load garbage truck.

The vehicle turning diagrams indicates that maneuverability for the design vehicle expected within the site is adequate. **Appendix L** contains the vehicle turning diagrams for each vehicle profile.

8.0 Parking Review

The required parking rates for the proposed development were determined using the new City of Mississauga Zoning By-Law 0117-2022, which was recently approved by Council to amend and replace the previous City of Mississauga's Zoning By-law No. 0225-2007. By-law excerpts provided in **Appendix M**.

Table 26 outlines the required parking spaces at the subject site based on the By-Law. Note that the subject site falls within Precinct 3, and the minimum parking rates used for the calculation reflect this designation.

Table 26: Required Vehicle Parking

Buildings	Number of Units	Rates per By-Law	Required Vehicle Parking Spaces		
			Resident	Visitor	Total
6-Storey Mid-Rise Development	187	1.0 per unit (resident) 0.20 per unit (visitor)	187	37	224
Provided Vehicle Parking			187	32	219

As presented in **Table 26**, the proposed vehicle parking supply is deficient of the City of Mississauga's Zoning By-law minimum parking requirements by five spaces. It is noted that the deficiency is as a result of City staff request for some modification to the underground parking lot that resulted in a loss in parking spaces. The marginal parking supply deficiency is immaterial to functionality of the site and the proponent has advised that City staff are supportive of the parking supply. Further, the required accessible and bicycle parking spaces per the Zoning By-Law are provided. Refer to the Site Plan in **Appendix A**.

9.0 Conclusions

The analysis contained within this report has resulted in the following key findings:

- Under the 2021 existing conditions scenario, the boundary road network is operating at a LOS "D" or better at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line, and LOS "C" or better at all other study intersections during the weekday a.m. and p.m. peak hours.

- Under the 2026 future background conditions:

    - The signalized intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is projected to operate at a LOS "C" and "D" during the weekday a.m. and p.m. peak hours. The turn queues are forecast to occasionally exceed the turn storage lanes at the intersection during the peak hours as identified by the MMM Group and the Ninth Line EA studies. These queues may occasionally obstruct some movements at adjacent intersections during the peak hours. These operations are however typical for high traffic arterial intersections during the peak hours and operations are expected to return to acceptable levels during the off-peaks.

    - The remaining study intersections are expected to operate efficiently at a LOS "C" or better during the weekday peak hours.

- The proposed development is expected to generate a total of 71 and 73 total two-way trips during the weekday a.m. and p.m. peak hours, respectively.

- Under the 2026 future total conditions, the study intersections are forecast to operate at similar levels of services with minor changes.

    - The signalized intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is projected to operate at a LOS "C" and "D" during the weekday a.m. and p.m. peak hours, respectively. Compared to 2026 future background conditions, there is a control delay increase of 0.8 and 1.4 seconds in the a.m. and p.m. peak hours, respectively; therefore, operational issues are largely background related as highlighted in the future background section. Considering several other planned roadway improvements on adjacent roadways as well as future transit intensification on the Ninth Line corridor, forecasted operational issues may be overstated herein.

    - The remaining study intersections are expected to continue to operate efficiently at a LOS "D" or better. A maximum control delay increment of 2.1 seconds is forecast.

    - Signal Warrants were evaluated at the intersection of Ninth Line and Viola Desmond Drive. Signalization was not found to be warranted. This finding is consistent with prior analysis undertaken in the Ninth Line EA.

    - Left-turn warrants were evaluated for the northbound left-turn movement at the intersection of Ninth Line and Viola Desmond Drive. A left-turn storage lane of length is warranted for the aforementioned movement. The finding is consistent with previous studies.

- Under the delayed widening of Ninth Line 2026 future total sensitivity scenario:

    - The intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line is projected to operate above intersection capacity in both the future background and future total. An intersection control delay of above 100 s in the a.m. peak and several movement volume-to-capacity above one are forecast in both the a.m. and p.m. peak hours.

    - Under minor stop control, the intersection of Ninth Line and Skyview Street / Mahoney Gate is forecast to operate at a LOS "F" during the peak hours, while the Ninth Line and Viola Desmond Drive intersection is forecast to operate at a LOS "E" or better during the peak hours. Signal Warrants were checked at both of the intersections and were found to be not warranted under the 2026 future total sensitivity scenario. Furthermore,

        - Though a maximum control delay of 222.2s is forecast in the a.m. peak hour, this delay is attributable to only five westbound left-turning vehicles from the Skyview Street approach. Given the low number of vehicle movements attributable to this movement, it is expected that vehicles will become familiar with constrained operations for a left turn onto Ninth Line under the existing lane configurations and will primarily opt to reroute to Eglinton Avenue via Intrepid Drive, which will offer comparable travel times. In addition, the approach delay at the Mahoney Gate eastbound approach is more acceptable at 55.3s in the a.m. peak hour.

- During the p.m. peak hour, an average approach delay of 67.4s is forecast for the Mahoney Gate site access. However, it is expected the average delay is overstated herein given the operational forecast projects a LOS "C" at the Viola Desmond Drive connection to Ninth Line during the p.m. peak hour. It is anticipated that some vehicle will opt to use the Viola Desmond Drive connection more frequently than the analysis projection herein, and that both access connections to Ninth Line will operate adequately in the interim before Ninth Line widening is implemented.

- The traffic model results indicate that traffic operations are projected to be acceptable under minor stop intersection control in the interim at the Skyview Street / Mahoney Gate and Viola Desmond Drive connections to Ninth Line before the Ninth Line widening improvement is implemented.

- The remaining study intersections are expected to operate acceptably at a LOS "D" or better during the peak hours with average delays to the minor connections less than 33 s during the peak hours.

- A comparison between 2026 future background and future total traffic operations under the sensitivity scenario demonstrates that the operational issues on the Ninth Line corridor described herein are primarily background related and is consistent with findings of the Ninth Line EA and related background studies which indicate the need for widening of Ninth Line earlier than 2026.

- Notwithstanding the above, no material changes in traffic operations on the boundary roads is forecast with or without the proposed development under a delayed construction of the Ninth Line widening.

- A safety review regarding the proposed Viola Desmond Drive and Mahoney Gate was conducted as required by the City of Mississauga's guidelines. Based on the safety review:

  - The available sight distance at the site access connections exceeds the minimum sight distance requirements set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017.

  - The site satisfies the minimum corner clearance and access spacing requirements per the TAC-GDGCR.

  - There are no expected maneuverability constraints within the site for waste collection vehicles.

- The proposed parking supply is deficient by five spaces compared to the minimum vehicle parking space requirements of the City's recent Zoning By-law No. 0117-2022. However, the marginal parking supply deficiency is immaterial to the functionality of the site and is a result of a City staff request for some modification to the underground parking lot. Furthermore, the site provides the required barrier free accessible parking spaces and bicycle parking spaces.

Additionally, the conclusions arising from the analysis has resulted in the following recommendations as outlined below:

- It is recommended that the Ninth Line widening be implemented as soon as possible to address forecasted capacity concerns. A comparison between 2026 future background and future total operations for the Ninth Line study intersections demonstrates that

development traffic imposes an immaterial impact to traffic operations.

- It is recommended that minor stop control be implemented at the Mahoney Gate and Viola Desmond Drive access connections to Ninth Line in the interim prior to the Ninth Line widening. Further, implementation of an interim signal control is not advisable at either of the Ninth Line access connections as this measure would result in substantially less effective green time for the through movements, which are already operationally constrained under free-flow conditions.

- It is recommended that the signal timing plans at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line be modified as needed to optimize future intersection performance.

- Should adequate right-of-way exist, it is recommended that the City investigate potential dual-left turn lanes for the southbound left-turn movement at the intersection of Ninth Line and Eglinton Avenue West / East Lower Base Line as part of the Ninth Line EA roadway improvements or in future. The movement has peak hour volumes in excess of 300, a threshold identified to warrant dual left turn lanes per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR).

- It is recommended that consideration be given to providing a continuous two-way left turn (TWLT) median lane between Viola Desmond Drive and Mahoney Gate to provide left turn opportunities for the closely spaced connections on the segment. This is aligned with the Ninth Line EA, as a TWLT lane is expected along most of the Ninth Line corridor.

- It is recommended that the Viola Desmond Drive connection to Ninth Line include a northbound left-turn lane with a minimum storage length of 25m.

The analysis contained within this report was prepared using the Site Plan prepared by ZO1Architects (dated August 16, 2022). Minor revisions to the development proposal are not expected to affect the conclusions contained with this report. In conclusion, the proposed development can be supported from a transportation operations and safety perspective.

Respectfully submitted by,

C.F. CROZIER & ASSOCIATES INC.

Peter Apasnore, MASc., P.Eng., PTOE
Project Manager

C.F. CROZIER & ASSOCIATES INC

Aidan Hallsworth, EIT
Transportation

/AH

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APPENDIX A

Site and Composite Plans

APPENDIX A.1

Site Plan

PROPOSED RESIDENTIAL DEVELOPMENT

5160 - 5170 NINTH LINE, MISSISSAUGA, ON



No.:	Date:	Description:
02	2022-08-16	Rezoning Submission
01	2021-11-05	Rezoning Submission

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Architects:

ZOI

Seal:

ONTARIO ASSOCIATION OF ARCHITECTS
BONNIE A. CHAN
LICENCE
6291

Client:

BRANTHAVEN

Project:

Proposed Residential Development - 5160-5170 Ninth Line, Mississauga

Enter address

Drawing Title:

Cover Sheet

Scale:	Drawn by: J.C.
Checked by: B.C. & D.L.	Project No.: 21014
Date: 2022-08-16	Drawing No.: A001

Plot Date: 2022-08-26 4:46:41 PM

PROJECT STATISTICS
Ninth Line

Missisauga, ON
August 16, 2022 Project No.: 21014

1.0 SITE AREA

1.1 Site	Hectares	acres	sq.m.	sq.ft.
Original Site Area	0.727	1.797	**7,270.43**	**78,258**
Wood Lot Area (not part of site area nor landscaped area)			**712.05**	**7,664**
Road Widening Area			**84.28**	**907**
Developable Area (Not including wood lot nor road widening)			**6,474.10**	**69,687**

	Percentage		
1.2 Landscape Area (Not including wood lot nor road widening)	30.00	**1,942.23**	**20,906**

City of Mississauga Zoning By-law 0225-2007 : means any outdoor area on a lot, located at grade, including the landscaped buffer, that is suitable for the growth and maintenance of grass, flowers, shrubs, trees and other vegetation, as well as other landscape features, and may include walkways, berms, retaining walls and outdoor amenity areas, but shall not include, driveways, aisles, ramps or condominium roads, parking areas whether surfaced or not, curbs, any open space beneath or within any building, structure or part thereof, or any exterior garbage storage or handling area.

2.0 Proposed GFA*

City of Mississauga Zoning By-Law Revised: 2013 defines GFA as 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.

2.1 Proposed Residential GFA		floors	sq.m.		sq.m.	sq.ft.
Level	P1	1 x	43		43	467
Level	1	1 x	1,462		1,462	15,740
Level	2	1 x	2,174		2,174	23,404
Level	3	1 x	2,389		2,389	25,717
Level	4	1 x	2,455		2,455	26,428
Level	5	1 x	2,209		2,209	23,777
Level	6	1 x	2,209		2,209	23,777
Level MPH		1 x	50		50	534
Total Proposed Residential GFA *					**12,949**	**139,377**

2.3 Total Proposed GFA	sq.m.	sq.ft.
Residential	**12,949**	**139,377**
Total Proposed GFA *	**12,949**	**139,377**

3.0 Proposed Density - FSI

	Max. Allowable	Provided
Total Proposed GFA / Gross Site Area (Item 2.3 / Developable Area Figure from Item 1.1)	**0.5 to 1.0**	**2.0**

4.0 Amenity

4.1 Amenity Required Indoor + Outdoor (By-Law)		**Required**
"Amenity Area" means an indoor and/or outdoor recreational area provided for the communal use of the residents.		
	Greater of:	sq.m.
Indoor Amenity + Outdoor Amenity	5.6 sm per unit or	1,047.20
	10% of developable area	11,272
TOTAL		**1,047**

4.2 Amenity Provided Indoor + Outdoor				**Provided**	
	L1	Rooftop		sq.m	sq.ft
Outdoor	332.00	260.00		**592**	**6,372**
Indoor	410.00	0.00		**410**	**4,413**
TOTAL				**1,002**	**10,785**

5.0 Unit Count

5.1 Residential		floors	Unit	Total
Level	1	1 x	19	19
Level	2	1 x	31	31
Level	3	1 x	34	34
Level	4	1 x	35	35
Level	5	1 x	34	34
Level	6	1 x	34	34
TOTAL UNITS				**187**

5.2 Unit Type		floors		1B/1B+D	2B/2B+D	Total
Level	1	1 x		17	2	19
Level	2	1 x		26	5	31
Level	3	1 x		27	7	34
Level	4	1 x		27	8	35
Level	5	1 x		28	6	34
Level	6	1 x		28	6	34
Total				**153**	**34**	**187**
				82%	**18%**	
TOTAL UNITS						**187**

6.0 Parking

6.1 Parking Requirements Proposed

Residential Parking Required

Residential	No. of Units	Parking per unit (including visitor)	Visitor Parking (included in parking	Parking Required
Residential	187	1.17	0.17	**219**

Total Parking Required	
Residential (at 1.0 per unit)	187
Visitor (at 0.17 per unit)	32
Total Parking Required	**219**

Accesible Parking Required	
Visitor (4% of required visitor spaces)	2
Residential	5

6.2 Parking Provided

Level	Regular parkings	Accessible parkings	
P1	179	5 residential	184
L1	37	2 visitor	39
Total	216	7	
Total Parking Provided			**223**

6.3 Bicycle Parking

Bicycle Parking Required	Ratio	
Long Term	0.6	112
Short Term	0.05	10
Total Bicycle Parking Required		**122**

Bicycle Parking Provided				
Level	P1	L1		
Long Term	112	0		112
Short Term	0	10		10
Total Bicycle Parking Provided				**122**

7.0 Total Lockers provided

Level	P1	L1		
	30	23	x 2	**106**

15.0	MINIMUM **LANDSCAPED AREA, LANDSCAPED BUFFER** AND **AMENITY AREA**	
15.1	Minimum **landscaped area**	40% of the **lot area**
15.2	Minimum depth of a **landscaped buffer** abutting a **lot line** that is a **street line** and/or abutting lands with an Open Space, Greenlands and/or a Residential Zone with the exception of an **Apartment** Zone *(0174-2017)*	4.5 m [6]
15.3	Minimum depth of a **landscaped buffer** along any other **lot line**	3.0 m [5][6]
15.4	Minimum **amenity area**	The greater of 5.6 m^2 per **dwelling unit** or 10% of the site area
15.5	Minimum percentage of total required **amenity area** to be provided in one contiguous area	50%
15.6	Minimum **amenity area** to be provided outside at grade	55.0 m^2

Landscape & Amenity Area 4
NTS A002

DRAWING LIST

Sheet Number	Sheet Name	Issue #1 for Rezoning (Nov. 05, 2021)	Issue#2 for Rezoning (Aug. 16, 2022)	Issue#3 (Add Date)	Issue#4 (Add Date)	Issue#5 (Add Date)
10 CONCEPT DESIGN						
Rezoning						
A001	Cover Sheet	■	■			
A002	Statistics & Drawing List	■	■			
A100	Site Context	■	■			
A101	Site Plan	■	■			
A200	P1 Floor Plan	■	■			
A201	Level 1 Floor Plan	■	■			
A202	Level 2 and 3 Floor Plan	■	■			
A203	Level 4 and 5 Floor Plan	■	■			
A204	Level 6 and MPH Floor Plan	■	■			
A400	Elevations	■	■			
A401	Courtyard Elevations	■	■			
A500	Bldg Sections	■	■			
A700	Shadow Study - June	■	■			
A701	Shadow Study - June	■	■			
A702	Shadow Study - March / September	■	■			
A703	Shadow Study - March / September	■	■			
A704	Shadow Study - December	■	■			
A800	Perspective Views	■	■			
A900	Render Perspective Views	■	■			
A901	Render Elevations	■	■			
A902	Render Elevations	■	■			
A903	Render Elevations		■			
A904	Render Elevations		■			

Drawing List 3
NTS A002

Ontario Building Code –Site Plan Approval

Name of Project: Residential Development , 5160 – 5170 Ninth Line, Mississauga, ON. L5M 0R5

Location: 5160 – 5170 Ninth Line, Mississauga.

Item	Ontario's 2012 Building Code in effect Jan 1, 2014			OBC Reference	
				References are to Division B unless noted [A] for Division A or [C] for Division C.	
1	Project Information: ☐ Change of Use ☐ Alteration	☒ New ☐ Addition	☐ Part 11 11.1 to 11.4	☒ Part 3 1.1.2. [A]	☐ Part 9 1.1.2. [A] & 9.10.1.3.
2	Major Occupancy(s) C, F3			3.1.2.1.(1)	9.10.2.
3	Building Area (m^2)	Existing	New 2,526.19sm Total 2,526.19sm	1.4.1.2. [A]	1.4.1.2. [A]
4	Gross Area	Existing	New 12,949sm Total 12,949sm	1.4.1.2. [A]	1.4.1.2. [A]
5	Number of Storeys	Above grade 6 storeys	Below grade 1	1.4.1.2. [A]&3.2.1.1.	1.4.1.2[A] & 9.10.4
6	Number of Streets/Fire Fighter Access 1			3.2.2.10. & 3.2.5.	9.10.20.
7	Building Classification 3.2.2.42, 3.2.2.62, 3.2.2.77			3.2.2.20.-.83	9.10.2.
8	Construction Restrictions	☐ Combustible permitted	☒ Non-combustible required ☐ Both	3.2.2.20.-.83	9.10.6.
	Actual Construction	☐ Combustible	☒ Non-combustible ☐ Both		
9	Mezzanine(s) Area m^2 N/A			3.2.1.1.(3)-(8)	9.10.4.1.
10	Sprinkler System Proposed	☒ Entire Building ☐ Selected compartments ☐ Selected floor areas ☐ Basement ☐ In lieu of roof rating ☐ Not required		3.2.2.20.-.83 3.2.1.5. 3.2.2.17.	9.10.8.
11	Standpipe required	☒ Yes ☐ No		3.2.9.	N/A
12	Fire Alarm required	☒ Yes ☐ No		3.2.4.	9.10.18.
13	Water Service/Supply is Adequate	☒ Yes ☐ No		3.2.5.7.	N/A
14	High Building			☒ Yes ☐ No	3.2.6.
15	Barrier-free Design	☒ Yes ☐ No (Explain)		3.8.	9.5.2.
16	Hazardous Substances	☐ Yes ☒ No	3.3.1.2. & 3.3.1.19.	9.10.1.3.(4)	N/A

OBC Matrix 2
NTS A002

No.:	Date:	Description:
02	2022-08-16	Rezoning Submission
01	2021-11-05	Rezoning Submission

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ZOI

Seal:
ONTARIO ASSOCIATION OF ARCHITECTS
BONNIE A. CHAN
LICENCE
6291

Client:
BRANTHAVEN

Project:
Proposed Residential Development - 5160-5170 Ninth Line, Mississauga
Enter address

Drawing Title:
Statistics & Drawing List

Scale:	Drawn by: J.C.
Checked by: B.C. & D.L.	Project No.: 21014
Date: 2022-08-16	Drawing No.: A002

Plot Date: 2022-08-31 10:54:06 AM

GENERAL NOTES:

- FOR SURVEY INFORMATION, PLEASE REFER TO JD BARNES DRAWINGS

- FOR SITE SERVICING AND GRADING INFORMATION, PLEASE REFER TO URBANTECH DRAWINGS

- FOR TRAFFIC SIGNAGE PLAN, TRUCK TURNING PAT & OTHER TRAFFIC INFORMATION, PLEASE REFER TO CROZIER DRAWINGS

-FOR LANDSCAPE INFORMATION AND DETAILS, PLEASE REFER TO ADESSO DESIGN DRAWING

- SNOW WILL BE REMOVED FROM SITE

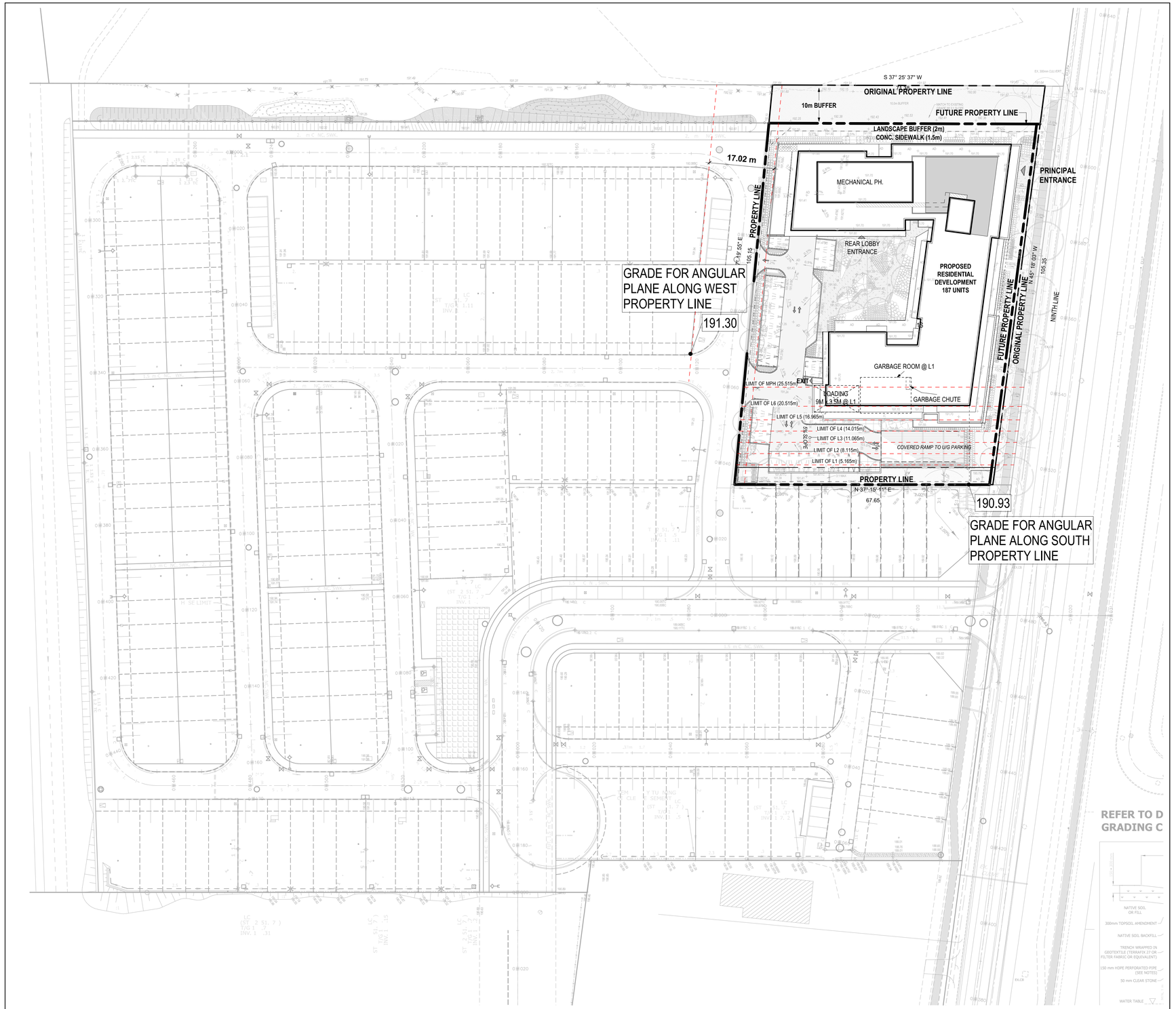
LOT INFORMATION:

PLAN OF SURVEY OF
LOTS 5160 AND 5170
BLOCK 211 REGISTERED PLAN 43M-1664 &
BLOCK 210 (ROAD WIDENING) REGISTERED PLAN 43M-1664

GRADING INFORMATION:

RESIDENTIAL F.F.E. @ L1 = 191.70

General Notes 2
NTS A100



Site Context Plan 1
1 : 500 A100

No.:	Date:	Description:
02	2022-08-16	Rezoning Submission
01	2021-11-05	Rezoning Submission

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ZOI

Seal:

ONTARIO ASSOCIATION OF ARCHITECTS
BONNIE A. CHAN
LICENCE
6291

Client:

BRANTHAVEN

Project:
Proposed Residential Development - 5160-5170 Ninth Line, Mississauga
Enter address

Drawing Title:
Site Context

Scale: 1 : 500	Drawn by: J.C.
Checked by: B.C. & D.L.	Project No.: 21014
Date: 2022-08-16	Drawing No.: A100

Plot Date: 2022-08-31 10:54:10 AM

CONSULTANT TEAM

COFINI - 5160-5170 NINTH LINE, MISSISSAUGA, ON. L5M 0R5
PROJECT NUMBER 21014

CLIENT:
NAME: BRANTHAVEN
ADDRESS: 720 OVAL COURT. BURLINGTON, ON. L7L 6A9
TEL: 905-333-8364
www.branthaven.com

PROJECT ARCHITECT:

NAME: ZO1
ADDRESS: 85 SCARSDALE RD. NORTH YORK, ON. M3B 2R2
TEL: 647-636-8771
www.zo1.ca

CONSULTANT:

NAME: FBDEV CONSULTING INC.
ADDRESS
TEL:
www.website.com

PLANNER:

NAME: KORSIAK URBAN PLANNING
ADDRESS: 277 LAKESHORE RD E #206, OAKVILLE, ON. L6J 1H9
TEL: 905-257-0227
www.korsiak.com

SURVEYOR:

NAME: JD BARNES
ADDRESS: 140 RENFREW DR. Ste. 100. MARKHAM, ON. L3R 6B3
TEL: 905-477-3600
www.jdbarnes.com

SITE SERVICING:

NAME: URBAN TECH
ADDRESS: 3760 14TH AVENUE, Ste. 301. MARKHAM, ON. L3R 3T7
TEL: 905-946-9461
www.urbantech.com

LANDSCAPE ARCHITECT:

NAME ADESSO DESIGN INC.
ADDRESS: 218 LOCKE ST. S, HAMILTON, ON. L8P 4B4
TEL: 905-526-8876
www.adessodesigninc.ca

WIND STUDY:

NAME: GRADIENT WIND ENGINEERING INC.
ADDRESS: 127 WALGREEN RD. CARP, ON. K0A 1L0
TEL: 613-836-0934
www.gradientwind.com

GEO-ENVIRONMENTAL ENGINEER:

NAME: DS CONSULTANTS LTD.
ADDRESS: 6221 HWY 7 UNIT 16, WOODBRIDGE, ON. L4H 0K8
TEL: 905-264-9393
www.dsconsultants.ca

ACOUSTICAL ENGINEERS:

NAME: HGC ENGINEERING
ADDRESS: 2000 ARGENTIA RD 1, Ste. 203, MISSISSAUGA, ON. L5N 1P7
TEL: 905-826-4044
www.acoustical-consultants.com

LAND DEVELOPMENT ENGINEERING:

NAME: CROZIER CONSULTING ENGINEERS
ADDRESS: 211 YONGE ST. Ste. 301. TORONTO, ON. M5B 1M4
TEL: 416-477-3392
www.cfcrozier.ca

ENVIRONMENTAL CONSULTANTS:

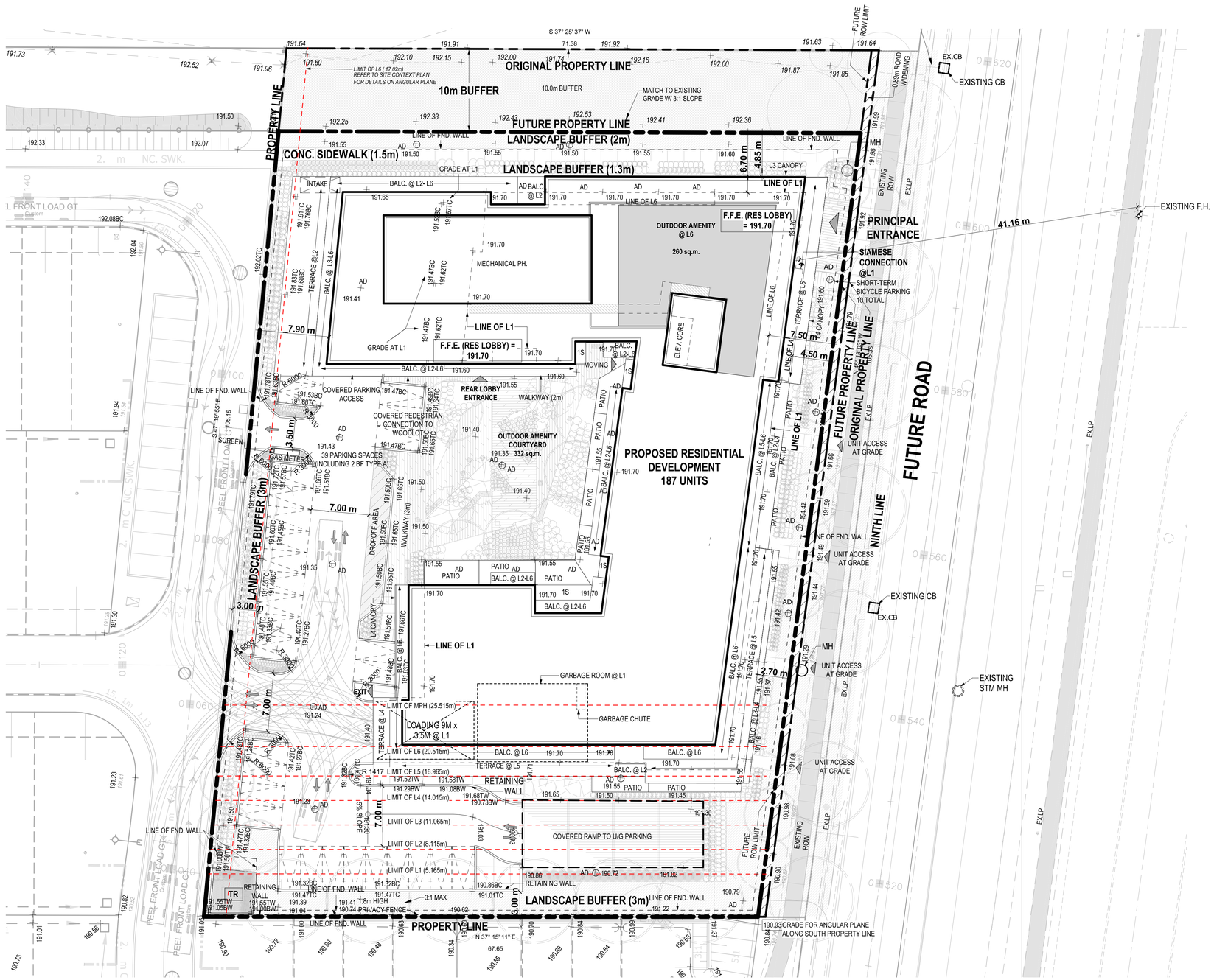
NAME: SAVANTA
ADDRESS: 75 TIVERTON COURT, UNIT 100. MARKHAM, ON. L3R 4M8
TEL: 1-800-810-3281
www.savanta.ca

STRUCTURAL CONSULTANTS:

NAME: JABLONSKY, AST AND PARTNERS
ADDRESS: 1131 LESLIE ST, TORONTO ON M3C 3L8
TEL: 416-447-7405
www.astint.on.ca

MECHANICAL AND ELECTRICAL CONSULTANTS:

NAME: NEMETZ (S/A) & ASSOCIATES LTD.
ADDRESS: 214 KING ST W, TORONTO ON M5H 3S6
TEL: 647-253-2080
www.nemetz.com



Site Plan
1 : 250
1
A101

No.:	Date:	Description:
02	2022-08-16	Rezoning Submission
01	2021-11-05	Rezoning Submission

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ZO1

Seal:
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BONNIE A. CHAN
LICENCE
6291

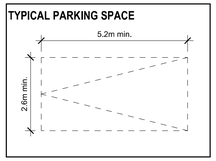
Client:
BRANTHAVEN

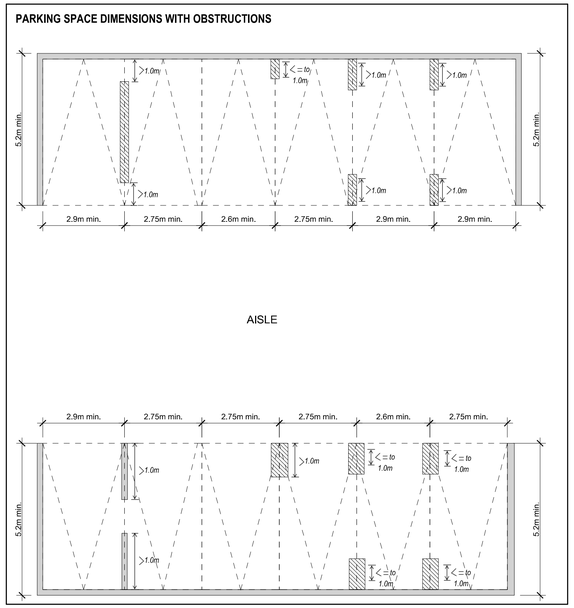
Project:
Proposed Residential Development - 5160-5170 Ninth Line, Mississauga
Enter address

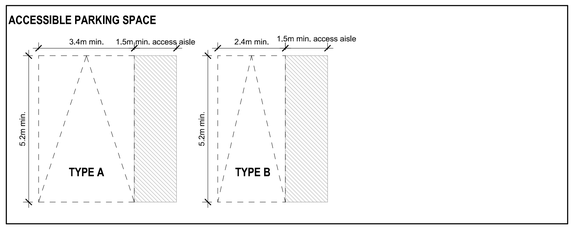
Drawing Title:
Site Plan

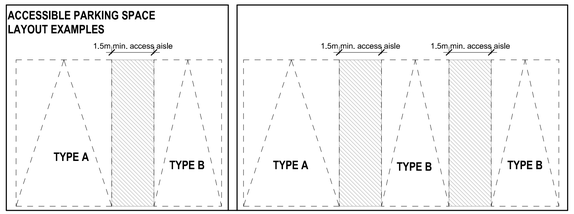
Scale: 1 : 250	Drawn by: J.C.
Checked by: B.C.	Project No.: 21014
Date: 2022-08-16	Drawing No.: A101

Plot Date: 2022-08-31 10:54:13 AM



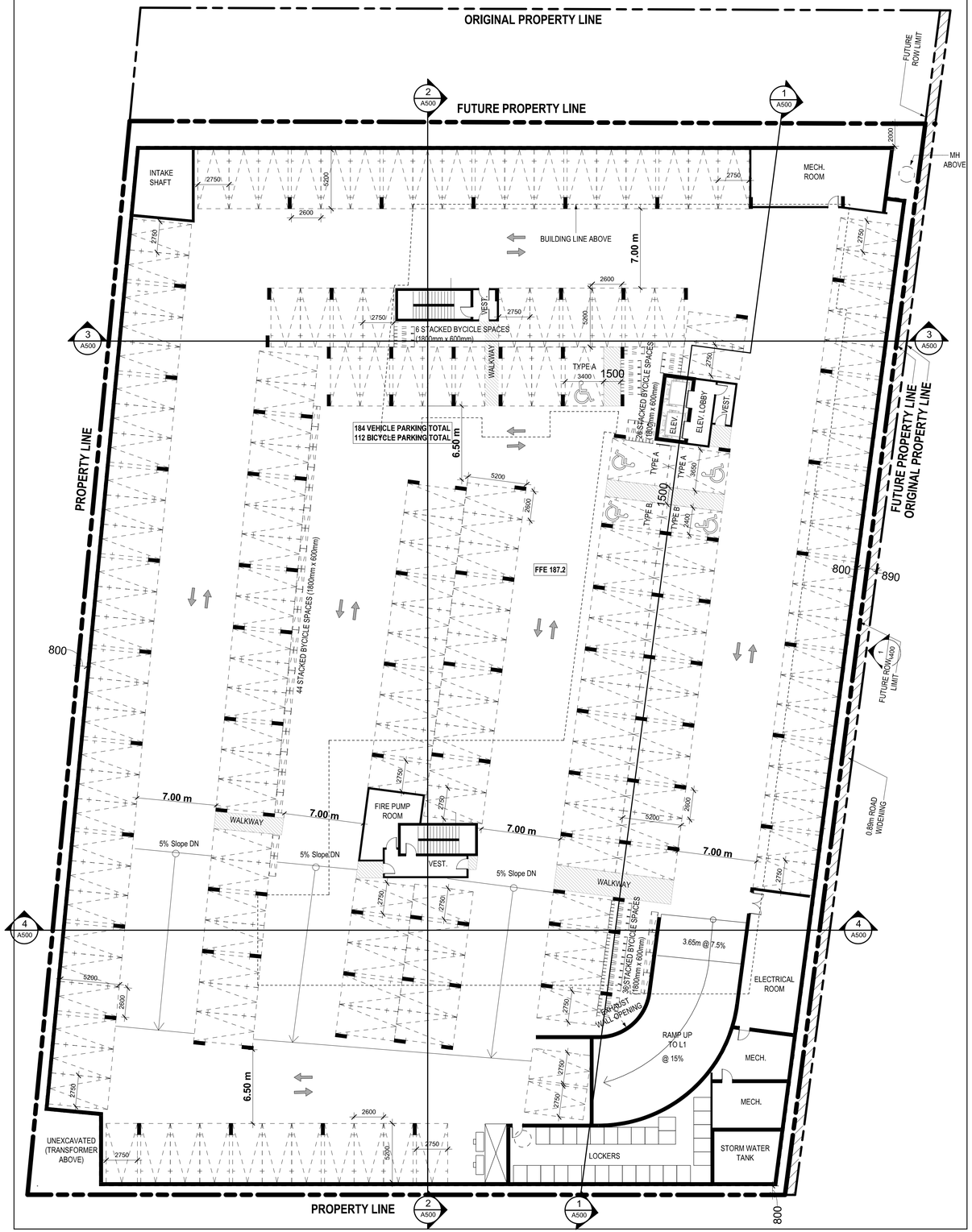






CITY OF MISSISSAUGA ZONING BY-LAW 0225-2007 SECTION 3.1.1.4

Parking Legend 2 A200
NTS



P1 Floor Plan 1 A200
1 : 200

No.:	Date:	Description:
02	2022-08-16	Rezoning Submission
01	2021-11-05	Rezoning Submission

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BONNIE A. CHAN
LICENCE
6291

Client:
BRANTHAVEN

Project:
Proposed Residential Development - 5160-5170 Ninth Line, Mississauga
Enter address

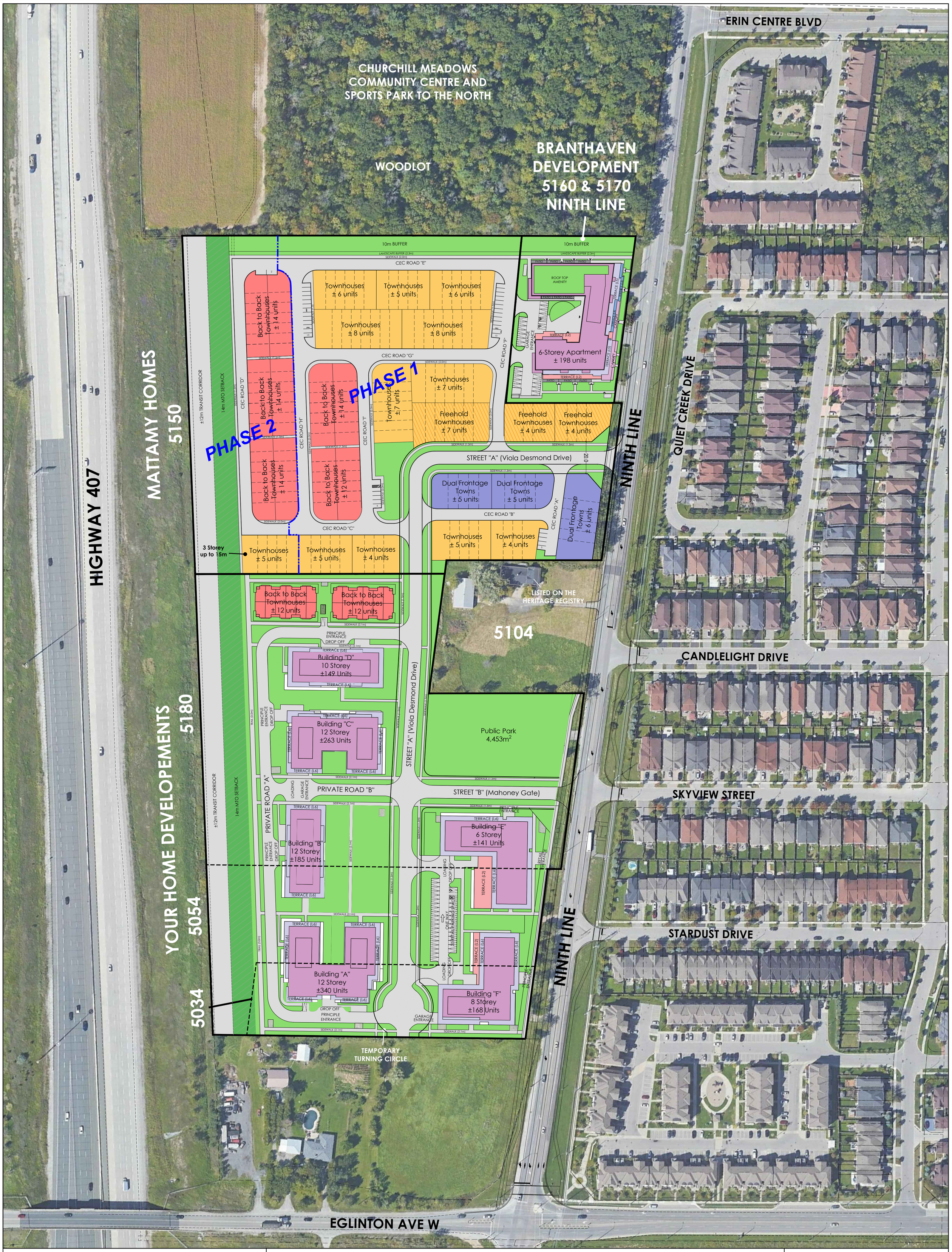
Drawing Title:
P1 Floor Plan

Scale:	Drawn by:
As indicated	J.C.
Checked by:	Project No.:
B.C. & D.L.	21014
Date:	Drawing No.:
2022-08-16	A200

Plot Date: 2022-08-26 4:46:48 PM

APPENDIX A.2

Composite Plan



COMPOSITE PLAN

MATTAMY HOMES/YOUR HOME DEVELOPMENTS/BRANTHAVEN DEVELOPMENT

mattamyHOMES

YOUR HOME DEVELOPMENTS

BRANTHAVEN

Scale 1:1000

November 19, 2021

KORSIAK Urban Planning
206-277 Lakeshore Road East
Oakville, Ontario L6J 1H9
T: 905-257-0227
info@korsiak.com

APPENDIX A.3

Property Reports

Zoning Information Report

City of Mississauga, 300 City Centre Drive, Mississauga, Ontario Canada L5B 3C1

Property Details

Address:	5160 NINTH LINE
Legal Description:	PART LT 1, CON 9, NS - PT 5 20R21132
Roll Number:	21-05-150-087-10906-0000
Common Name:	
Property Code:	RETAIL ONE STOREY < 10000 S.F.
Ward:	10
Councillor:	SUE MCFADDEN
Area:	2,960.13

Detail Map



Aerial Map



Property Zoning Information

The zone(s) for this property are listed below. To access the Mississauga Zoning By-law, please visit www.mississauga.ca/zoningbylaw. If you have any questions about the zoning information displayed below, please contact 311 (905-615-4311 outside City limits) or visit www.mississauga.ca/zoning.

Zone	Master Bylaw	Enacting Bylaw	OMB Case/File No.	Status
D	0225-2007	BL-0168/18	N/A	In Force

Heritage Status

Mississauga's heritage, which extends over 10,000 years, includes archaeological resources, numerous residential, commercial and industrial buildings, views, vistas, ridge lines, scenic routes and a variety of natural heritage properties. For more information, please visit www.mississauga.ca/heritage.

Status:	NOT LISTED ON THE HERITAGE REGISTER
Conservation District:	
Bylaw:	
Bylaw Date:	
Designation Statement:	
Inventory Item:	

Date Created: 2021-10-12

Zoning Information Report

City of Mississauga, 300 City Centre Drive, Mississauga, Ontario Canada L5B 3C1

Property Details

Address:	0 NINTH LINE
Legal Description:	PART LT 1, CON 9, NS - PTS 4, 8 20R21132
Roll Number:	21-05-150-087-10905-0000
Common Name:	
Property Code:	VACANT RESIDENTIAL LAND NOT ON WATER
Ward:	10
Councillor:	SUE MCFADDEN
Area:	1,370.28

Detail Map



Aerial Map



Property Zoning Information

The zone(s) for this property are listed below. To access the Mississauga Zoning By-law, please visit www.mississauga.ca/zoningbylaw. If you have any questions about the zoning information displayed below, please contact 311 (905-615-4311 outside City limits) or visit www.mississauga.ca/zoning.

Zone	Master Bylaw	Enacting Bylaw	OMB Case/File No.	Status
D	0225-2007	BL-0168/18	N/A	In Force

Heritage Status

Mississauga's heritage, which extends over 10,000 years, includes archaeological resources, numerous residential, commercial and industrial buildings, views, vistas, ridge lines, scenic routes and a variety of natural heritage properties. For more information, please visit www.mississauga.ca/heritage.

Status:	NOT LISTED ON THE HERITAGE REGISTER
Conservation District:	
Bylaw:	
Bylaw Date:	
Designation Statement:	
Inventory Item:	

Date Created: 2021-10-12

Zoning Information Report

City of Mississauga, 300 City Centre Drive, Mississauga, Ontario Canada L5B 3C1

Property Details

Address:	5170 NINTH LINE
Legal Description:	PART LT 1, CON 9, NS - PT 3 20R21132
Roll Number:	21-05-150-087-10904-0000
Common Name:	
Property Code:	SINGLE FAMILY DETACHED (NOT ON WATER)
Ward:	10
Councillor:	SUE MCFADDEN
Area:	2,947.58

Detail Map



Aerial Map



Property Zoning Information

The zone(s) for this property are listed below. To access the Mississauga Zoning By-law, please visit www.mississauga.ca/zoningbylaw. If you have any questions about the zoning information displayed below, please contact 311 (905-615-4311 outside City limits) or visit www.mississauga.ca/zoning.

Zone	Master Bylaw	Enacting Bylaw	OMB Case/File No.	Status
D	0225-2007	BL-0168/18	N/A	In Force

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Mississauga's heritage, which extends over 10,000 years, includes archaeological resources, numerous residential, commercial and industrial buildings, views, vistas, ridge lines, scenic routes and a variety of natural heritage properties. For more information, please visit www.mississauga.ca/heritage.

Status:	NOT LISTED ON THE HERITAGE REGISTER
Conservation District:	
Bylaw:	
Bylaw Date:	
Designation Statement:	
Inventory Item:	

Date Created: 2021-10-12

APPENDIX B

Correspondence

From: Michael Turco <Michael.Turco@mississauga.ca>
Sent: Wednesday, October 13, 2021 11:34 AM
To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>; kate.vassilyev@mississsauga.ca; Graham Routledge <graham.routledge@ontario.ca>
Subject: RE: Terms of Reference - 5160 Ninth Line

Hi Aidan,

Unfortunately, I wasn't able to track down the TIS for this site. However, I've attached a copy of the overall site plan.

Let me know if you have any further questions.

Thanks,

Michael Turco, C.E.T., MITE
Traffic Planning Technologist
T 905-615-3200 ext. 3597

From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: Wednesday, October 13, 2021 10:23 AM
To: Michael Turco <Michael.Turco@mississauga.ca>; Graham Routledge <graham.routledge@ontario.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>; kate.vassilyev@mississsauga.ca
Subject: RE: Terms of Reference - 5160 Ninth Line

Good Morning Michael and Graham,

Thank you for your feedback on our Terms of Reference Michael. @Graham Routledge, if you could provide feedback on this Terms of Reference at the earliest, that would be much appreciated.

@Michael Turco – We have looked online (including on the City's development application website) for materials related to the 4650 Ridgeway Drive background development but have yet to find any. Could you please provide supplementary materials (preferably the associated Traffic Impact Study) to support our TIS?

Many Thanks,

Aidan Hallsworth | Engineering Intern
211 Yonge Street, Suite 301 | Toronto, ON M5B 1M4
T: 416.477.3392

From: Michael Turco <Michael.Turco@mississauga.ca>
Sent: Monday, October 4, 2021 8:47 AM
To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Cc: Graham Routledge <graham.routledge@ontario.ca>; Peter Apasnore <papasnore@cfcrozier.ca>; kate.vassilyev@mississsauga.ca; Trans Projects <Trans.Projects@mississauga.ca>
Subject: RE: Terms of Reference - 5160 Ninth Line

Hello Aidan,

Please find our TIS Terms of Reference comments below in green:

Should you have any questions, please feel free to contact me.

Thank you,

Michael Turco, C.E.T., MITE
Traffic Planning Technologist
T 905-615-3200 ext. 3597

From: Ryan Au <Ryan.Au@mississauga.ca>
Sent: Monday, September 27, 2021 8:05 PM
To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>; Graham Routledge <graham.routledge@ontario.ca>; Michael Turco <Michael.Turco@mississauga.ca>
Subject: RE: Terms of Reference - 5160 Ninth Line

Hi Aidan,

Thanks for the email. Michael Turco (copied) from our team will provide comments on the ToR on behalf of the City.

Thanks,
Ryan

From: Aidan Hallsworth [mailto:ahallsworth@cfcrozier.ca]
Sent: Monday, September 27, 2021 1:36 PM
To: kate.vassilyev@mississsauga.ca; Graham Routledge <graham.routledge@ontario.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>; Ryan Au <Ryan.Au@mississauga.ca>
Subject: Terms of Reference - 5160 Ninth Line

Good afternoon Kate and Graham,

We are reaching out to present a Terms of Reference for the Traffic Impact Study (TIS) for the proposed Residential Development at 5160 Ninth Line in the City of Mississauga. Below is an outline of our proposed workplan. We hope that you would provide some feedback and confirm our Terms of Reference at the earliest possible. Should you have any questions or concerns, please feel free to contact me or Peter Apasnore (cc'd), we would be happy to discuss.

@Graham - Given the low site generated trips (i.e., 69 a.m. and 85 p.m. two-way trips), and considering the nearest MTO highway ramps are over 2km away, no ramps have been included in the Study scope. Please confirm this is acceptable.

Thanks,

Aidan

Per the attached site plan, the development proposes:

- A 6-storey apartment building with a total of 198 dwelling units
- A total of 237 parking spaces, including
    - A single underground parking garage with 213 spaces

- An at-grade parking lot with 24 spaces
- Two site access connections to "CEC Road F" as indicated on the Composite Plan (attached).

The site forms part of a composite plan of developments adjacent to the Ninth Line corridor, which are all served by two main primary access points to Ninth Line at Street A and Street B.

Based on preliminary ITE Trip Generation estimates, approximately 69 and 85 new two-way a.m. and p.m. peak hour trips, respectively, are generated by the development.

On that basis, we propose the following scope.

Traffic Impact Study – Scope

- The TIS will analyze traffic impacts during the weekday a.m. and p.m. peak hours. The study will consider the existing 2021 and five years beyond the study date (2026) horizons, consistent with the City's TIS Guidelines.

- The following intersections will be analyzed.
    a. Ninth Line and Eglinton Avenue West
    b. Ninth Line and Skyview Street / Street B access
    c. Ninth Line and Candlelight Drive
    d. Ninth Line and Erin Centre Boulevard
    e. Ninth Line and Street A access

- Existing, future background and future total traffic operations will be analyzed using Synchro 11. Standard traffic operations metrics for signalized and unsignalized intersections including LOS, delays, volume-to-capacity ratios, and 95th percentile queue length will be analyzed and reported on.

- Given the impact of COVID-19, existing counts will not be undertaken; traffic counts from 2019 will be used for the analysis and grown to 2021 levels using the growth rates outlined in the following point.

- Background traffic growth for arterial roads (Ninth Line and Eglinton Avenue) previously obtained from Tyler Xuereb, Transportation Planning Analyst (tyler.xuereb@mississauga.ca, Ext. 4783) will be used. All other local roadways will be assigned growth rates of 0.5%, compounded annually – consistent with background Traffic Studies in the area. Please contact Tyler to confirm if these growth rates would still be applicable.

- The following background developments will be accounted for in the calculation of future background traffic volumes Ninth Line Corridor Study Transportation Assessment

    a. 5080 Ninth Line (as shown on the composite plan within the attachment)
    b. 5150 Ninth Line (as shown on the composite plan)
    c. Erin Mills Industrial Development (per the Ninth Line Corridor Study Transportation Assessment by MMM, dated July 2017)
    d. 407 Transitway (per the MMM report)

e. Emerging Ninth Line Corridor developments (per the MMM report)

f. 4650 Ridgeway Drive (SP 18-80) - 10 one storey and 1 two storey retail and office buildings

- The widening of Ninth Line as described in the Ninth Line Class Environmental Assessment (dated June 2021) will be accounted for under future background and total conditions.

- Trip generation will be forecasted using the ITE Trip Generation Manual, 10th Edition. The latest (11th) edition of the ITE Trip Generation Manual should be utilized.

- Trip distribution will be derived from a combination of 2016 Transportation Tomorrow Survey (TTS) data and existing (pre-pandemic) travel patterns.

- Future total traffic operations will be compared to future background traffic operations under the future study horizon(s) to determine what mitigation measures are required on the boundary road network to accommodate the development. These mitigation measures may include auxiliary turn lanes, signalization, etc. as warranted.

- Auxiliary left-turn lane requirements will be analyzed using the MTO's "Design Supplement for the Geometric Design Guide for Canadian Roads" and traffic signal requirements will be analyzed using the warrants set out in the Ontario Traffic Manual (OTM) Book 12 "Traffic Signals".

- The proposed site access will be reviewed from a safety perspective to identify issues pertaining to driver sight lines, access configuration, corner clearance, queuing and vehicle turning constraints. The safety assessment will be based on the standards set out by the Transportation Associates of Canada (TAC) Geometric Design Guide for Canadians Roads (GDGCR).

- Existing and future Transportation Demand Management (TDM) opportunities will be reviewed along with site specific measures that may be implemented to reduce auto share and promote non-auto transportation. This will include the impacts arising from the future 407 transitway running parallel to Highway 407. Please only include TDM measures that will (not may) be implemented as part of the development. Ensure these measures are included in the recommendations section of the report.

- Truck Access and Circulation (AutoTurn Swept-Path Analysis) - ensure that truck traffic (garbage/loading/fire) can enter and exit the site in a forward motion and access to the garbage, loading, and fire route areas are functional. On separate plans, illustrate truck turning movements with one continuous path with AutoTURN and insert the design vehicles on the plan. The site must be able to accommodate the largest design vehicles which will be accessing the property. An evaluation of the parking areas and ramps using a PTAC design vehicle should also be included.

- Detailed Recommendations regarding on-site/off-site roadway improvements, site access, site circulation, and TDM measures are to be made.

- Signal timing plans for signalized intersections can be obtained from Jim Kartsomanis (Jim.Kartsomanis@mississauga.ca, Ext. 3964).

Aidan Hallsworth | Engineering Intern
211 Yonge Street, Suite 301 | Toronto, ON M5B 1M4
T: 416.477.3392

CROZIER
CONSULTING ENGINEERS

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Aidan Hallsworth

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Wednesday, October 13, 2021 10:36 AM
To: Aidan Hallsworth
Subject: RE: Traffic Impact Study Growth Rate Confirmation (5160 Ninth Line)

Hi Aidan,

Yes, you are ok to use these rates for 5160 Ninth Line.

Regards,

Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

Please consider the environment before printing.

From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: Wednesday, October 13, 2021 10:25 AM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: Traffic Impact Study Growth Rate Confirmation (5160 Ninth Line)

Good afternoon Tyler,

Hope you had a great long weekend.

I'm emailing to confirm growth rates for a Traffic Impact Study (the Terms of Reference correspondence is attached). Under a previous TIS, we used growth rates provided by your department outlined in the email below.

If you could please confirm if these growth rates are still acceptable, that would be greatly appreciated.

Best Regards,
Aidan

Aidan Hallsworth | Engineering Intern
211 Yonge Street, Suite 301 | Toronto, ON M5B 1M4
T: 416.477.3392

Crozier Connections:

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From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Wednesday, July 7, 2021 12:54 PM
To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Subject: RE: Traffic Impact Study Growth Rate Confirmation

Hi Aidan,

Using the City's Travel Demand Model and supporting traffic count data, the City's Transportation Planning section has determined the projected growth along Ninth Line, Eglinton Avenue and Winston Churchill Boulevard to be used as part of your study. The recommended projected growth is shown below.

Ninth Line

	Compounded Annual Growth from existing to 2031	
	NB	SB
AM Peak Hour	3.5%	3.5%
PM Peak Hour	3.0%	3.5%

	Compounded Annual Growth from 2031 to 2035	
	NB	SB
AM Peak Hour	0.0%	0.5%
PM Peak Hour	0.5%	0.5%

Winston Churchill Boulevard

	Compounded Annual Growth from Existing to 2031	
	NB	SB
AM Peak Hour	1.0%	0.5%
PM Peak Hour	0.5%	0.5%

	Compounded Annual Growth from 2031 to 2035	
	NB	SB
AM Peak Hour	1.5%	1.0%
PM Peak Hour	1.5%	1.0%

Eglinton Avenue

	Compounded Annual Growth from Existing to 2031	
	EB	WB
AM Peak Hour	2.0%	1.5%
PM Peak Hour	1.5%	2.0%

	Compounded Annual Growth from 2031 to 2035	
	EB	WB
AM Peak Hour	0.5%	1.5%
PM Peak Hour	1.0%	1.0%

-The rates along Ninth Line assume the widening of Ninth Line from 1 through lane per direction to 2 through lanes per direction, as such you analysis should also assume this widening.

-The rates along Winston Churchill Boulevard assume the widening of WCB from 2 through lanes per direction to 3 through lanes per direction. Some sections of WCB have already been widened, the widening is expected to take place north of Erin Centre Boulevard and extend to Derry Road. This is set to take place between 2031 and 2041.

Regards,

Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

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From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: Tuesday, July 6, 2021 8:32 AM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: RE: Traffic Impact Study Growth Rate Confirmation

Good Morning Tyler,

Our analysis years are 2025, 2030 and 2035.

Regards,

Aidan Hallsworth | Engineering Intern
211 Yonge Street, Suite 301 | Toronto, ON M5B 1M4
T: 416.477.3392

Crozier Connections:

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From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Tuesday, July 6, 2021 8:24 AM

To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Subject: RE: Traffic Impact Study Growth Rate Confirmation

Good Morning Aidan,

Thank you for your email.

Could you please provide me with your horizon years?

Thanks,

Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

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From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: Monday, July 5, 2021 3:04 PM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: Traffic Impact Study Growth Rate Confirmation

Hello Tyler,

Hope you had a great weekend.

I am emailing regarding our Terms of Reference a proposed development at 5080 Ninth Line. To confirm the Terms of Reference, we have been referred to you to confirm our growth rates. If you could kindly confirm our approach, or provide different growth rates for the following roads, that would be much appreciated.

- Ninth Line btwn. Eglinton Avenue and Britannia Road
- Winston Churchill Boulevard btwn. Burnhamthorpe Road and Eglinton Avenue
- Eglinton Avenue btwn. Ninth Line and Winston Churchill Boulevard

I have attached the excerpts of the Ninth Line Lands Study Transportation Assessment which we were planning to use as our growth rates as outlined in the Terms of Reference. The site plan is also attached.

Please do not hesitate to contact me if you have any questions.

Best Regards,

Aidan

Aidan Hallsworth

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Thursday, June 16, 2022 8:39 AM
To: Aidan Hallsworth
Cc: Peter Apasnore; Norbert Orzel
Subject: RE: Growth Rates Confirmation: Pre / Post Ninth Line Widening

Good Morning Aidan,

Yes, you are correct. The rates that I provided to you do not consider Ninth Line development/land use growth along the entire corridor.

Below are the recommended growth rates to be used along Eglinton Avenue for both the 2-Lane and 4-lane scenarios.

Eglinton Avenue

	Ninth Line 2-Lane Scenario			
	Compounded Annual Growth from Existing to 2031		Compounded Annual Growth from 2031 to 2035	
	EB	WB	EB	WB
AM Peak Hour	1.5%	2.0%	0.0%	1.5%
PM Peak Hour	1.5%	1.5%	1.0%	0.5%

	Ninth Line 4-Lane Scenario			
	Compounded Annual Growth from Existing to 2031		Compounded Ann Growth from 203 2035	
	EB	WB	EB	WB
AM Peak Hour	1.0%	1.0%	0.0%	2.0
PM Peak Hour	1.0%	1.0%	1.0%	0.0

As for rates along Britannia Road and Derry Road, these are Regional roads and as such, you will have to contact the Region for those rates.

Regards,

MISSISSAUGA

Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

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From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: Wednesday, June 15, 2022 3:43 PM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>; Norbert Orzel <Norbert.Orzel@mississauga.ca>
Subject: RE: Growth Rates Confirmation: Pre / Post Ninth Line Widening

Hi Tyler,

Thank you for working on determining these rates for us, we do very much appreciate it!

I have two final questions to hopefully wrap up everything here.

- Just reconfirming that the rates do not consider Ninth Line development/land use growth along the entire corridor.
- In our original request, we also asked for the growth rates on the east-west roadways (namely Eglinton Avenue West, Britannia Road West, and Derry Road West at Ninth Line). If these rates are available to send to us as well without having to generate them from scratch, we kindly ask that you could provide them, otherwise, we can use the rates originally provided given differences in growth rates as a result of inclusion/exclusion of Ninth Line land use intensification are anticipated to be much less pronounced.

Any questions let me know. Thanks again for your help!

Kind Regards,

Aidan Hallsworth, EIT | Engineering Intern
211 Yonge Street, Suite 600 | Toronto, ON M5B 1M4
T: 416.477.3392

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From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Wednesday, June 15, 2022 3:00 PM
To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>; Norbert Orzel <norbert.orzel@mississauga.ca>
Subject: RE: Growth Rates Confirmation: Pre / Post Ninth Line Widening

Hi Aidan,

Thank you for your patience.

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

Ninth Line

2 Lanes	4 Lanes

	Compounded Annual Growth from Existing to 2031		Compounded Annual Growth from 2031 to 2035	
	NB	SB	NB	SB
AM Peak Hour	1.5%	1.0%	0.0%	0.0%
PM Peak Hour	1.0%	0.5%	0.0%	0.0%

	Compounded Annual Growth from Existing to 2031		Compounded Ann Growth from 203 2035	
	NB	SB	NB	SB
AM Peak Hour	2.5%	2.5%	0.5%	0.5
PM Peak Hour	2.0%	2.5%	0.5%	1.0

Note: This analysis does assume other planned improvements within the area, which may influence travel along Ninth Line.

Regards,

Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

Please consider the environment before printing.

From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: Wednesday, June 15, 2022 11:13 AM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>; Norbert Orzel <Norbert.Orzel@mississauga.ca>
Subject: RE: Growth Rates Confirmation: Pre / Post Ninth Line Widening

Good Morning Tyler,

Following up on this growth rate request, when should we expect to receive them? Thank you again for your assistance on this matter.

Kind Regards,

Aidan Hallsworth, EIT | Engineering Intern
211 Yonge Street, Suite 600 | Toronto, ON M5B 1M4
T: 416.477.3392

Aidan Hallsworth, EIT | Engineering Intern
211 Yonge Street, Suite 600 | Toronto, ON M5B 1M4
T: 416.477.3392



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From: Aidan Hallsworth
Sent: Thursday, June 2, 2022 8:51 AM
To: Norbert Orzel <Norbert.Orzel@mississauga.ca>
Cc: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>; Peter Apasnore <papasnore@cfcrozier.ca>
Subject: RE: Growth Rates Confirmation: Pre / Post Ninth Line Widening

Hi Norbert,

Great, thank you very much for helping us out with these matters. I should have made it clearer on the first question that I was referring to if the City's growth rates include the Ninth Line lands development, but you answered the question anyway. Looking forward to receiving the updated growth rates for the noted scenarios below.

Kind Regards,

From: Norbert Orzel <Norbert.Orzel@mississauga.ca>
Sent: Wednesday, June 1, 2022 4:36 PM
To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Cc: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>; Peter Apasnore <papasnore@cfcrozier.ca>
Subject: RE: Growth Rates Confirmation: Pre / Post Ninth Line Widening

Hi Aidan,

My name is Norbert Orzel and I work with Tyler in the Transportation Planning section at the City. Tyler and I have discussed your email and some of your questions and we offer the following responses:

-In regards to your first question I can confirm that the annual growth rates you quoted from the Ninth Line Corridor Study Transportation Assessment **do not** include the Emerging Land Use Concept development. Note that these traffic growth rates capture the land use growth which is occurring in area's outside the study area (including surrounding municipalities which are projected to experience significant growth) and also traffic volume changes as a result of planned infrastructure changes (for example widening of roads adjacent to the Ninth Line area which will increase traffic in the Ninth Line area).
-We can provide growth rates for a scenario which does not have the widening of Ninth Line in place. We can only run the model for a 2031 horizon year and as such the results will have to be interpreted to generate a 2026 value. Typically we use a linear regression for horizon years that are not covered by our model.
-Yes you can use the growth rates between 2031 and 2035 to generate a 2041 scenario.

One other point we wanted to mention is that the traffic growth rates that were provided by Tyler previously include land use growth occurring in the Ninth Line lands, i.e. the traffic growth rates may capture some of the background development site traffic that you are adding through your analysis. As such we will be providing updated traffic growth rates to you which will not assume any land use growth in the Ninth Line lands. This way we will avoid any double counting that may be occurring using the current process. To summarize we will be providing updated compounded annual growth rates for the following scenarios:

-Ninth Line Widen existing to 2031 – Existing Land Use for the Ninth Line lands
-Ninth Line Widen 2031 to 2035 – Existing Land Use for the Ninth Line lands
-Ninth Line not widen Existing to 2031 – Existing Land Use for the Ninth Line lands

If you have any questions or concerns please feel free to contact me.

Thanks,

MISSISSAUGA

Norbert Orzel, C.E.T.
Transportation Modelling Specialist
T 905-615-3200 ext.3636
norbert.orzel@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

Please consider the environment before printing.

From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: Tuesday, May 31, 2022 3:20 PM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: Growth Rates Confirmation: Pre / Post Ninth Line Widening

Good afternoon Tyler,

Thanks for your help in getting us the AADT reports, we appreciate it.

I'm reaching out to confirm our approach for growth rates for several Traffic Impact Studies resubmissions we are currently undertaking along Ninth Line, and particularly for a **sensitivity analysis scenario** that would assume **that Ninth Line has not yet been widened**. Therefore, we wanted to **confirm growth rates** to apply **pre-widening** and **post-widening** (given changes of horizon years for some developments), along with **confirming that background developments** we are currently including in our studies **are not being double counted by the growth rates.** The relevant discussion is below:

Crozier has previously contacted the City regarding growth rates to use along Ninth Line for several TISs (ex. for the 5080 Ninth Line site, refer to email attached). As noted, the rates for Ninth Line provided assumed widening from two to four travel lanes. These rates were used as instructed for applicable TISs.

Several studies we have undertaken rely upon the Ninth Line Corridor Study Transportation Assessment (by MMM Group, July 2017) for background development volumes along the Ninth Line corridor. The study used growth rates based on the City's EMME model under a scenario which did not assume widening. The study states that *"The purpose of this approach is to understand how much background general growth would materialize based on the current*

configuration of Ninth Line, since the widening of Ninth Line is primarily associated with the development of the Emerging Land Use Scenario under future total conditions." (Page 14). Refer to the image below left for the growth rates used in the MMM Group study.

The "Emerging Land Use Scenario" referenced in the quote above is the term the study uses for the development expected along the Ninth Line corridor. Relevant study excerpts related to the Emerging Land Use Concept developments are shown below. Figure 8.2A & 8.2B in the study outlined the traffic assignment attributable to the Ninth Line corridor developments (Figures are attached).

NORTH/ SOUTH DEMAND

	AM PEAK HOUR		PM PEAK HOUR	
	2011 vs 2041 Without		2011 vs 2041 Without	
Ninth Line	NB	SB	NB	SB
-btwn Britannia Rd and Eglinton Ave	1.17%	0.35%	0.49%	0.97%
-btwn Derry Rd and Britannia Rd	1.00%	0.00%	0.00%	1.05%
-btwn 401 and Derry Rd	1.36%	1.13%	0.80%	1.34%
Average	**1.19%**	**0.47%**	**0.46%**	**1.12%**

	2011 vs 2041 Without		2011 vs 2041 Without	
Winston Churchill Blvd	NB	SB	NB	SB
-btwn Britannia Rd and Eglinton Ave	1.72%	0.95%	1.19%	1.54%
-btwn Derry Rd and Britannia Rd	1.64%	1.65%	1.88%	1.87%
-btwn 401 and Derry Rd	1.15%	2.76%	3.37%	1.30%
Average	**1.48%**	**1.62%**	**2.02%**	**1.54%**

EAST/ WEST DEMAND

	AM PEAK HOUR		PM PEAK HOUR	
	2011 vs 2041 Without		2011 vs 2041 Without	
	EB	WB	EB	WB
Derry Rd btwn Eight Ln and Tenth Ln	1.94%	2.04%	1.67%	1.45%
Britannia Rd btwn Eight Ln and Tenth Ln	2.71%	2.04%	1.85%	2.39%
Eglinton Ave btwn Eight Ln and Tenth Ln	1.09%	2.08%	1.77%	1.14%
Dundas St btwn just west of 9th Ln to WCB	1.30%	1.69%	1.59%	1.56%
Average	**1.70%**	**1.95%**	**1.71%**	**1.67%**

8.0 EMERGING LAND USE CONCEPT TRIP GENERATION

8.1 Land Uses

The site statistics associated with the Emerging Land Use Concept, dated September 18 2016, are provided in **Appendix N**. MMM was advised by the project team to use a population and employment forecast based on a density of a minimum 80 persons plus jobs/hectare for the purpose of this Transportation Assessment. This density is based on the most recent Provincial review of the Growth Plan and represents the planned direction for new Greenfield communities such as the Ninth Line lands. Therefore, the Ninth Line Lands have been subdivided into seven zones, as shown in **Figure 8.1**. **Table 8.1** summarizes the land uses within each zone.

Table 8.1
Emerging Land Use Concept Land Uses

Zone	Residential (units)	Commercial Retail (sq.ft. GFA)	General Office (sq.ft. GFA)	General Light Industrial (sq.ft. GFA)	Transitway Station (spaces)
1	470	--	--	--	--
2	92	--	--	--	--
3	103	--	--	--	--
4	43	1,625	--	--	640
5	1,739	26,673	--	--	--
6	1,096	7,169	--	--	3360
7A (southerly area)	--	--	3,638	26,921	--
7B (northerly area)	--	--	36,371	269,270	--
Total	**3,543**	**35,467**	**40,009**	**296,191**	**4,000**



For context, in our Ninth Line TISs, we have used the approach where the Emerging Land Use concept volumes outlined in Figure 8.2 of the MMM study has been added as a background development, however, we would also subtract the volumes attributable a particular zone where that specific development is located. For example, the aforementioned 5080 Ninth Line site is located in Zone 1, therefore, vehicle trips from the accesses serving Zone 1 in the MMM study

were subtracted, and vehicle trips from the entire zone (including vehicle trips from developments other than the 5080 Ninth Line site but which are located in Zone 1) were added to the future traffic volume projection.

Based on the above discussion, we kindly ask if you could answer the following questions:

1. It appears based on the MMM study that the vehicle trips from the Emerging Land Use Concept background development may be included within the growth rates (a ~1-2% per year increase in the compounded annual growth rate seems high to attribute purely to a supply induced traffic demand increase), and that we perhaps should not be adding them. Can you please confirm whether this is the case or not?
2. Can you provide growth rates (a.m. and p.m. peak hours, both travel directions) for the following roadway segments that account for no widening of Ninth Line? A horizon year of 2026 or earlier will be used for each of the sensitivity analysis scenarios.
   - Ninth Line (btwn Eglinton Avenue West and Erin Centre Boulevard, and btwn Britannia Road West and Derry Road West)
   - Eglinton Avenue West (at Ninth Line)
   - Britannia Road West (at Ninth Line to 407 ramp terminals)
   - Derry Road West (at Ninth Line to 407 ramp terminals)
   - Winston Churchill Boulevard (at Highway 403 ramps and at Highway 401 ramps)
3. Could you confirm if the growth rates provided in the email attachment applicable for the 2031 to 2035 are also applicable to grow volumes up to the 2041 horizon year?

Should you have any questions for me, please let me know.

Kind Regards,

Aidan Hallsworth, EIT | Engineering Intern
211 Yonge Street, Suite 600 | Toronto, ON M5B 1M4
T: 416.477.3392

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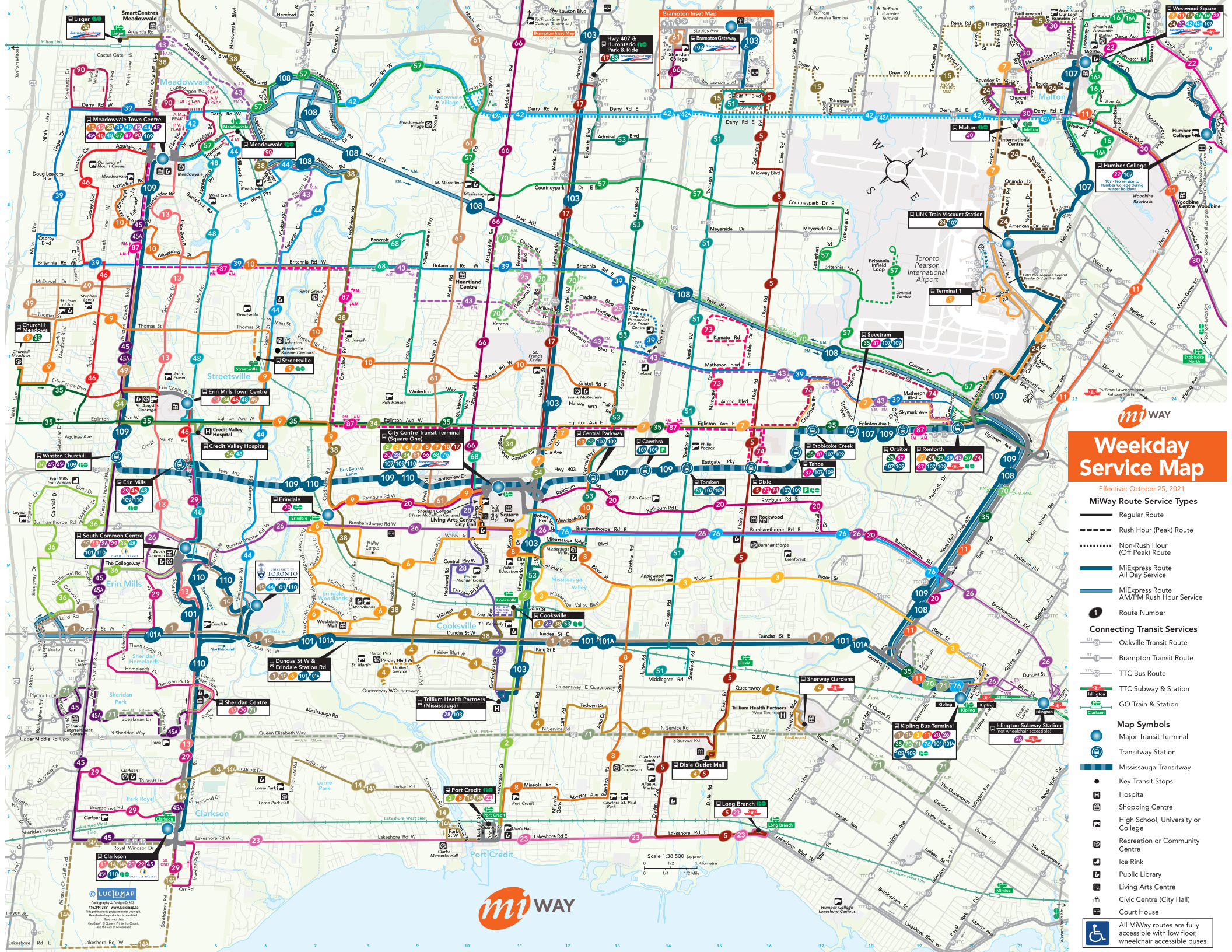
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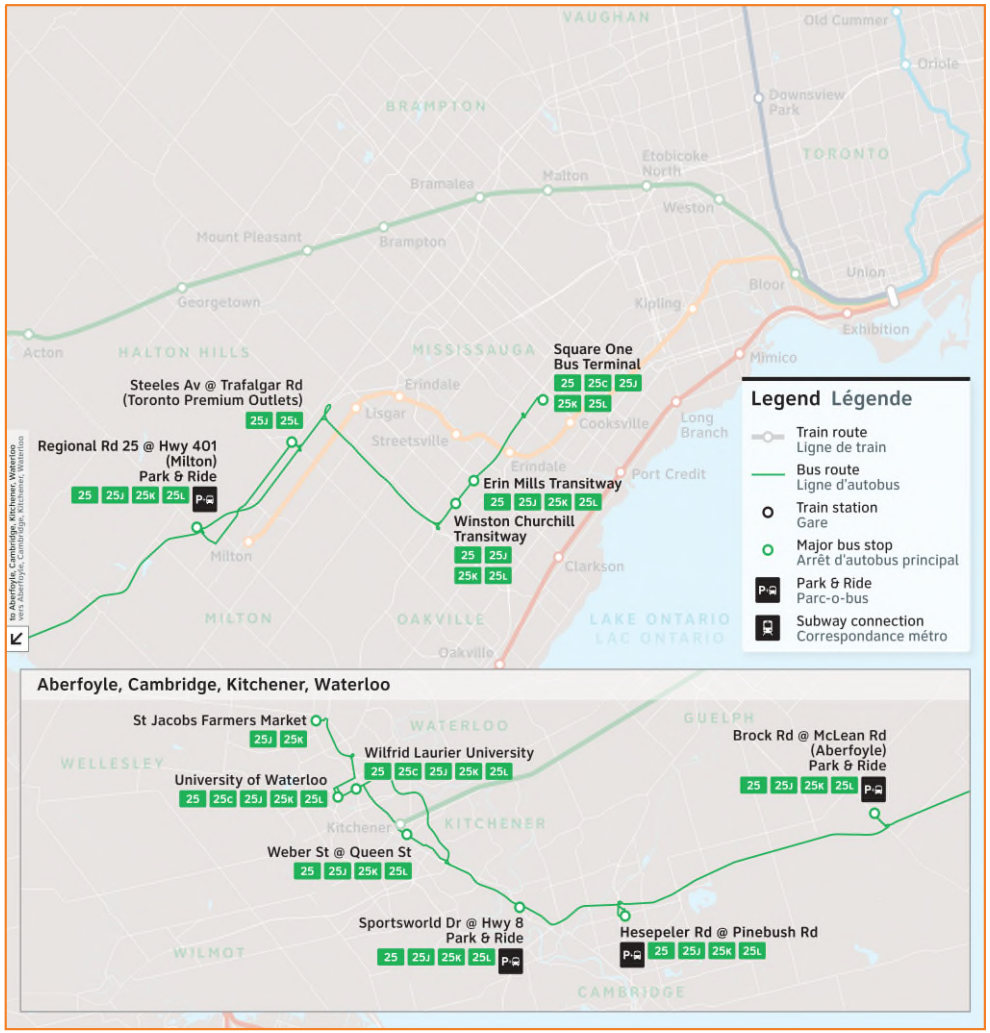
APPENDIX C

Transit Information


Brampton Inset Map
Weekday Service Map
Effective: October 25, 2021
MiWay Route Service Types
Regular Route
Rush Hour (Peak) Route
Non-Rush Hour (Off Peak) Route
MiExpress Route All Day Service
MiExpress Route AM/PM Rush Hour Service
Route Number
Connecting Transit Services
Oakville Transit Route
Brampton Transit Route
TTC Bus Route
TTC Subway & Station
GO Train & Station
Map Symbols
Major Transit Terminal
Transitway Station
Mississauga Transitway
Key Transit Stops
Hospital
Shopping Centre
High School, University or College
Recreation or Community Centre
Ice Rink
Public Library
Living Arts Centre
Civic Centre (City Hall)
Court House
All MiWay routes are fully accessible with low floor, wheelchair accessible buses
Scale 1:38 500 (approx.)
1 Kilometre
1/2 Mile
Lisgar
SmartCentres Meadowvale
Meadowvale
Meadowvale Town Centre
Meadowvale Village
Malton
Westwood Square
Humber College
Churchill Meadows
Streetsville
Erin Mills Town Centre
Credit Valley Hospital
City Centre Transit Terminal (Square One)
Central Parkway
Cawthra
Etobicoke Creek
Orbitor
Renforth
Winston Churchill
Erin Mills
Erindale
Tomken
Dixie
Tahoe
Spectrum
South Common Centre
Rockwood Mall
Cooksville
Dundas St W & Erindale Station Rd
Sheridan Centre
Trillium Health Partners (Mississauga)
Trillium Health Partners (West Toronto)
Sherway Gardens
Kipling Bus Terminal
Islington Subway Station (not wheelchair accessible)
Dixie Outlet Mall
Port Credit
Long Branch
Clarkson
LINK Train Viscount Station
Terminal 1
Toronto Pearson International Airport
Heartland Centre
Square One
Living Arts Centre
Hwy 407 & Hurontario Park & Ride
Brampton Gateway
Sheridan College
Steeles Ave
Lakeshore Rd E
Lakeshore Rd W
Dundas St
Eglinton Ave
Derry Rd
Britannia Rd
Courtneypark Dr
Meyerside Dr
Matheson Blvd E
Burnhamthorpe Rd
Bloor St
Hwy 401
Hwy 403
Hwy 407
Queensway
Mississauga Rd
Credit River
Lake Ontario
Port Credit
Mississauga Valley
Erin Mills
Clarkson
Lorne Park
Sheridan Park
Sheridan Homelands
Mississauga Valley
Cooksville
Dixie
Malton
Streetsville
Meadowvale Village
Heartland
Toronto Pearson International Airport
Britannia Infield Loop
Limited Service
Extra fare required beyond Bresler Dr / Jetliner Rd
Peak & Evening Only
Off-Peak
A.M. Peak
P.M. Peak
Lakeshore West Line
Milton Line
Kitchener Line
Richmond Hill Line
Stouffville Line
Barrie Line
Georgetown Line
Weekdays
Saturdays
Sundays
Mon-Fri
Mon-Sat
Sat-Sun
Mon-Sat Evenings
Sat-Sun Evenings
Mon-Fri Evenings
Mon-Fri Peak Hours
Mon-Fri Peak Hours Only
Mon-Fri Peak Hours Only
Mon-Fri Peak Hours Only

25 Route number / Numéro du trajet

Waterloo/Mississauga



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1-800-387-3652

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GO Bus Schedule/
Horaire des autobus GO

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- Mississauga
- Brampton
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Daily / Quotidiennement
Includes GO Bus routes 25 / Inclut les trajets 25 d'autobus GO

Effective / À partir de:
25 JUNE JUIN 2022

How to read our schedules

Step 1
Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2
The upper left corner tells you what day the schedule is for and the direction of travel.

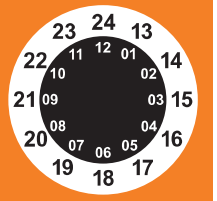
Step 3
Look across the rows for available departure times.

Step 4
Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00

Noon to midnight
12 01 - 24 00



Legend

Bus trips

→ Trip does not serve this location.

GO Bus service is accessible to passengers using mobility devices at this location.

Parking available.

Notes

D Stops to discharge passengers on request only.

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.

2. Foldable bicycles are allowed on-board trains at all times.

For the latest schedule information and updates, please visit gotransit.com/schedules.

Comment lire nos horaires

Étape 1
Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2
Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

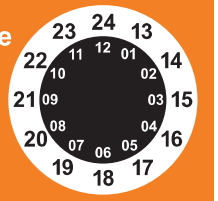
Étape 3
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4
Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00

De midi à minuit:
12 01 - 24 00



Légende

Horaire des autobus

→ Trajet ne sert pas cette station.

Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Stationnement disponible.

Notes

D Arrêt sur demande seulement.

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).

2. Les vélos pliables sont permis à bord des trains en tout temps.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

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Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Waterloo 27 Dp **University of Waterloo**	Waterloo 27 Dp **Wilfrid Laurier University**	Kitchener 27 **Weber St. W. @ Queen St. N.**	Kitchener 26 **Sportsworld Dr. @ Hwy. 8 P&R**	Cambridge 26 **Hespeler Rd. @ Pinebush Rd.**	Puslinch 39 **Brock Rd. @ McLean Rd. (Aberfoyle) P&R**	Milton 24 **Regional Rd. 25 @ Hwy. 401 P&R**	Mississauga 21 **Winston Churchill Transitway Station**	Mississauga 21 **Erin Mills Transitway Station**	Mississauga 20 Ar **Square One**
25	25140		05 30	05 33	05 41	05 55	06 04	06 20	06 36	06 57	07 00	07 15
25	25200		06 15	06 18	06 26	06 40	06 50	07 10	07 29	07 52	07 55	08 10
25	25250		07 10	07 13	07 23	07 38	07 48	08 10	08 29	08 52	08 55	09 10
25	25290		08 20	08 23	08 33	08 48	08 58	09 20	09 36	09 57	10 00	10 15
25	25330		09 25	09 28	09 38	09 53	10 03	10 25	10 41	10 57	11 00	11 15
25	25370		10 25	10 28	10 38	10 53	11 03	11 25	11 41	11 57	12 00	12 15
25	25410		11 25	11 33	11 43	11 58	12 08	12 30	12 46	13 02	13 05	13 20
25	25450		12 25	12 33	12 43	12 58	13 08	13 30	13 46	14 02	14 05	14 20
25	25500		13 25	13 33	13 43	13 58	14 08	14 30	14 46	15 02	15 05	15 20
25	25560		14 20	14 28	14 38	14 53	15 06	15 30	15 46	16 07	16 10	16 25
25	25620		15 20	15 28	15 38	15 53	16 06	16 30	16 46	17 07	17 10	17 25
25	25670		16 20	16 28	16 38	16 53	17 06	17 30	17 46	18 07	18 10	18 25
25	25710		17 20	17 28	17 38	17 53	18 06	18 25	18 41	19 02	19 05	19 20
25	25750		18 30	18 38	18 48	19 03	19 12	19 30	19 46	20 07	20 10	20 25
25	25790		19 30	19 33	19 43	19 58	20 07	20 25	20 41	21 02	21 05	21 20
25	25830		20 30	20 33	20 43	20 58	21 07	21 25	21 41	21 57	22 00	22 15
25	25860		21 30	21 33	21 43	21 58	22 07	22 25	22 41	22 57	23 00	23 15
25	25890		22 35	22 38	22 46	23 00	23 09	23 25	23 41	23 57	00 00	00 15

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Mississauga 20 Dp **Square One**	Mississauga 21 **Erin Mills Transitway Station**	Mississauga 21 **Winston Churchill Transitway Station**	Milton 24 **Regional Rd. 25 @ Hwy. 401 P&R**	Puslinch 39 **Brock Rd. @ McLean Rd. (Aberfoyle) P&R**	Cambridge 26 **Hespeler Rd. @ Pinebush Rd.**	Kitchener 26 **Sportsworld Dr. @ Hwy. 8 P&R** D	Kitchener 27 **Weber St. @ Queen St.** D	Waterloo 27 **Wilfrid Laurier University** D	Waterloo 27 Ar **University of Waterloo** D
25	25051		05 45	05 53	05 56	06 18	06 35	06 52	07 01	07 14	07 24	07 35
25	25111		06 45	06 53	06 56	07 18	07 35	07 52	08 01	08 14	08 27	08 40
25	25181		07 50	07 58	08 01	08 23	08 40	08 57	09 06	09 19	09 32	09 45
25	25221		08 45	08 53	08 56	09 18	09 35	09 52	10 01	10 14	10 27	10 40
25	25271		09 45	09 53	09 56	10 18	10 35	10 52	11 01	11 14	11 27	11 40
25	25301		10 45	10 53	10 56	11 18	11 35	11 52	12 01	12 14	12 27	12 40
25	25341		11 45	11 53	11 56	12 18	12 35	12 52	13 01	13 14	13 27	13 40
25	25381		12 45	12 53	12 56	13 18	13 35	13 52	14 01	14 14	14 27	14 40
25	25421		13 45	13 53	13 56	14 18	14 35	14 52	15 01	15 19	15 32	15 45
25	25461		14 45	14 53	14 56	15 18	15 35	15 52	16 01	16 19	16 32	16 45
25	25521		15 50	15 58	16 01	16 25	16 45	17 04	17 13	17 31	17 44	18 00
25	25581		16 50	16 58	17 01	17 25	17 45	18 04	18 13	18 31	18 44	19 00
25	25641		17 50	17 58	18 01	18 25	18 45	19 02	19 11	19 29	19 42	19 55
25	25691		18 45	18 53	18 56	19 18	19 35	19 52	20 01	20 16	20 29	20 40
25	25721		19 45	19 53	19 56	20 18	20 35	20 52	21 01	21 14	21 24	21 35
25	25771		20 45	20 53	20 56	21 18	21 35	21 52	21 59	22 11	22 19	22 30
25	25801		21 45	21 53	21 56	22 18	22 35	22 52	22 59	23 11	23 19	23 30
25	25841		22 45	22 53	22 56	23 18	23 35	23 51	23 57	00 09	00 17	00 25
25	25871		23 45	23 53	23 56	00 18	00 35	00 51	00 57	01 09	01 17	01 25

Saturday
Samedi

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Waterloo 27 Dp	Waterloo 27	Waterloo 27	Kitchener 27	Kitchener 26	Cambridge 26	Puslinch 39	Milton 24	Halton Hills 23	Mississauga 21	Mississauga 21	Mississauga 20 Ar
			St. Jacobs Market	University of Waterloo	Wilfrid Laurier University	Weber St. W. @ Queen St. N.	Sportsworld Dr. @ Hwy. 8 P&R	Hespeler Rd. @ Pinebush Rd.	Brock Rd. @ McLean Rd. (Aberfoyle) P&R	Regional Rd. 25 @ Hwy. 401 P&R	Toronto Premium Outlets	Winston Churchill Transitway Station	Erin Mills Transitway Station	Square One
25	25110		05 00	05 03	05 11	05 25	05 34	05 50	06 06	→	06 24	06 27	06 40	
25	25170		06 00	06 03	06 11	06 25	06 34	06 50	07 06	→	07 24	07 27	07 40	
25	25230		06 55	06 58	07 08	07 23	07 32	07 50	08 06	→	08 24	08 27	08 40	
25	25270		07 50	07 53	08 03	08 18	08 27	08 45	09 01	→	09 22	09 25	09 40	
25C	25282		08 10	08 13	→	→	→	→	→	→	→	→	09 25	
25J	25310	08 15	08 30	08 33	08 43	08 58	09 07	09 25	09 41	09 51	10 07	10 10	10 25	
25C	25332		09 20	09 23	→	→	→	→	→	→	→	→	10 35	
25J	25350	09 20	09 35	09 38	09 48	10 03	10 13	10 35	10 51	11 01	11 17	11 20	11 35	
25C	25372		10 20	10 23	→	→	→	→	→	→	→	→	11 35	
25J	25380	10 25	10 40	10 43	10 53	11 08	11 18	11 40	11 56	12 06	12 22	12 25	12 40	
25C	25402		11 15	11 18	→	→	→	→	→	→	→	→	12 35	
25J	25420	11 30	11 45	11 48	11 58	12 13	12 23	12 45	13 01	13 11	13 27	13 30	13 45	
25C	25442		12 15	12 18	→	→	→	→	→	→	→	→	13 35	
25J	25460	12 30	12 45	12 48	12 58	13 13	13 23	13 45	14 01	14 11	14 27	14 30	14 45	
25C	25482		13 15	13 18	→	→	→	→	→	→	→	→	14 35	
25J	25510	13 35	13 50	13 53	14 03	14 18	14 28	14 50	15 06	15 16	15 32	15 35	15 50	
25C	25542		14 15	14 18	→	→	→	→	→	→	→	→	15 35	
25J	25570	14 35	14 50	14 53	15 03	15 18	15 28	15 50	16 06	16 16	16 32	16 35	16 50	
25C	25602		15 15	15 18	→	→	→	→	→	→	→	→	16 35	
25J	25630	15 45	16 00	16 03	16 13	16 28	16 38	17 00	17 16	17 26	17 42	17 45	18 00	
25C	25662		16 15	16 18	→	→	→	→	→	→	→	→	17 35	
25J	25680	16 45	17 00	17 03	17 13	17 28	17 38	18 00	18 16	18 26	18 42	18 45	19 00	
25C	25742		17 15	17 18	→	→	→	→	→	→	→	→	18 35	
25J	25720	17 45	18 00	18 03	18 13	18 28	18 38	19 00	19 16	19 26	19 42	19 45	20 00	
25C	25702		18 15	18 18	→	→	→	→	→	→	→	→	19 35	
25J	25770	18 45	19 00	19 03	19 13	19 28	19 38	20 00	20 16	20 26	20 42	20 45	21 00	
25C	25782		19 20	19 23	→	→	→	→	→	→	→	→	20 40	
25J	25810	19 45	20 00	20 03	20 13	20 28	20 38	21 00	21 16	21 23	21 39	21 42	21 55	
25	25840		20 55	20 58	21 08	21 23	21 32	21 50	22 06	→	22 24	22 27	22 40	
25	25870		21 55	21 58	22 08	22 23	22 32	22 50	23 06	→	23 24	23 27	23 40	
25	25900		23 00	23 03	23 11	23 25	23 34	23 50	00 06	→	00 24	00 27	00 40	

Saturday
Samedi

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Mississauga 20 Dp	Mississauga 21	Mississauga 21	Halton Hills 23	Milton 24	Puslinch 39	Cambridge 26	Kitchener 26	Kitchener 27	Waterloo 27	Waterloo 27	Waterloo 27 Ar
			Square One	Erin Mills Transitway Station	Winston Churchill Transitway Station	Toronto Premium Outlets	Regional Rd. 25 @ Hwy. 401 P&R	Brock Rd. @ McLean Rd. (Aberfoyle) P&R	Hespeler Rd. @ Pinebush Rd.	Sportsworld Dr. @ Hwy. 8 P&R	Weber St. E. @ Queen St. N.	Wilfrid Laurier University	University of Waterloo	St. Jacobs Market
25K	25087		06 10	06 18	06 21	→	06 43	07 00	07 16	07 22	07 34	07 42	07 50	08 05
25K	25147		07 10	07 18	07 21	→	07 43	08 00	08 17	08 24	08 36	08 44	08 55	09 10
25K	25207		08 10	08 18	08 21	→	08 43	09 00	09 17	09 24	09 37	09 49	10 00	10 15
25J	25241		09 10	09 18	09 21	09 35	09 48	10 05	10 22	10 29	10 42	10 54	11 05	11 20
25C	25243		09 55	→	→	→	→	→	→	→	→	11 00	11 10	
25J	25281		10 10	10 18	10 21	10 35	10 48	11 05	11 22	11 29	11 42	11 54	12 05	12 20
25C	25283		10 55	→	→	→	→	→	→	→	→	12 00	12 10	
25J	25321		11 10	11 18	11 21	11 35	11 48	12 05	12 22	12 31	12 46	12 58	13 10	13 25
25C	25323		11 55	→	→	→	→	→	→	→	→	13 00	13 10	
25J	25361		12 10	12 18	12 21	12 35	12 48	13 05	13 22	13 31	13 46	13 58	14 10	14 25
25C	25373		12 55	→	→	→	→	→	→	→	→	14 00	14 10	
25J	25411		13 20	13 28	13 31	13 45	13 58	14 15	14 32	14 41	14 56	15 08	15 20	15 35
25C	25413		13 55	→	→	→	→	→	→	→	→	15 00	15 10	
25J	25451		14 20	14 28	14 31	14 45	14 58	15 15	15 32	15 41	15 56	16 08	16 20	16 35
25C	25453		14 55	→	→	→	→	→	→	→	→	16 00	16 10	
25J	25501		15 20	15 28	15 31	15 45	15 58	16 15	16 32	16 41	16 56	17 08	17 20	17 35
25C	25503		15 55	→	→	→	→	→	→	→	→	17 00	17 10	
25J	25561		16 20	16 28	16 31	16 45	16 58	17 15	17 32	17 41	17 56	18 08	18 20	18 35
25C	25573		16 55	→	→	→	→	→	→	→	→	18 05	18 15	
25J	25621		17 20	17 28	17 31	17 45	17 58	18 15	18 32	18 41	18 56	19 08	19 20	19 35
25C	25633		17 55	→	→	→	→	→	→	→	→	19 05	19 15	
25L	25675		18 20	18 28	18 31	18 45	18 58	19 15	19 32	19 41	19 56	20 08	20 20	
25C	25673		18 55	→	→	→	→	→	→	→	→	20 00	20 10	
25L	25715		19 20	19 28	19 31	19 45	19 58	20 15	20 32	20 41	20 54	21 04	21 15	
25C	25713		19 55	→	→	→	→	→	→	→	→	21 00	21 10	
25L	25755		20 20	20 28	20 31	20 45	20 58	21 15	21 32	21 41	21 54	22 04	22 15	
25C	25752		20 55	→	→	→	→	→	→	→	→	22 00	22 10	
25	25781		21 10	21 18	21 21	→	21 43	22 00	22 17	D22 26	D22 39	D22 49	D23 00	
25	25821		22 10	22 18	22 21	→	22 43	23 00	23 17	D23 24	D23 36	D23 44	D23 55	
25	25851		23 10	23 18	23 21	→	23 43	00 00	00 16	D00 22	D00 34	D00 42	D00 50	
25	25881		00 10	00 18	00 21	→	00 43	01 00	01 16	D01 22	D01 34	D01 42	D01 50	

Sunday
Dimanche

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Waterloo 27 Dp		Waterloo 27	Kitchener 27	Kitchener 26	Cambridge 26	Puslinch 39	Milton 24	Halton Hills 23	Mississauga 21	Mississauga 21	Mississauga 20 Ar
			♿	University of Waterloo	Wilfrid Laurier University	♿ Weber St. W. @ Queen St. N.	Ⓟ ♿ Sportsworld Dr. @ Hwy. 8 P&R	♿ Hespeler Rd. @ Pinebush Rd.	Ⓟ ♿ Brock Rd. @ McLean Rd. (Aberfoyle) P&R	Ⓟ ♿ Regional Rd. 25 @ Hwy. 401 P&R	Ⓟ ♿ Toronto Premium Outlets	Ⓟ ♿ Winston Churchill Transitway Station	Ⓟ ♿ Erin Mills Transitway Station	Ⓟ ♿ Square One
25	25110		05 00	05 03	05 11	05 25	05 34	05 50	06 06	→	06 24	06 27	06 40	
25	25170		06 00	06 03	06 11	06 25	06 34	06 50	07 06	→	07 24	07 27	07 40	
25	25230		06 55	06 58	07 08	07 23	07 32	07 50	08 06	→	08 24	08 27	08 40	
25	25270		07 50	07 53	08 03	08 18	08 27	08 45	09 01	→	09 22	09 25	09 40	
25C	25282		08 10	08 13	→	→	→	→	→	→	→	→	09 25	
25L	25314		08 30	08 33	08 43	08 58	09 07	09 25	09 41	09 51	10 07	10 10	10 25	
25C	25332		09 20	09 23	→	→	→	→	→	→	→	→	10 35	
25L	25354		09 35	09 38	09 48	10 03	10 13	10 35	10 51	11 01	11 17	11 20	11 35	
25C	25372		10 20	10 23	→	→	→	→	→	→	→	→	11 35	
25L	25384		10 40	10 43	10 53	11 08	11 18	11 40	11 56	12 06	12 22	12 25	12 40	
25C	25402		11 15	11 18	→	→	→	→	→	→	→	→	12 35	
25L	25424		11 45	11 48	11 58	12 13	12 23	12 45	13 01	13 11	13 27	13 30	13 45	
25C	25442		12 15	12 18	→	→	→	→	→	→	→	→	13 35	
25L	25464		12 45	12 48	12 58	13 13	13 23	13 45	14 01	14 11	14 27	14 30	14 45	
25C	25482		13 15	13 18	→	→	→	→	→	→	→	→	14 35	
25L	25514		13 50	13 53	14 03	14 18	14 28	14 50	15 06	15 16	15 32	15 35	15 50	
25C	25542		14 15	14 18	→	→	→	→	→	→	→	→	15 35	
25L	25574		14 50	14 53	15 03	15 18	15 28	15 50	16 06	16 16	16 32	16 35	16 50	
25C	25602		15 15	15 18	→	→	→	→	→	→	→	→	16 35	
25L	25634		16 00	16 03	16 13	16 28	16 38	17 00	17 16	17 26	17 42	17 45	18 00	
25C	25662		16 15	16 18	→	→	→	→	→	→	→	→	17 35	
25L	25684		17 00	17 03	17 13	17 28	17 38	18 00	18 16	18 26	18 42	18 45	19 00	
25C	25702		17 15	17 18	→	→	→	→	→	→	→	→	18 35	
25L	25724		18 00	18 03	18 13	18 28	18 38	19 00	19 16	19 26	19 42	19 45	20 00	
25C	25742		18 15	18 18	→	→	→	→	→	→	→	→	19 35	
25L	25774		19 00	19 03	19 13	19 28	19 38	20 00	20 16	20 26	20 42	20 45	21 00	
25C	25782		19 20	19 23	→	→	→	→	→	→	→	→	20 40	
25L	25814		20 00	20 03	20 13	20 28	20 38	21 00	21 16	21 23	21 39	21 42	21 55	
25	25840		20 55	20 58	21 08	21 23	21 32	21 50	22 06	→	22 24	22 27	22 40	
25	25870		21 55	21 58	22 08	22 23	22 32	22 50	23 06	→	23 24	23 27	23 40	
25	25900		23 00	23 03	23 11	23 25	23 34	23 50	00 06	→	00 24	00 27	00 40	

Sunday
Dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Mississauga 20 Dp	Mississauga 21	Mississauga 21	Halton Hills 23	Milton 24	Puslinch 39	Cambridge 26	Kitchener 26	Kitchener 27	Waterloo 27	Waterloo 27 Ar
			Ⓟ ♿ Square One	Ⓟ ♿ Erin Mills Transitway Station	Ⓟ ♿ Winston Churchill Transitway Station	Ⓟ ♿ Toronto Premium Outlets	Ⓟ ♿ Regional Rd. 25 @ Hwy. 401 P&R	Ⓟ ♿ Brock Rd. @ McLean Rd. (Aberfoyle) P&R	♿ Hespeler Rd. @ Pinebush Rd.	Ⓟ ♿ Sportsworld Dr. @ Hwy. 8 P&R	♿ Weber St. E. @ Queen St. N.	♿ Wilfrid Laurier University	♿ University of Waterloo D
25	25081		06 10	06 18	06 21		06 43	07 00	07 16	07 22	07 34	07 42	07 50
25	25141		07 10	07 18	07 21		07 43	08 00	08 17	08 24	08 36	08 44	08 55
25	25201		08 10	08 18	08 21		08 43	09 00	09 17	09 24	09 37	09 49	10 00
25L	25245		09 10	09 18	09 21	09 35	09 48	10 05	10 22	10 29	10 42	10 54	11 05
25C	25243		09 55	→	→	→	→	→	→	→	→	11 00	11 10
25L	25285		10 10	10 18	10 21	10 35	10 48	11 05	11 22	11 29	11 42	11 54	12 05
25C	25283		10 55	→	→	→	→	→	→	→	→	12 00	12 10
25L	25325		11 10	11 18	11 21	11 35	11 48	12 05	12 22	12 31	12 46	12 58	13 10
25C	25323		11 55	→	→	→	→	→	→	→	→	13 00	13 10
25L	25365		12 10	12 18	12 21	12 35	12 48	13 05	13 22	13 31	13 46	13 58	14 10
25C	25373		12 55	→	→	→	→	→	→	→	→	14 00	14 10
25L	25415		13 20	13 28	13 31	13 45	13 58	14 15	14 32	14 41	14 56	15 08	15 20
25C	25413		13 55	→	→	→	→	→	→	→	→	15 00	15 10
25L	25455		14 20	14 28	14 31	14 45	14 58	15 15	15 32	15 41	15 56	16 08	16 20
25C	25453		14 55	→	→	→	→	→	→	→	→	16 00	16 10
25L	25505		15 20	15 28	15 31	15 45	15 58	16 15	16 32	16 41	16 56	17 08	17 20
25C	25503		15 55	→	→	→	→	→	→	→	→	17 00	17 10
25L	25565		16 20	16 28	16 31	16 45	16 58	17 15	17 32	17 41	17 56	18 08	18 20
25C	25573		16 55	→	→	→	→	→	→	→	→	18 05	18 15
25L	25625		17 20	17 28	17 31	17 45	17 58	18 15	18 32	18 41	18 56	19 08	19 20
25C	25633		17 55	→	→	→	→	→	→	→	→	19 05	19 15
25L	25675		18 20	18 28	18 31	18 45	18 58	19 15	19 32	19 41	19 56	20 08	20 20
25C	25673		18 55	→	→	→	→	→	→	→	→	20 00	20 10
25L	25715		19 20	19 28	19 31	19 45	19 58	20 15	20 32	20 41	20 54	21 04	21 15
25C	25713		19 55	→	→	→	→	→	→	→	→	21 00	21 10
25L	25755		20 20	20 28	20 31	20 45	20 58	21 15	21 32	21 41	21 54	22 04	22 15
25C	25753		20 55	→	→	→	→	→	→	→	→	22 00	22 10
25	25781		21 10	21 18	21 21	→	21 43	22 00	22 17	D22 26	D22 39	D22 49	D23 00
25	25821		22 10	22 18	22 21	→	22 43	23 00	23 17	D23 24	D23 36	D23 44	D23 55
25	25851		23 10	23 18	23 21	→	23 43	00 00	00 16	D00 22	D00 34	D00 42	D00 50
25	25881		00 10	00 18	00 21	→	00 43	01 00	01 16	D01 22	D01 34	D01 42	D01 50

29 Route number
Numéro du trajet

Guelph/Mississauga



CONTACT US

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Face coverings are mandatory on GO Transit. Let's keep each other safe.

Le port d'un masque est obligatoire lors de vos trajets sur GO Transit. Protégeons notre santé les uns les autres.

Guelph/ Mississauga

GO Bus Schedule/
Horaire des autobus GO

METROLINX

29

- Kipling Bus Terminal
- Renforth Transitway
- Dixie Transitway
- Square One GO
- Erin Mills Transitway Station
- Winston Churchill Transitway Station
- Regional Rd.25 @ Hwy.401 Park & Ride
- Aberfoyle Park & Ride
- University of Guelph
- Guelph Central

Daily / Quotidiennement
Includes GO Bus route 29 /
Inclut le trajet 29 d'autobus GO

Effective / À partir de:
25 JUNE JUIN **2022**

How to read our schedules

Step 1
Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2
The upper left corner tells you what day the schedule is for and the direction of travel.

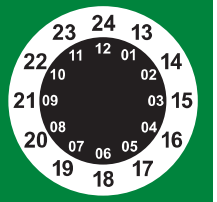
Step 3
Look across the rows for available departure times.

Step 4
Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00

Noon to midnight
12 01 - 24 00



Legend

Bus trips

GO Bus service is accessible to passengers using mobility devices at this location.

Parking available.

For the latest schedule information and updates, please visit gotransit.com/schedules.

Notes

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.

2. Foldable bicycles are allowed on-board trains at all times.

Comment lire nos horaires

Étape 1
Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2
Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

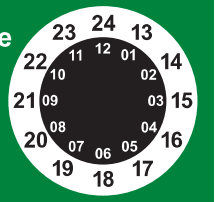
Étape 3
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4
Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00

De midi à minuit:
12 01 - 24 00



Légende

Horaire des autobus

Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Stationnement disponible.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

Notes

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).

2. Les vélos pliables sont permis à bord des trains en tout temps.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Guelph	Guelph	University of Guelph	Brock Rd. @ McLean Rd. (Aberfoyle) P&R	Regional Rd. 25 @ Hwy. 401 P&R	Winston Churchill Transitway Station	Erin Mills Transitway Station	Square One	Dixie Transitway Station	Renforth Transitway Station	Kipling Bus Terminal
			39	39	39	24	21	21	20	25	25	3	
			Dp	Dp									Ar
29	29130		05 15	05 25	05 40	05 56	06 17	06 20	06 30	06 37	06 42	07 00	
29	29190		06 15	06 25	06 40	06 59	07 22	07 25	07 35	07 42	07 47	08 05	
29	29240		07 00	07 10	07 30	07 49	08 17	08 20	08 30	08 37	08 42	09 00	
29	29280		08 05	08 15	08 35	08 54	09 17	09 20	09 35	09 42	09 47	10 05	
29	29320		09 10	09 20	09 40	09 56	10 17	10 20	10 35	10 42	10 47	11 05	
29	29360		10 20	10 30	10 45	11 01	11 17	11 20	11 35	11 42	11 47	12 05	
29	29400		11 15	11 30	11 45	12 01	12 17	12 20	12 35	12 42	12 47	13 05	
29	29440		12 15	12 30	12 45	13 01	13 17	13 20	13 35	13 42	13 47	14 05	
29	29480		13 10	13 25	13 45	14 01	14 17	14 20	14 35	14 42	14 47	15 05	
29	29540		14 10	14 25	14 45	15 01	15 17	15 20	15 35	15 42	15 47	16 05	
29	29600		15 00	15 15	15 35	15 51	16 12	16 15	16 30	16 37	16 42	17 00	
29	29660		16 00	16 15	16 35	16 51	17 12	17 15	17 30	17 37	17 42	18 00	
29	29700		17 05	17 20	17 40	17 56	18 17	18 20	18 35	18 42	18 47	19 05	
29	29740		18 05	18 20	18 40	18 56	19 17	19 20	19 35	19 42	19 47	20 05	
29	29780		19 15	19 25	19 40	19 56	20 17	20 20	20 35	20 42	20 47	21 05	
29	29820		20 20	20 30	20 45	21 01	21 17	21 20	21 35	21 42	21 47	22 00	
29	29850		21 20	21 30	21 45	22 01	22 17	22 20	22 35	22 42	22 47	23 00	
29	29880		22 20	22 30	22 45	23 01	23 17	23 20	23 35	23 42	23 47	00 00	

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Etobicoke	Kipling Bus Terminal	Mississauga	Renforth Transitway Station	Mississauga	Dixie Transitway Station	Mississauga	Square One	Mississauga	Erin Mills Transitway Station	Mississauga	Winston Churchill Transitway Station	Milton	Regional Rd. 25 @ Hwy. 401 P&R	Mississauga	Brock Rd. @ McLean Rd. (Aberfoyle) P&R	Guelph	University of Guelph	Guelph	Guelph Central GO
			3		25		25		20		21		21		24		39		39		39	
										Dp												Ar
29	29121		06 20	06 32	06 37	06 50	06 58	07 01	07 23	07 40	07 55	08 10										
29	29151		06 50	07 02	07 07	07 20	07 28	07 31	07 53	08 10	08 25	08 40										
29	29181		07 20	07 32	07 37	07 50	07 58	08 01	08 23	08 40	08 55	09 10										
29	29211		07 50	08 02	08 07	08 20	08 28	08 31	08 53	09 10	09 25	09 40										
29	29251		08 50	09 02	09 07	09 20	09 28	09 31	09 53	10 10	10 25	10 35										
29	29291		09 50	10 02	10 07	10 20	10 28	10 31	10 53	11 10	11 25	11 35										
29	29331		10 50	11 02	11 07	11 20	11 28	11 31	11 53	12 10	12 30	12 40										
29	29371		11 50	12 02	12 07	12 20	12 28	12 31	12 53	13 10	13 30	13 40										
29	29411		12 50	13 02	13 07	13 20	13 28	13 31	13 55	14 15	14 35	14 45										
29	29451		13 50	14 02	14 07	14 20	14 28	14 31	14 55	15 15	15 35	15 45										
29	29501		14 50	15 02	15 07	15 20	15 28	15 31	15 55	16 15	16 35	16 45										
29	29561		15 50	16 02	16 07	16 20	16 28	16 31	16 55	17 15	17 35	17 45										
29	29621		16 50	17 02	17 07	17 20	17 28	17 31	17 55	18 15	18 35	18 45										
29	29671		17 50	18 02	18 07	18 20	18 28	18 31	18 55	19 15	19 30	19 40										
29	29711		18 50	19 02	19 07	19 20	19 28	19 31	19 53	20 10	20 25	20 35										
29	29751		19 50	20 02	20 07	20 20	20 28	20 31	20 53	21 10	21 25	21 35										
29	29791		20 55	21 05	21 10	21 20	21 28	21 31	21 53	22 10	22 25	22 35										
29	29831		21 55	22 05	22 10	22 20	22 28	22 31	22 53	23 10	23 25	23 35										
29	29891		23 55	00 05	00 10	00 20	00 28	00 31	00 53	01 10	01 25	01 35										

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Guelph	Guelph	University of Guelph	Brock Rd. @ McLean Rd. (Aberfoyle) P&R	Regional Rd. 25 @ Hwy. 401 P&R	Winston Churchill Transitway Station	Erin Mills Transitway Station	Square One	Dixie Transitway Station	Renforth Transitway Station	Kipling Bus Terminal
			39	39	39	24	21	21	20	25	25	20	
			Dp	Dp									Ar
29	29190		06 45	06 55	07 10	07 26	07 42	07 45	07 55	08 02	08 07	08 25	
29	29240		07 40	07 50	08 05	08 21	08 39	08 42	08 55	09 02	09 07	09 25	
29	29280		08 35	08 45	09 05	09 21	09 39	09 42	09 55	10 02	10 07	10 25	
29	29320		09 30	09 45	10 05	10 21	10 39	10 42	10 55	11 02	11 07	11 25	
29	29360		10 30	10 45	11 05	11 21	11 39	11 42	11 55	12 02	12 07	12 25	
29	29400		11 30	11 45	12 05	12 21	12 39	12 42	12 55	13 02	13 07	13 25	
29	29440		12 30	12 45	13 05	13 21	13 39	13 42	13 55	14 02	14 07	14 25	
29	29480		13 30	13 45	14 05	14 21	14 39	14 42	14 55	15 02	15 07	15 25	
29	29540		14 30	14 45	15 05	15 21	15 39	15 42	15 55	16 02	16 07	16 25	
29	29600		15 30	15 45	16 05	16 21	16 39	16 42	16 55	17 02	17 07	17 25	
29	29660		16 30	16 45	17 05	17 21	17 39	17 42	17 55	18 02	18 07	18 25	
29	29700		17 30	17 45	18 05	18 21	18 39	18 42	18 55	19 02	19 07	19 25	
29	29740		18 35	18 45	19 05	19 21	19 39	19 42	19 55	20 02	20 07	20 25	
29	29780		19 35	19 45	20 05	20 21	20 39	20 42	20 55	21 02	21 07	21 25	
29	29820		20 40	20 50	21 05	21 21	21 39	21 42	21 55	22 02	22 07	22 20	
29	29880		22 40	22 50	23 05	23 21	23 39	23 42	23 55	00 02	00 07	00 20	

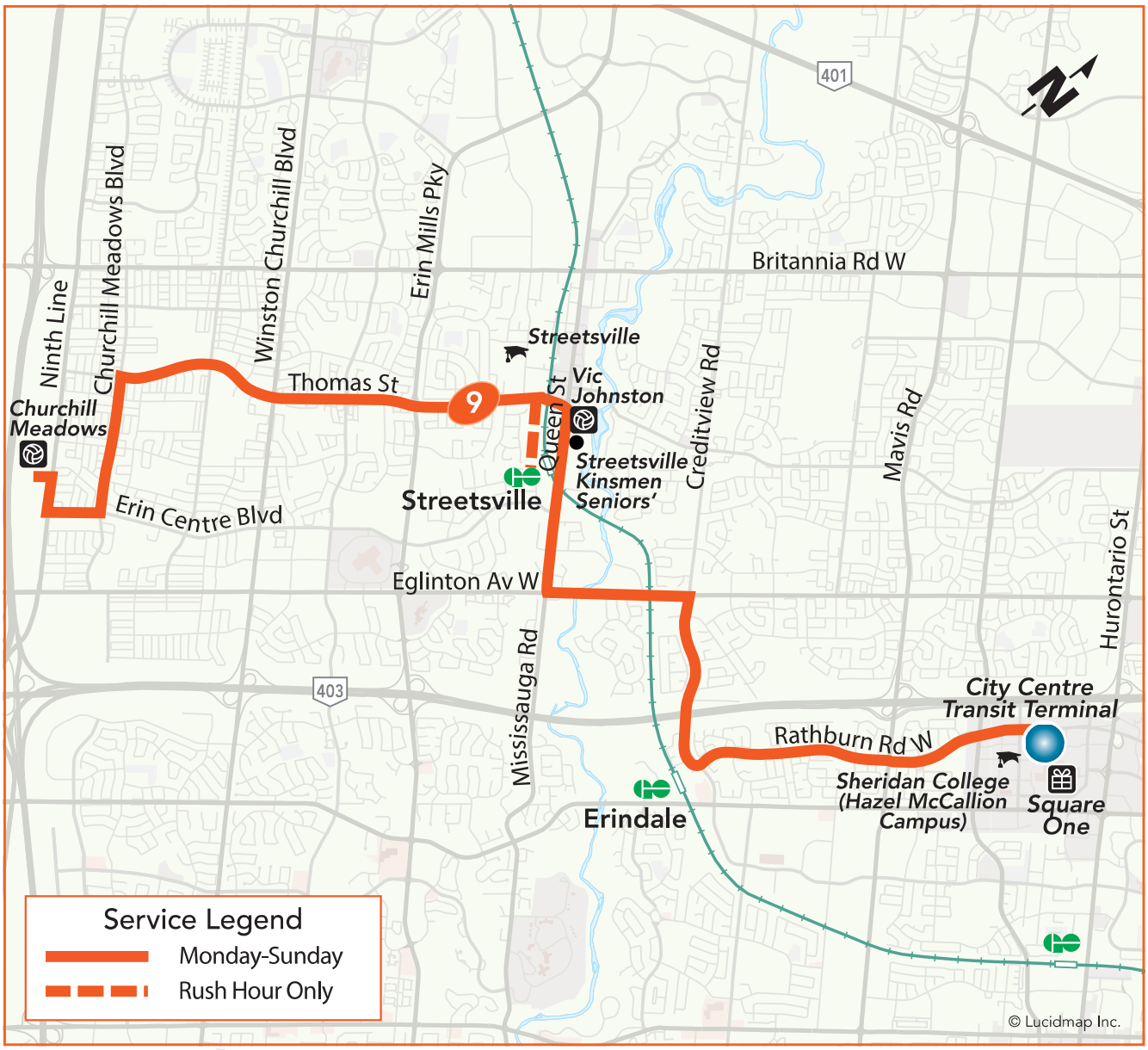
WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Mississauga	Kipling Bus Terminal	Mississauga	Renforth Transitway Station	Mississauga	Dixie Transitway Station	Mississauga	Square One	Mississauga	Erin Mills Transitway Station	Mississauga	Winston Churchill Transitway Station	Milton	Regional Rd. 25 @ Hwy. 401 P&R	Mississauga	Brock Rd. @ McLean Rd. (Aberfoyle) P&R	Guelph	University of Guelph	Guelph	Guelph Central GO
			25		25		25		20		21		21		24		39		39		39	
			Dp		Dp		Dp															Ar
29	29211		08 00	08 10	08 15	08 25	08 33	08 36	08 58	09 15	09 30	09 40										
29	29251		09 00	09 10	09 15	09 25	09 33	09 36	09 58	10 15	10 30	10 40										
29	29291		09 55	10 07	10 12	10 25	10 33	10 36	10 58	11 15	11 30	11 40										
29	29331		10 55	11 07	11 12	11 25	11 33	11 36	11 58	12 15	12 30	12 40										
29	29371		11 55	12 07	12 12	12 25	12 33	12 36	12 58	13 15	13 30	13 40										
29	29411		12 55	13 07	13 12	13 25	13 33	13 36	13 58	14 15	14 30	14 40										
29	29451		13 55	14 07	14 12	14 25	14 33	14 36	14 58	15 15	15 30	15 40										
29	29501		14 55	15 07	15 12	15 25	15 33	15 36	15 58	16 15	16 30	16 40										
29	29561		15 55	16 07	16 12	16 25	16 33	16 36	16 58	17 15	17 30	17 40										
29	29621		16 55	17 07	17 12	17 25	17 33	17 36	17 58	18 15	18 30	18 40										
29	29671		17 55	18 07	18 12	18 25	18 33	18 36	18 58	19 15	19 30	19 40										
29	29711		18 55	19 07	19 12	19 25	19 33	19 36	19 58	20 15	20 30	20 40										
29	29751		19 55	20 07	20 12	20 25	20 33	20 36	20 58	21 15	21 30	21 40										
29	29791		20 55	21 07	21 12	21 25	21 33	21 36	21 58	22 15	22 30	22 40										
29	29831		22 00	22 10	22 15	22 25	22 33	22 36	22 58	23 15	23 30	23 40										
29	29891		00 00	00 10	00 15	00 25	00 33	00 36	00 58	01 15	01 30	01 40										

9 Rathburn-Thomas

Local Route
Monday to Sunday

Eastbound to City Centre Transit Terminal
Westbound to Churchill Meadows Community Centre Terminal



Legend

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

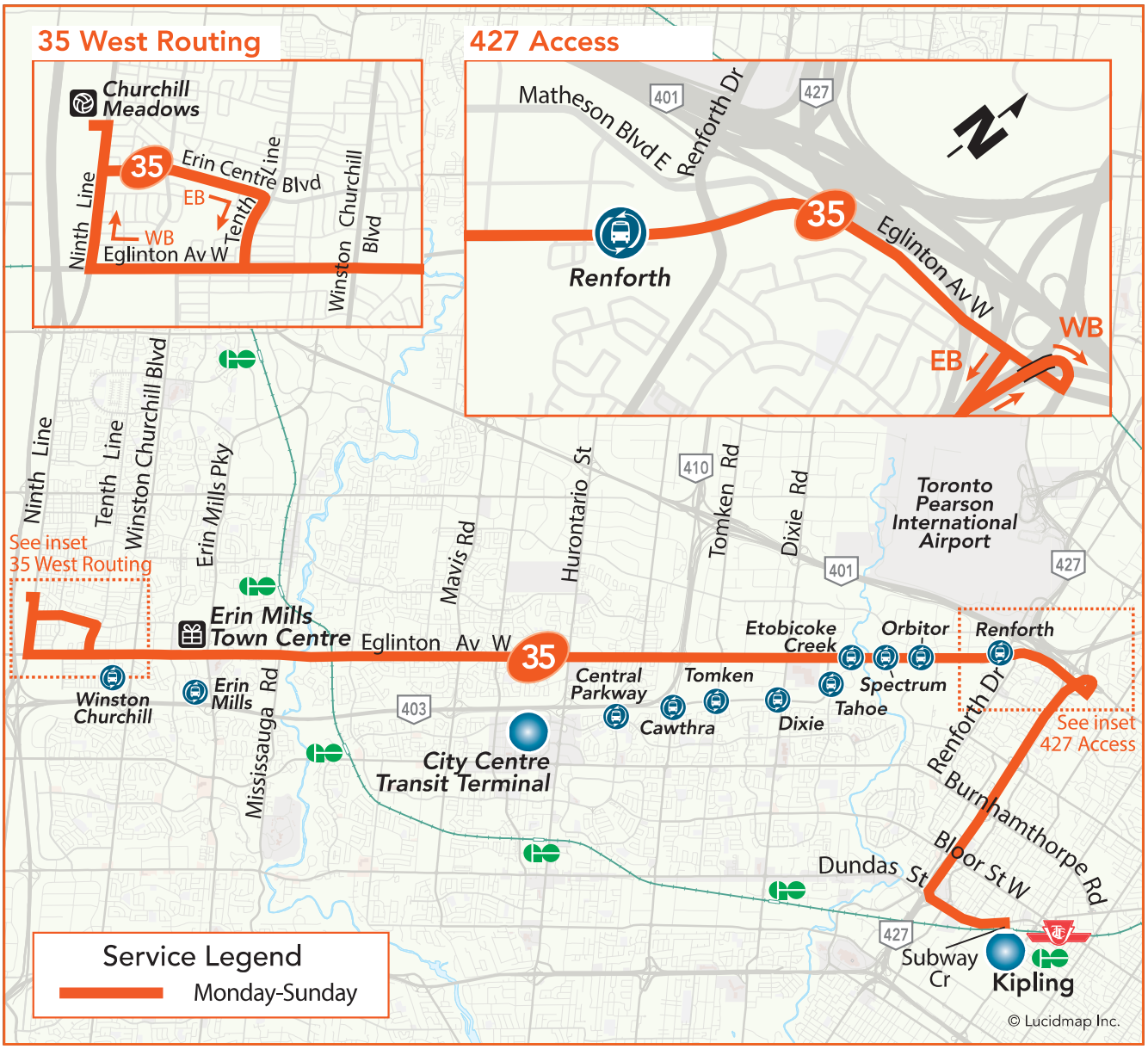
Effective: October 25, 2021

MiWAY MISSISSAUGA

35 Eglinton

Local Route
Monday to Sunday

Eastbound to Kipling Bus Terminal
Westbound to Churchill Meadows Community Centre Terminal



Legend

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

Effective: October 25, 2021

MiWAY MISSISSAUGA

36 Colonial-Ridgeway

Local Route
Monday to Sunday

Northbound to Winston Churchill Station
Southbound to South Common Centre



Legend

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

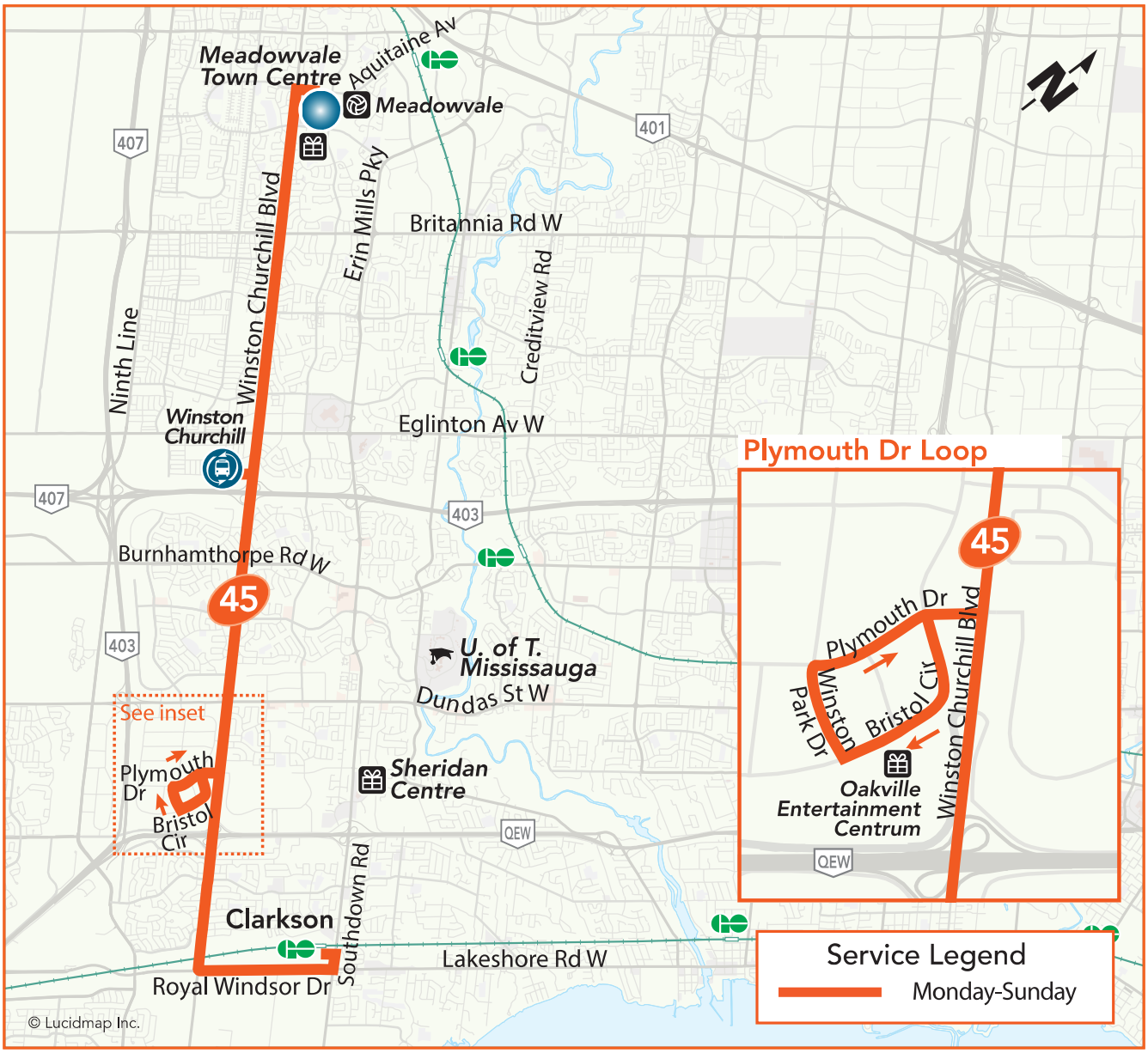
Effective: February 26, 2018

MiWAY MISSISSAUGA

45 Winston Churchill

Local Route
Monday to Sunday

Northbound to Meadowvale Town Centre
Southbound to Clarkson GO Station



Legend

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

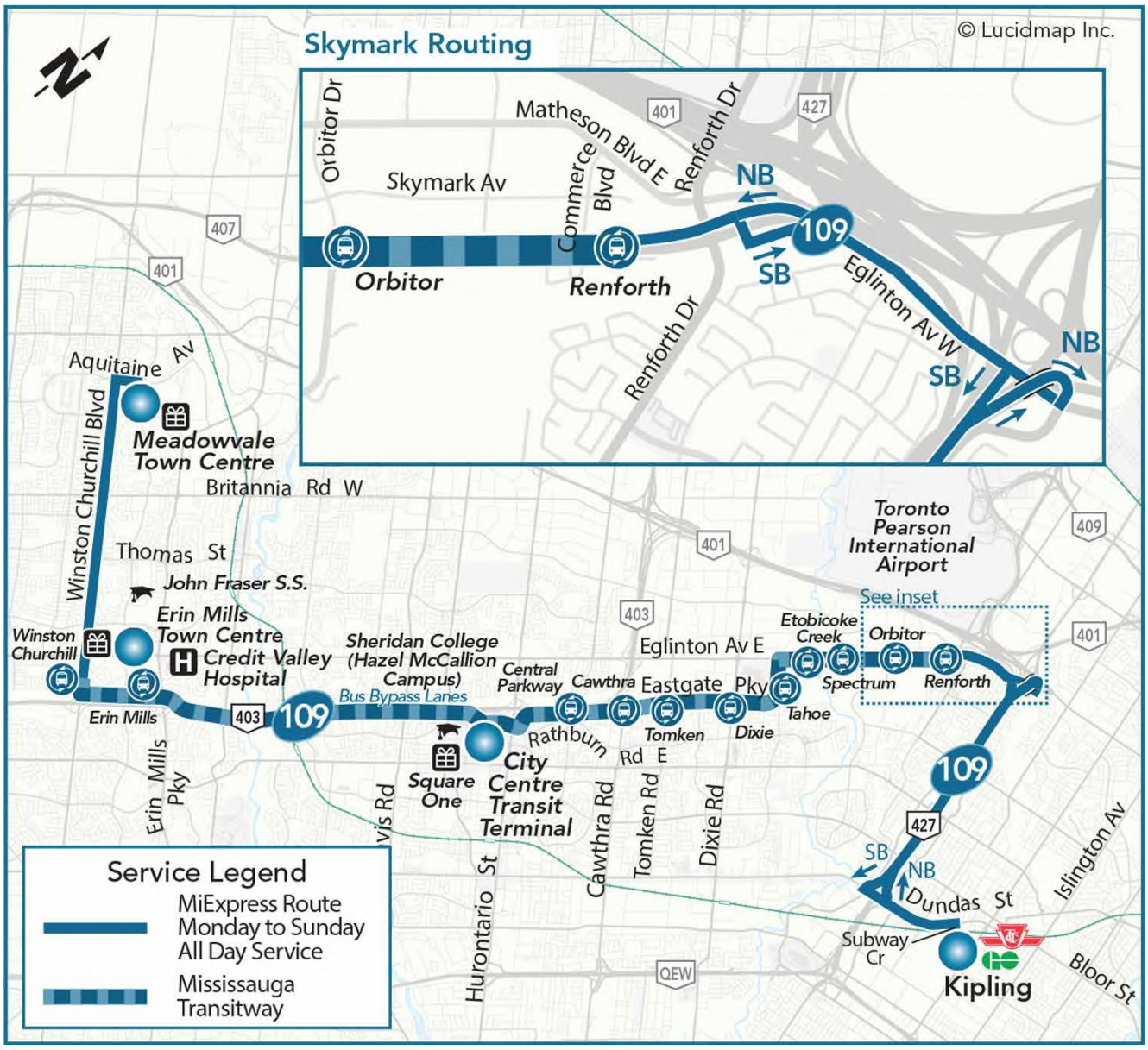
Effective: February 27, 2017

MiWAY MISSISSAUGA

109 Meadowvale Express

Express Route
Monday to Sunday

Northbound to Meadowvale Town Centre
Southbound to Kipling Bus Terminal



Legend

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

Effective: January 4, 2021

MiWAY MISSISSAUGA

APPENDIX D

Traffic Data

Spectrum

Turning Movement Count
Location Name: NINTH LINE & EGLINTON AVE W
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Turning Movement Count (1 . NINTH LINE & EGLINTON AVE W)

Start Time	N Approach NINTH LINE						E Approach EGLINTON AVE W						S Approach NINTH LINE						W Approach EGLINTON AVE W						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		
06:00:00	2	51	24	0	0	77	8	22	6	0	2	36	2	8	2	0	0	12	9	59	3	0	0	71	196	
06:15:00	6	85	37	0	0	128	9	22	4	0	0	35	5	19	2	0	0	26	11	114	1	0	0	126	315	
06:30:00	9	105	56	0	0	170	14	39	5	0	0	58	2	28	8	0	0	38	13	113	1	0	0	127	393	
06:45:00	11	103	63	0	0	177	17	30	11	0	0	58	5	28	7	0	0	40	18	140	3	0	0	161	436	1340
07:00:00	8	130	56	0	0	194	13	36	4	0	1	53	4	45	5	0	0	54	11	122	4	0	0	137	438	1582
07:15:00	7	134	48	0	1	189	17	55	10	0	1	82	8	47	11	0	0	66	24	179	4	0	0	207	544	1811
07:30:00	19	193	65	0	0	277	20	64	13	0	1	97	16	81	5	0	0	102	18	144	6	0	0	168	644	2062
07:45:00	12	202	62	0	2	276	37	76	14	0	0	127	13	75	4	0	0	92	24	175	8	0	0	207	702	2328
08:00:00	25	181	67	0	0	273	28	73	17	0	0	118	27	94	4	0	0	125	25	152	12	0	0	189	705	2595
08:15:00	17	218	70	0	0	305	39	48	15	0	0	102	19	75	8	0	0	102	32	132	4	0	0	168	677	2728
08:30:00	11	193	77	0	0	281	23	67	19	0	2	109	22	86	5	0	0	113	36	153	4	0	0	193	696	2780
08:45:00	10	188	88	0	1	286	27	53	14	0	0	94	24	75	7	0	0	106	18	162	4	0	0	184	670	2748
09:00:00	14	142	66	0	0	222	23	49	13	0	0	85	27	74	5	0	0	106	32	159	6	0	0	197	610	2653
09:15:00	7	115	61	0	0	183	19	49	11	0	0	79	8	61	5	0	0	74	8	121	4	0	0	133	469	2445
09:30:00	10	109	51	0	0	170	30	51	6	0	0	87	15	65	9	0	0	89	12	125	2	0	0	139	485	2234
09:45:00	12	77	55	0	0	144	23	47	15	0	0	85	13	39	9	0	0	61	15	82	5	0	0	102	392	1956
BREAK																										
15:00:00	14	69	28	0	0	111	61	133	10	0	1	204	4	98	15	0	0	117	9	68	8	0	0	85	517	
15:15:00	13	79	37	0	0	129	45	132	13	0	1	190	12	119	34	0	0	165	6	77	9	0	0	92	576	
15:30:00	11	85	41	0	0	137	59	97	14	0	0	170	14	97	36	0	0	147	11	80	7	0	0	98	552	
15:45:00	10	95	41	0	0	146	61	123	23	0	0	207	10	164	48	0	0	222	11	78	6	0	0	95	670	2315
16:00:00	16	99	34	0	0	149	77	161	12	0	3	250	17	161	42	0	0	220	12	72	10	0	0	94	713	2511
16:15:00	24	90	42	0	0	156	100	193	10	0	0	303	11	159	42	0	0	212	18	101	13	0	0	132	803	2738
16:30:00	16	104	52	0	0	172	64	149	12	0	0	225	15	177	27	0	0	219	12	93	11	0	0	116	732	2918
16:45:00	20	99	58	0	0	177	89	168	14	0	0	271	11	152	25	0	0	188	11	112	13	0	0	136	772	3020
17:00:00	15	104	33	0	0	152	91	181	14	0	2	286	23	171	28	0	0	222	15	112	11	0	0	138	798	3105
17:15:00	9	104	46	0	0	159	87	176	13	0	0	276	21	184	19	0	0	224	10	139	11	0	0	160	819	3121
17:30:00	13	118	62	0	0	193	93	188	17	0	0	298	16	147	19	0	0	182	12	147	20	0	0	179	852	3241
17:45:00	11	113	49	0	0	173	93	149	18	0	0	260	23	178	19	0	0	220	8	123	12	0	0	143	796	3265
18:00:00	17	99	73	0	0	189	70	129	17	1	1	217	27	138	23	0	0	188	13	119	18	0	0	150	744	3211
18:15:00	8	96	61	0	0	165	76	135	18	0	0	229	17	143	7	0	0	167	8	122	9	0	0	139	700	3092
18:30:00	5	107	56	0	0	168	77	104	14	0	1	195	24	166	11	0	0	201	7	72	9	0	0	88	652	2892
18:45:00	14	77	41	0	0	132	60	106	11	0	0	177	8	109	8	0	0	125	6	68	13	0	0	87	521	2617
Grand Total	396	3764	1700	0	4	5860	1550	3105	407	1	16	5063	463	3263	499	0	0	4225	475	3715	251	0	0	4441	**19589**	-
Approach%	6.8%	64.2%	29%	0%		-	30.6%	61.3%	8%	0%		-	11%	77.2%	11.8%	0%		-	10.7%	83.7%	5.7%	0%		-	**-**	-
Totals %	2%	19.2%	8.7%	0%		29.9%	7.9%	15.9%	2.1%	0%		25.8%	2.4%	16.7%	2.5%	0%		21.6%	2.4%	19%	1.3%	0%		22.7%	**-**	-
Heavy	4	67	27	0		-	71	61	9	0		-	9	74	25	0		-	46	73	2	0		-	**-**	-
Heavy %	1%	1.8%	1.6%	0%		-	4.6%	2%	2.2%	0%		-	1.9%	2.3%	5%	0%		-	9.7%	2%	0.8%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: NINTH LINE & EGLINTON AVE W
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (19.07 °C)

Start Time	N Approach NINTH LINE						E Approach EGLINTON AVE W						S Approach NINTH LINE						W Approach EGLINTON AVE W						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	12	202	62	0	2	276	37	76	14	0	0	127	13	75	4	0	0	92	24	175	8	0	0	207	702
08:00:00	25	181	67	0	0	273	28	73	17	0	0	118	27	94	4	0	0	125	25	152	12	0	0	189	705
08:15:00	17	218	70	0	0	305	39	48	15	0	0	102	19	75	8	0	0	102	32	132	4	0	0	168	677
08:30:00	11	193	77	0	0	281	23	67	19	0	2	109	22	86	5	0	0	113	36	153	4	0	0	193	696
Grand Total	65	794	276	0	2	1135	127	264	65	0	2	456	81	330	21	0	0	432	117	612	28	0	0	757	**2780**
Approach%	5.7%	70%	24.3%	0%		-	27.9%	57.9%	14.3%	0%		-	18.8%	76.4%	4.9%	0%		-	15.5%	80.8%	3.7%	0%		-	**-**
Totals %	2.3%	28.6%	9.9%	0%		40.8%	4.6%	9.5%	2.3%	0%		16.4%	2.9%	11.9%	0.8%	0%		15.5%	4.2%	22%	1%	0%		27.2%	**-**
PHF	0.65	0.91	0.9	0		0.93	0.81	0.87	0.86	0		0.9	0.75	0.88	0.66	0		0.86	0.81	0.87	0.58	0		0.91	**-**
Heavy	0	14	10	0		24	10	7	2	0		19	0	16	6	0		22	7	7	2	0		16	**-**
Heavy %	0%	1.8%	3.6%	0%		2.1%	7.9%	2.7%	3.1%	0%		4.2%	0%	4.8%	28.6%	0%		5.1%	6%	1.1%	7.1%	0%		2.1%	**-**
Lights	65	779	266	0		1110	117	255	63	0		435	81	314	14	0		409	110	605	26	0		741	**-**
Lights %	100%	98.1%	96.4%	0%		97.8%	92.1%	96.6%	96.9%	0%		95.4%	100%	95.2%	66.7%	0%		94.7%	94%	98.9%	92.9%	0%		97.9%	**-**
Single-Unit Trucks	0	9	6	0		15	3	5	2	0		10	0	14	1	0		15	1	3	0	0		4	**-**
Single-Unit Trucks %	0%	1.1%	2.2%	0%		1.3%	2.4%	1.9%	3.1%	0%		2.2%	0%	4.2%	4.8%	0%		3.5%	0.9%	0.5%	0%	0%		0.5%	**-**
Buses	0	2	0	0		2	6	0	0	0		6	0	0	0	0		0	0	0	1	0		1	**-**
Buses %	0%	0.3%	0%	0%		0.2%	4.7%	0%	0%	0%		1.3%	0%	0%	0%	0%		0%	0%	0%	3.6%	0%		0.1%	**-**
Articulated Trucks	0	3	4	0		7	1	2	0	0		3	0	2	5	0		7	6	4	1	0		11	**-**
Articulated Trucks %	0%	0.4%	1.4%	0%		0.6%	0.8%	0.8%	0%	0%		0.7%	0%	0.6%	23.8%	0%		1.6%	5.1%	0.7%	3.6%	0%		1.5%	**-**
Bicycles on Road	0	1	0	0		1	0	2	0	0		2	0	0	1	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0.1%	0%	0%		0.1%	0%	0.8%	0%	0%		0.4%	0%	0%	4.8%	0%		0.2%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	50%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	50%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

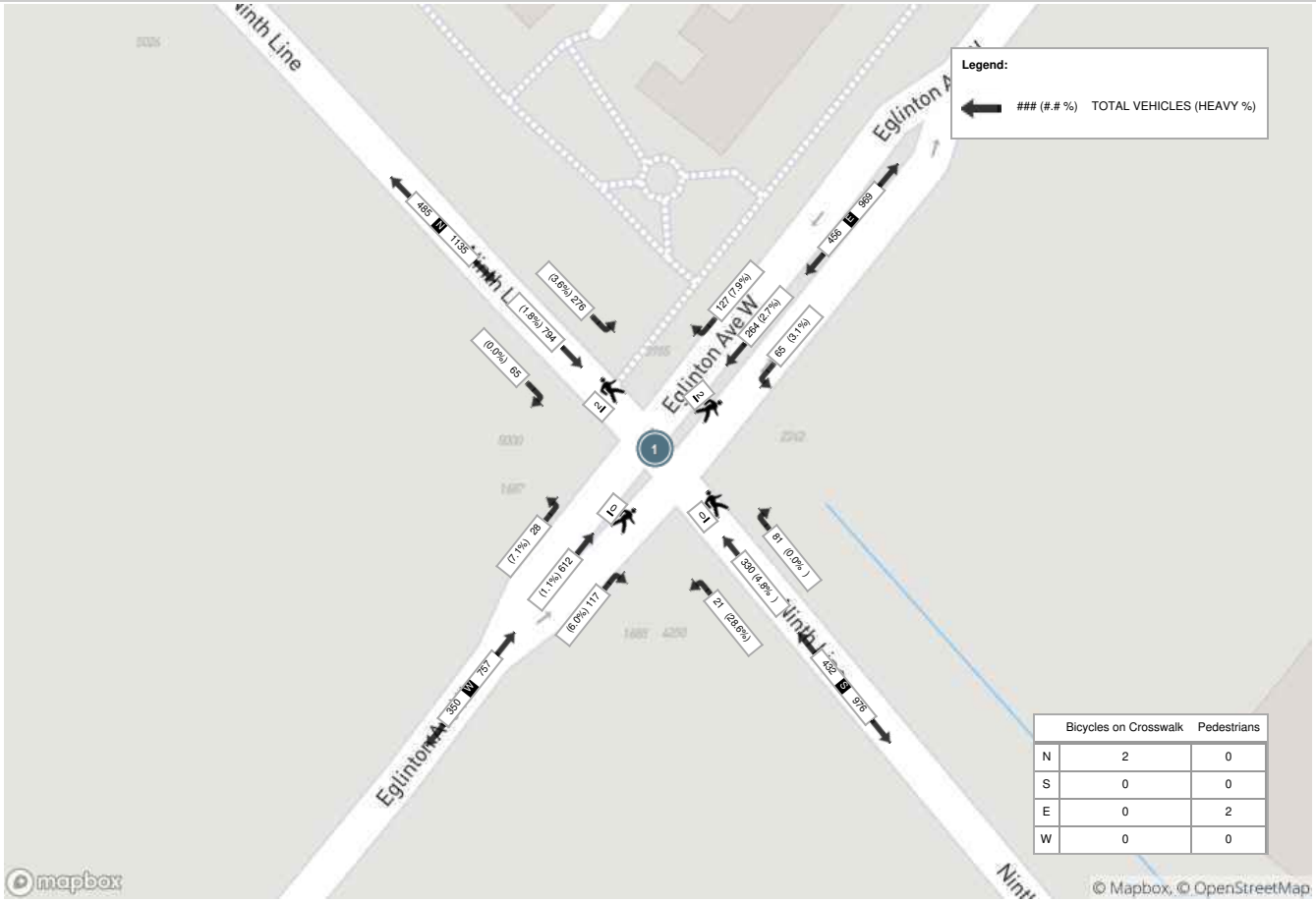
Turning Movement Count
Location Name: NINTH LINE & EGLINTON AVE W
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (28.48 °C)

Start Time	N Approach NINTH LINE						E Approach EGLINTON AVE W						S Approach NINTH LINE						W Approach EGLINTON AVE W						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	
17:00:00	15	104	33	0	0	152	91	181	14	0	2	286	23	171	28	0	0	222	15	112	11	0	0	138	798
17:15:00	9	104	46	0	0	159	87	176	13	0	0	276	21	184	19	0	0	224	10	139	11	0	0	160	819
17:30:00	13	118	62	0	0	193	93	188	17	0	0	298	16	147	19	0	0	182	12	147	20	0	0	179	852
17:45:00	11	113	49	0	0	173	93	149	18	0	0	260	23	178	19	0	0	220	8	123	12	0	0	143	796
Grand Total	48	439	190	0	0	677	364	694	62	0	2	1120	83	680	85	0	0	848	45	521	54	0	0	620	**3265**
Approach%	7.1%	64.8%	28.1%	0%		-	32.5%	62%	5.5%	0%		-	9.8%	80.2%	10%	0%		-	7.3%	84%	8.7%	0%		-	**-**
Totals %	1.5%	13.4%	5.8%	0%		20.7%	11.1%	21.3%	1.9%	0%		34.3%	2.5%	20.8%	2.6%	0%		26%	1.4%	16%	1.7%	0%		19%	**-**
PHF	0.8	0.93	0.77	0		0.88	0.98	0.92	0.86	0		0.94	0.9	0.92	0.76	0		0.95	0.75	0.89	0.68	0		0.87	**-**
Heavy	0	3	2	0		5	8	5	1	0		14	1	8	0	0		9	2	9	0	0		11	**-**
Heavy %	0%	0.7%	1.1%	0%		0.7%	2.2%	0.7%	1.6%	0%		1.3%	1.2%	1.2%	0%	0%		1.1%	4.4%	1.7%	0%	0%		1.8%	**-**
Lights	48	436	188	0		672	356	688	61	0		1105	82	672	85	0		839	43	512	54	0		609	**-**
Lights %	100%	99.3%	98.9%	0%		99.3%	97.8%	99.1%	98.4%	0%		98.7%	98.8%	98.8%	100%	0%		98.9%	95.6%	98.3%	100%	0%		98.2%	**-**
Single-Unit Trucks	0	2	1	0		3	1	2	1	0		4	1	5	0	0		6	1	7	0	0		8	**-**
Single-Unit Trucks %	0%	0.5%	0.5%	0%		0.4%	0.3%	0.3%	1.6%	0%		0.4%	1.2%	0.7%	0%	0%		0.7%	2.2%	1.3%	0%	0%		1.3%	**-**
Buses	0	0	1	0		1	7	0	0	0		7	0	0	0	0		0	1	1	0	0		2	**-**
Buses %	0%	0%	0.5%	0%		0.1%	1.9%	0%	0%	0%		0.6%	0%	0%	0%	0%		0%	2.2%	0.2%	0%	0%		0.3%	**-**
Articulated Trucks	0	1	0	0		1	0	3	0	0		3	0	3	0	0		3	0	1	0	0		1	**-**
Articulated Trucks %	0%	0.2%	0%	0%		0.1%	0%	0.4%	0%	0%		0.3%	0%	0.4%	0%	0%		0.4%	0%	0.2%	0%	0%		0.2%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	100%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Turning Movement Count
Location Name: NINTH LINE & EGLINTON AVE W
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 07:45 AM - 08:45 AM **Weather: Scattered Clouds (19.07 °C)**

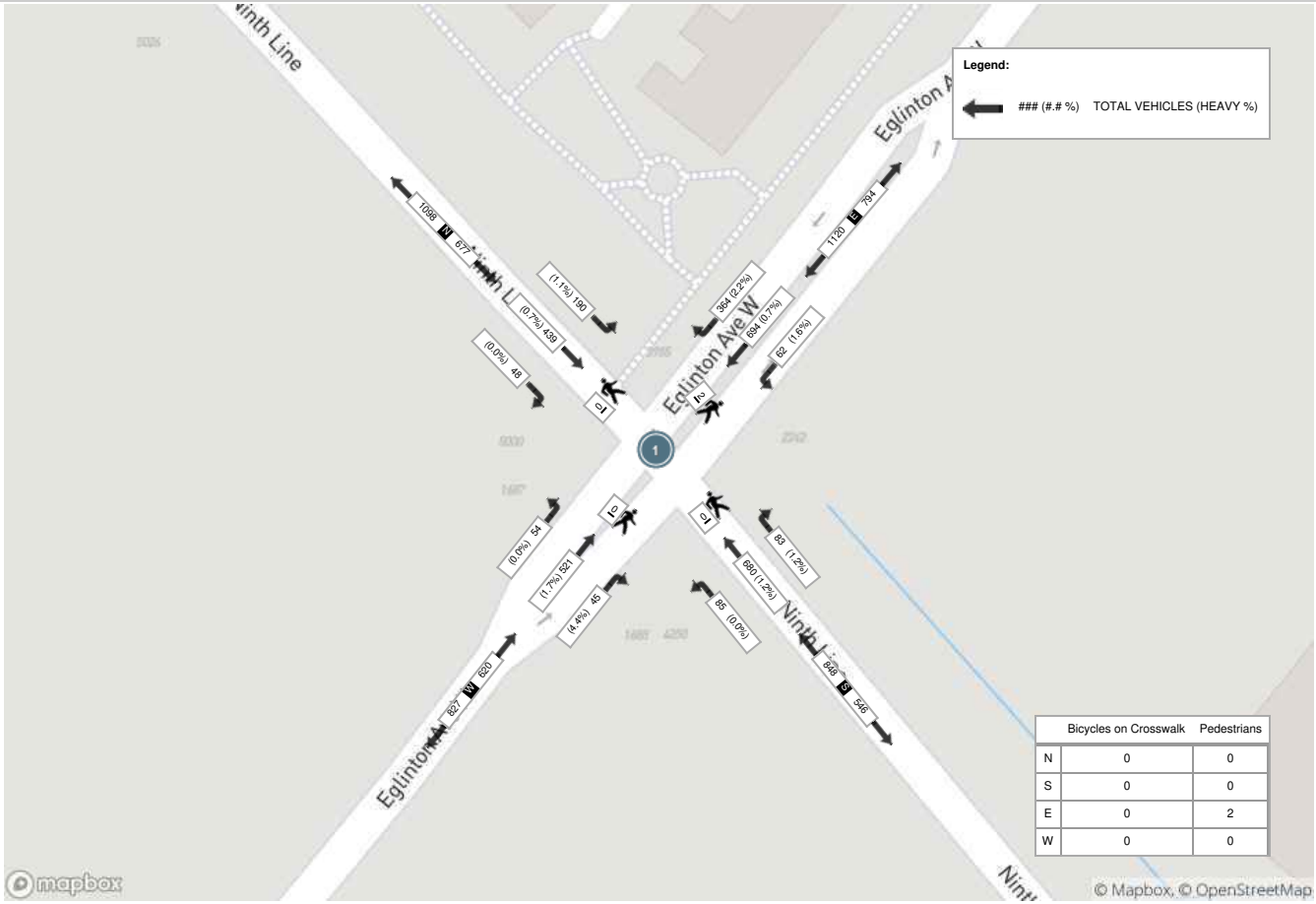


	Bicycles on Crosswalk	Pedestrians
N	2	0
S	0	0
E	0	2
W	0	0

Spectrum

Turning Movement Count
Location Name: NINTH LINE & EGLINTON AVE W
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (28.48 °C)



Spectrum

Turning Movement Count
Location Name: NINTH LINE & ERIN CENTRE BLVD
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Turning Movement Count (4 . NINTH LINE & ERIN CENTRE BLVD)

Start Time	N Approach NINTH LINE					E Approach ERIN CENTRE BLVD					S Approach NINTH LINE					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	U-Turn S:S	Peds S:	Approach Total		
06:00:00	76	3	0	0	79	3	1	0	0	4	2	19	0	0	21	104	
06:15:00	129	3	0	0	132	4	5	0	0	9	3	30	0	0	33	174	
06:30:00	162	1	0	0	163	2	8	0	0	10	4	48	0	0	52	225	
06:45:00	163	2	0	0	165	7	7	0	1	14	4	40	0	0	44	223	726
07:00:00	177	5	0	0	182	3	12	0	0	15	2	75	0	0	77	274	896
07:15:00	212	8	0	0	220	10	9	0	2	19	4	81	0	0	85	324	1046
07:30:00	243	8	0	0	251	4	19	0	0	23	8	100	0	0	108	382	1203
07:45:00	258	12	0	0	270	11	26	0	0	37	4	142	0	0	146	453	1433
08:00:00	254	10	0	0	264	9	35	0	0	44	4	138	0	0	142	450	1609
08:15:00	258	6	0	0	264	11	21	0	0	32	6	130	0	0	136	432	1717
08:30:00	275	6	0	1	281	19	15	0	1	34	6	121	0	0	127	442	1777
08:45:00	251	9	0	0	260	8	13	0	2	21	6	92	0	0	98	379	1703
09:00:00	192	12	0	0	204	4	20	0	0	24	10	101	0	0	111	339	1592
09:15:00	178	9	0	0	187	6	5	0	0	11	5	94	0	0	99	297	1457
09:30:00	163	5	0	0	168	9	11	0	0	20	9	83	0	0	92	280	1295
09:45:00	138	13	0	0	151	12	6	0	0	18	5	73	0	0	78	247	1163
BREAK																	
15:00:00	114	6	0	0	120	8	6	0	0	14	8	158	0	0	166	300	
15:15:00	121	8	0	0	129	15	8	0	0	23	7	169	0	0	176	328	
15:30:00	140	12	0	0	152	8	2	0	0	10	11	159	0	0	170	332	
15:45:00	143	13	0	0	156	20	11	0	1	31	14	190	0	0	204	391	1351
16:00:00	116	8	0	0	124	10	17	1	0	28	14	238	0	0	252	404	1455
16:15:00	169	15	0	0	184	10	10	0	0	20	11	252	0	0	263	467	1594
16:30:00	157	12	0	0	169	13	6	0	4	19	10	232	1	0	243	431	1693
16:45:00	174	13	0	0	187	11	12	0	1	23	15	252	0	0	267	477	1779
17:00:00	173	19	0	1	192	7	4	0	0	11	9	244	0	0	253	456	1831
17:15:00	146	16	0	0	162	14	6	0	0	20	16	274	0	0	290	472	1836
17:30:00	192	18	0	0	210	10	14	0	4	24	8	258	0	0	266	500	1905
17:45:00	172	20	0	0	192	19	8	0	0	27	24	252	0	0	276	495	1923
18:00:00	172	13	0	0	185	10	11	0	0	21	15	221	0	0	236	442	1909
18:15:00	174	15	0	0	189	10	9	0	2	19	11	220	0	0	231	439	1876
18:30:00	148	14	0	0	162	13	8	0	2	21	16	226	0	0	242	425	1801
18:45:00	127	18	0	0	145	8	5	0	1	13	13	176	0	0	189	347	1653

Grand Total	5567	332	0	2	5899	308	350	1	21	659	284	4888	1	0	5173	**11731**	-
Approach%	94.4%	5.6%	0%		-	46.7%	53.1%	0.2%		-	5.5%	94.5%	0%		-	**-**	-
Totals %	47.5%	2.8%	0%		50.3%	2.6%	3%	0%		5.6%	2.4%	41.7%	0%		44.1%	**-**	-
Heavy	90	3	0		-	0	4	0		-	52	91	0		-	**-**	-
Heavy %	1.6%	0.9%	0%		-	0%	1.1%	0%		-	18.3%	1.9%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: NINTH LINE & ERIN CENTRE BLVD
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (19.07 °C)

Start Time	N Approach NINTH LINE					E Approach ERIN CENTRE BLVD					S Approach NINTH LINE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
07:45:00	258	12	0	0	270	11	26	0	0	37	4	142	0	0	146	453
08:00:00	254	10	0	0	264	9	35	0	0	44	4	138	0	0	142	450
08:15:00	258	6	0	0	264	11	21	0	0	32	6	130	0	0	136	432
08:30:00	275	6	0	1	281	19	15	0	1	34	6	121	0	0	127	442
Grand Total	1045	34	0	1	1079	50	97	0	1	147	20	531	0	0	551	**1777**
Approach%	96.8%	3.2%	0%		-	34%	66%	0%		-	3.6%	96.4%	0%		-	**-**
Totals %	58.8%	1.9%	0%		60.7%	2.8%	5.5%	0%		8.3%	1.1%	29.9%	0%		31%	**-**
PHF	0.95	0.71	0		0.96	0.66	0.69	0		0.84	0.83	0.93	0		0.94	**-**
Heavy	19	0	0		19	0	1	0		1	6	22	0		28	**-**
Heavy %	1.8%	0%	0%		1.8%	0%	1%	0%		0.7%	30%	4.1%	0%		5.1%	**-**
Lights	1026	34	0		1060	50	96	0		146	14	509	0		523	**-**
Lights %	98.2%	100%	0%		98.2%	100%	99%	0%		99.3%	70%	95.9%	0%		94.9%	**-**
Single-Unit Trucks	13	0	0		13	0	0	0		0	1	16	0		17	**-**
Single-Unit Trucks %	1.2%	0%	0%		1.2%	0%	0%	0%		0%	5%	3%	0%		3.1%	**-**
Buses	1	0	0		1	0	1	0		1	5	2	0		7	**-**
Buses %	0.1%	0%	0%		0.1%	0%	1%	0%		0.7%	25%	0.4%	0%		1.3%	**-**
Articulated Trucks	5	0	0		5	0	0	0		0	0	4	0		4	**-**
Articulated Trucks %	0.5%	0%	0%		0.5%	0%	0%	0%		0%	0%	0.8%	0%		0.7%	**-**
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	-	-	-	1	-	-	-	-	1	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	50%		-	-	-	50%		-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

Spectrum

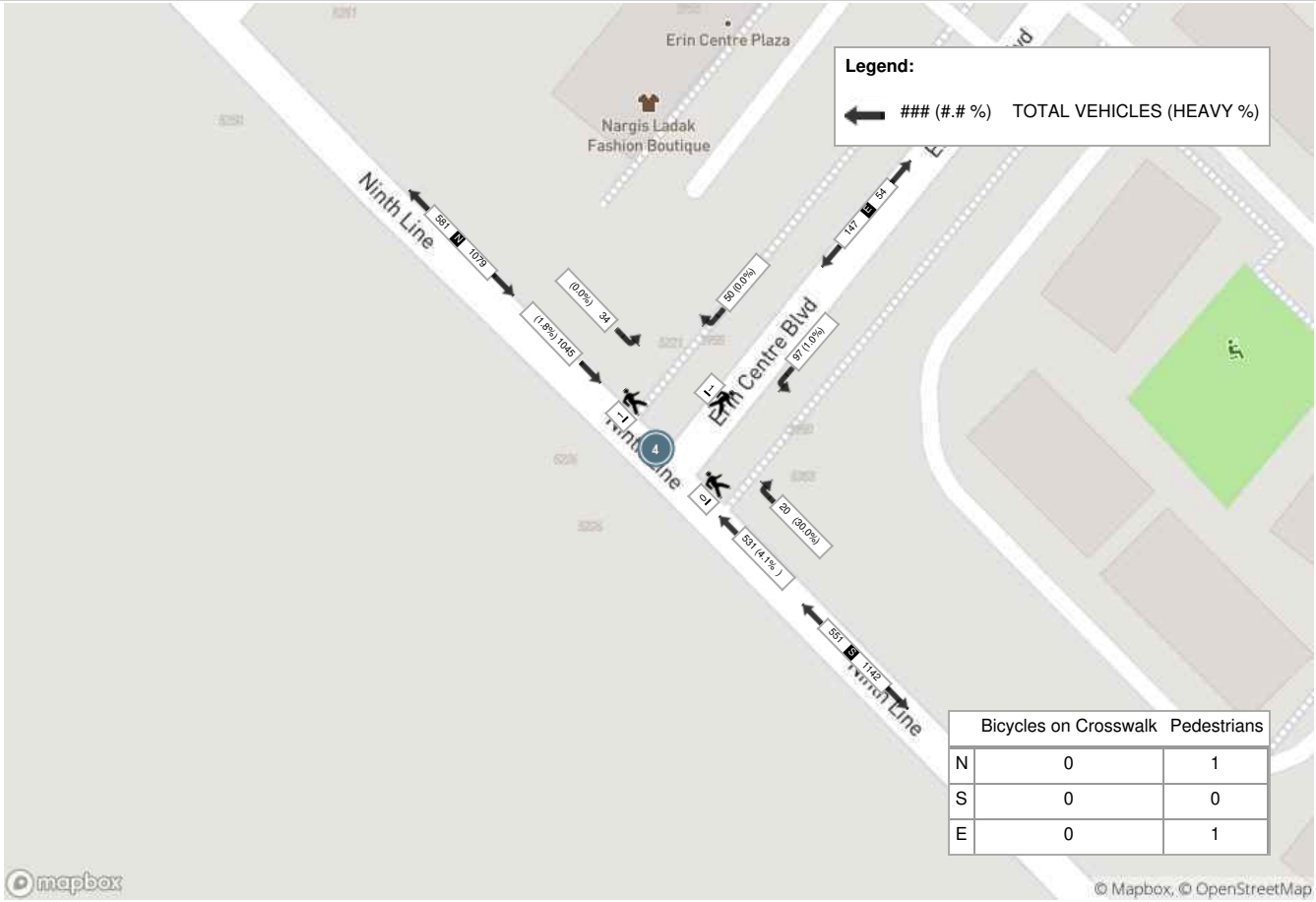
Turning Movement Count
Location Name: NINTH LINE & ERIN CENTRE BLVD
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (28.48 °C)

Start Time	N Approach NINTH LINE					E Approach ERIN CENTRE BLVD					S Approach NINTH LINE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
17:00:00	173	19	0	1	192	7	4	0	0	11	9	244	0	0	253	456
17:15:00	146	16	0	0	162	14	6	0	0	20	16	274	0	0	290	472
17:30:00	192	18	0	0	210	10	14	0	4	24	8	258	0	0	266	500
17:45:00	172	20	0	0	192	19	8	0	0	27	24	252	0	0	276	495
Grand Total	683	73	0	1	756	50	32	0	4	82	57	1028	0	0	1085	**1923**
Approach%	90.3%	9.7%	0%		-	61%	39%	0%		-	5.3%	94.7%	0%		-	**-**
Totals %	35.5%	3.8%	0%		39.3%	2.6%	1.7%	0%		4.3%	3%	53.5%	0%		56.4%	**-**
PHF	0.89	0.91	0		0.9	0.66	0.57	0		0.76	0.59	0.94	0		0.94	**-**
Heavy	5	1	0		6	0	0	0		0	6	10	0		16	**-**
Heavy %	0.7%	1.4%	0%		0.8%	0%	0%	0%		0%	10.5%	1%	0%		1.5%	**-**
Lights	678	71	0		749	50	32	0		82	51	1018	0		1069	**-**
Lights %	99.3%	97.3%	0%		99.1%	100%	100%	0%		100%	89.5%	99%	0%		98.5%	**-**
Single-Unit Trucks	3	1	0		4	0	0	0		0	0	6	0		6	**-**
Single-Unit Trucks %	0.4%	1.4%	0%		0.5%	0%	0%	0%		0%	0%	0.6%	0%		0.6%	**-**
Buses	1	0	0		1	0	0	0		0	6	1	0		7	**-**
Buses %	0.1%	0%	0%		0.1%	0%	0%	0%		0%	10.5%	0.1%	0%		0.6%	**-**
Articulated Trucks	1	0	0		1	0	0	0		0	0	3	0		3	**-**
Articulated Trucks %	0.1%	0%	0%		0.1%	0%	0%	0%		0%	0%	0.3%	0%		0.3%	**-**
Bicycles on Road	0	1	0		1	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	0%	1.4%	0%		0.1%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	4	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	80%		-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	20%		-	-	-	0%		-	-	-	0%		**-**

Turning Movement Count
Location Name: NINTH LINE & ERIN CENTRE BLVD
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (19.07 °C)

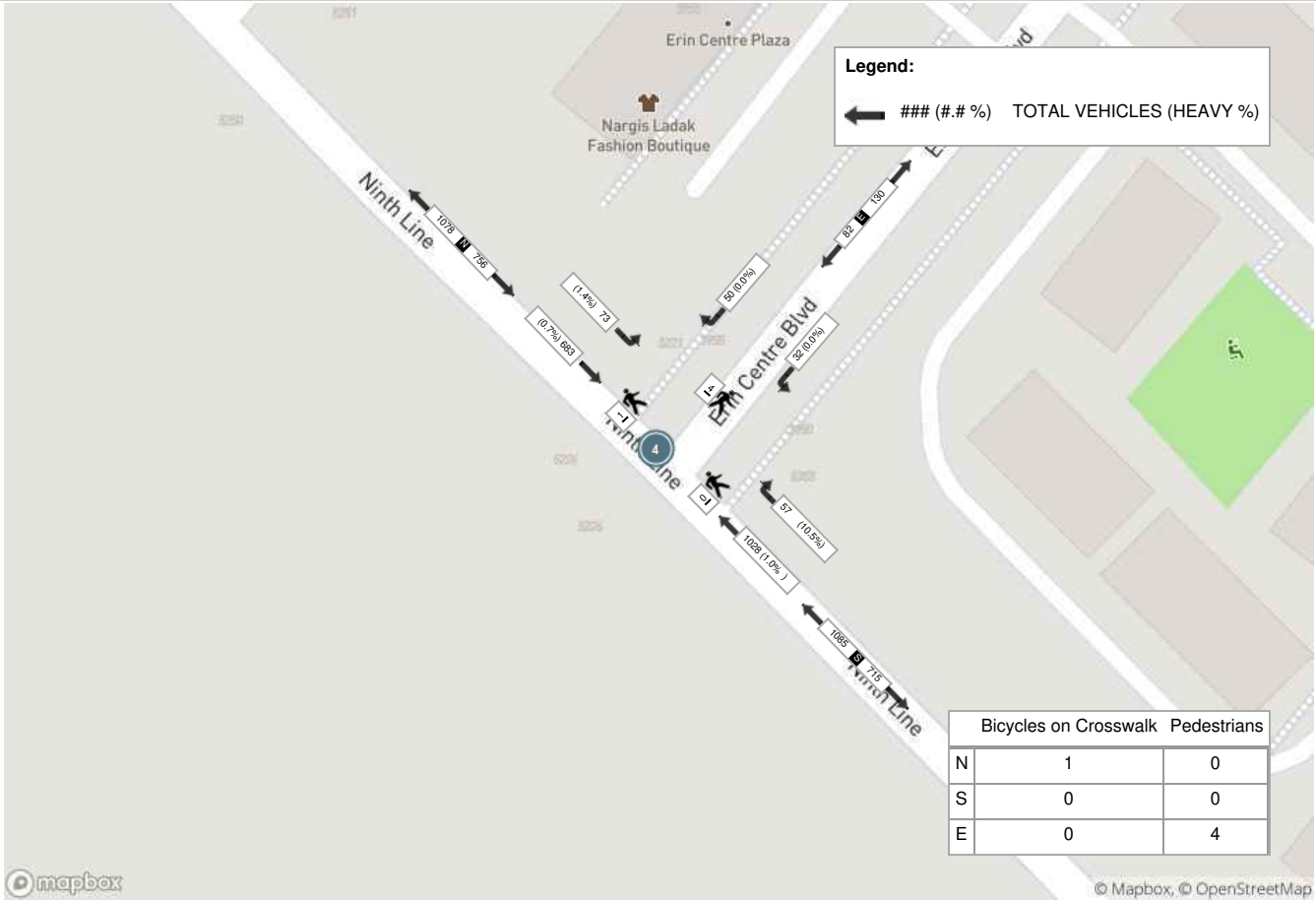


	Bicycles on Crosswalk	Pedestrians
N	0	1
S	0	0
E	0	1

Spectrum

Turning Movement Count
Location Name: NINTH LINE & ERIN CENTRE BLVD
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (28.48 °C)



Spectrum

Turning Movement Count
Location Name: NINTH LINE & CANDLELIGHT DR
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Turning Movement Count (3 . NINTH LINE & CANDLELIGHT DR)

Start Time	N Approach NINTH LINE					E Approach CANDLELIGHT DR					S Approach NINTH LINE					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	U-Turn S:S	Peds S:	Approach Total		
06:00:00	73	0	0	0	73	2	1	0	0	3	0	19	0	0	19	95	
06:15:00	123	0	0	0	123	1	1	0	0	2	0	33	0	0	33	158	
06:30:00	173	0	0	0	173	3	1	0	0	4	0	49	0	0	49	226	
06:45:00	176	1	0	0	177	4	0	0	0	4	1	47	0	0	48	229	708
07:00:00	178	0	0	0	178	5	0	0	0	5	0	63	0	0	63	246	859
07:15:00	219	1	0	0	220	6	3	0	0	9	2	77	0	0	79	308	1009
07:30:00	251	0	0	0	251	7	3	0	0	10	0	110	0	0	110	371	1154
07:45:00	290	3	0	0	293	10	2	0	0	12	1	131	0	0	132	437	1362
08:00:00	273	4	0	0	277	10	1	0	0	11	1	145	0	0	146	434	1550
08:15:00	287	0	0	0	287	9	5	0	0	14	2	112	0	0	114	415	1657
08:30:00	289	1	0	0	290	5	2	0	1	7	0	121	0	0	121	418	1704
08:45:00	272	0	0	0	272	4	4	0	0	8	2	107	0	0	109	389	1656
09:00:00	210	1	0	0	211	3	1	0	3	4	1	98	0	0	99	314	1536
09:15:00	183	0	0	0	183	4	1	0	1	5	1	94	0	0	95	283	1404
09:30:00	172	1	0	0	173	1	0	0	0	1	1	90	0	0	91	265	1251
09:45:00	145	1	0	0	146	3	3	0	0	6	1	77	0	0	78	230	1092
BREAK																	
15:00:00	120	3	0	0	123	2	2	0	0	4	0	174	0	0	174	301	
15:15:00	123	3	0	0	126	1	3	0	0	4	2	169	0	0	171	301	
15:30:00	145	2	0	0	147	1	2	0	0	3	0	167	0	0	167	317	
15:45:00	146	4	0	0	150	5	2	0	0	7	3	207	0	0	210	367	1286
16:00:00	132	1	0	0	133	4	0	0	0	4	3	241	0	0	244	381	1366
16:15:00	176	4	0	0	180	1	0	0	0	1	5	273	0	0	278	459	1524
16:30:00	152	4	0	0	156	1	1	0	0	2	3	235	0	0	238	396	1603
16:45:00	186	4	0	0	190	1	0	0	0	1	2	263	0	0	265	456	1692
17:00:00	170	5	0	0	175	4	0	0	0	4	3	265	0	0	268	447	1758
17:15:00	149	4	0	0	153	5	1	0	0	6	2	271	0	0	273	432	1731
17:30:00	194	8	0	0	202	6	3	0	0	9	5	271	0	0	276	487	1822
17:45:00	181	5	0	0	186	4	2	0	2	6	4	265	0	0	269	461	1827
18:00:00	179	8	0	0	187	6	2	0	0	8	1	223	0	0	224	419	1799
18:15:00	178	2	0	0	180	3	0	0	1	3	3	230	0	0	233	416	1783
18:30:00	154	0	0	0	154	3	2	0	1	5	2	238	0	0	240	399	1695
18:45:00	131	6	0	0	137	5	1	0	1	6	4	187	0	0	191	334	1568

Grand Total	5830	76	0	0	5906	129	49	0	10	178	55	5052	0	0	5107	**11191**	-
Approach%	98.7%	1.3%	0%		-	72.5%	27.5%	0%		-	1.1%	98.9%	0%		-	**-**	-
Totals %	52.1%	0.7%	0%		52.8%	1.2%	0.4%	0%		1.6%	0.5%	45.1%	0%		45.6%	**-**	-
Heavy	95	0	0		-	0	0	0		-	3	148	0		-	**-**	-
Heavy %	1.6%	0%	0%		-	0%	0%	0%		-	5.5%	2.9%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: NINTH LINE & CANDLELIGHT DR
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (19.07 °C)

Start Time	N Approach NINTH LINE					E Approach CANDLELIGHT DR					S Approach NINTH LINE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
07:45:00	290	3	0	0	293	10	2	0	0	12	1	131	0	0	132	437
08:00:00	273	4	0	0	277	10	1	0	0	11	1	145	0	0	146	434
08:15:00	287	0	0	0	287	9	5	0	0	14	2	112	0	0	114	415
08:30:00	289	1	0	0	290	5	2	0	1	7	0	121	0	0	121	418
Grand Total	1139	8	0	0	1147	34	10	0	1	44	4	509	0	0	513	**1704**
Approach%	99.3%	0.7%	0%		-	77.3%	22.7%	0%		-	0.8%	99.2%	0%		-	**-**
Totals %	66.8%	0.5%	0%		67.3%	2%	0.6%	0%		2.6%	0.2%	29.9%	0%		30.1%	**-**
PHF	0.98	0.5	0		0.98	0.85	0.5	0		0.79	0.5	0.88	0		0.88	**-**
Heavy	22	0	0		22	0	0	0		0	0	29	0		29	**-**
Heavy %	1.9%	0%	0%		1.9%	0%	0%	0%		0%	0%	5.7%	0%		5.7%	**-**
Lights	1117	8	0		1125	34	9	0		43	4	480	0		484	**-**
Lights %	98.1%	100%	0%		98.1%	100%	90%	0%		97.7%	100%	94.3%	0%		94.3%	**-**
Single-Unit Trucks	13	0	0		13	0	0	0		0	0	18	0		18	**-**
Single-Unit Trucks %	1.1%	0%	0%		1.1%	0%	0%	0%		0%	0%	3.5%	0%		3.5%	**-**
Buses	2	0	0		2	0	0	0		0	0	7	0		7	**-**
Buses %	0.2%	0%	0%		0.2%	0%	0%	0%		0%	0%	1.4%	0%		1.4%	**-**
Articulated Trucks	7	0	0		7	0	0	0		0	0	4	0		4	**-**
Articulated Trucks %	0.6%	0%	0%		0.6%	0%	0%	0%		0%	0%	0.8%	0%		0.8%	**-**
Bicycles on Road	0	0	0		0	0	1	0		1	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%		0%	0%	10%	0%		2.3%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	100%		-	-	-	0%		**-**

Spectrum

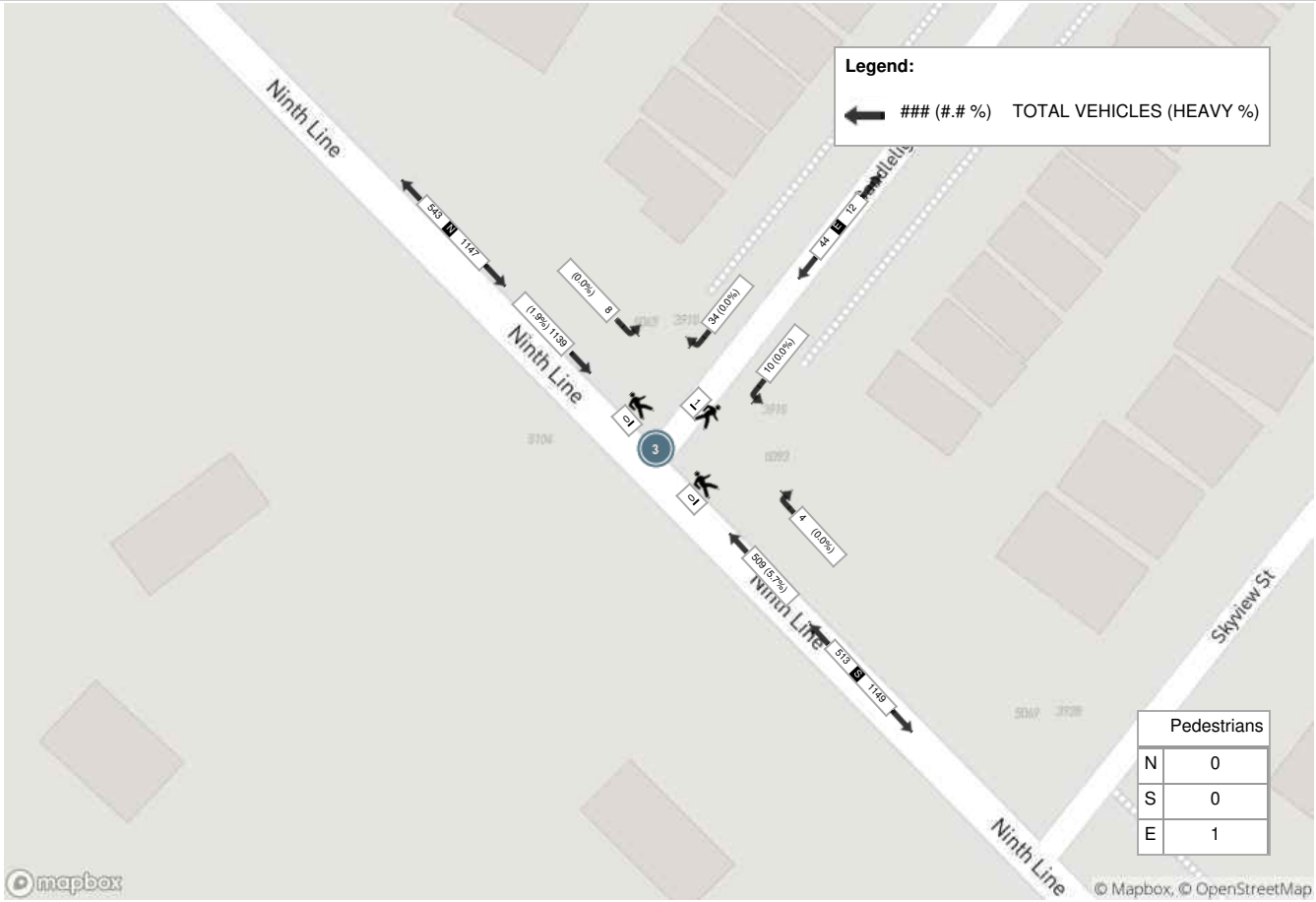
Turning Movement Count
Location Name: NINTH LINE & CANDLELIGHT DR
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (28.48 °C)

Start Time	N Approach NINTH LINE					E Approach CANDLELIGHT DR					S Approach NINTH LINE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
17:00:00	170	5	0	0	175	4	0	0	0	4	3	265	0	0	268	447
17:15:00	149	4	0	0	153	5	1	0	0	6	2	271	0	0	273	432
17:30:00	194	8	0	0	202	6	3	0	0	9	5	271	0	0	276	487
17:45:00	181	5	0	0	186	4	2	0	2	6	4	265	0	0	269	461
Grand Total	694	22	0	0	716	19	6	0	2	25	14	1072	0	0	1086	**1827**
Approach%	96.9%	3.1%	0%		-	76%	24%	0%		-	1.3%	98.7%	0%		-	**-**
Totals %	38%	1.2%	0%		39.2%	1%	0.3%	0%		1.4%	0.8%	58.7%	0%		59.4%	**-**
PHF	0.89	0.69	0		0.89	0.79	0.5	0		0.69	0.7	0.99	0		0.98	**-**
Heavy	5	0	0		5	0	0	0		0	0	16	0		16	**-**
Heavy %	0.7%	0%	0%		0.7%	0%	0%	0%		0%	0%	1.5%	0%		1.5%	**-**
Lights	689	22	0		711	19	6	0		25	14	1056	0		1070	**-**
Lights %	99.3%	100%	0%		99.3%	100%	100%	0%		100%	100%	98.5%	0%		98.5%	**-**
Single-Unit Trucks	3	0	0		3	0	0	0		0	0	6	0		6	**-**
Single-Unit Trucks %	0.4%	0%	0%		0.4%	0%	0%	0%		0%	0%	0.6%	0%		0.6%	**-**
Buses	1	0	0		1	0	0	0		0	0	7	0		7	**-**
Buses %	0.1%	0%	0%		0.1%	0%	0%	0%		0%	0%	0.7%	0%		0.6%	**-**
Articulated Trucks	1	0	0		1	0	0	0		0	0	3	0		3	**-**
Articulated Trucks %	0.1%	0%	0%		0.1%	0%	0%	0%		0%	0%	0.3%	0%		0.3%	**-**
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	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	100%		-	-	-	0%		**-**

Turning Movement Count
Location Name: NINTH LINE & CANDLELIGHT DR
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (19.07 °C)

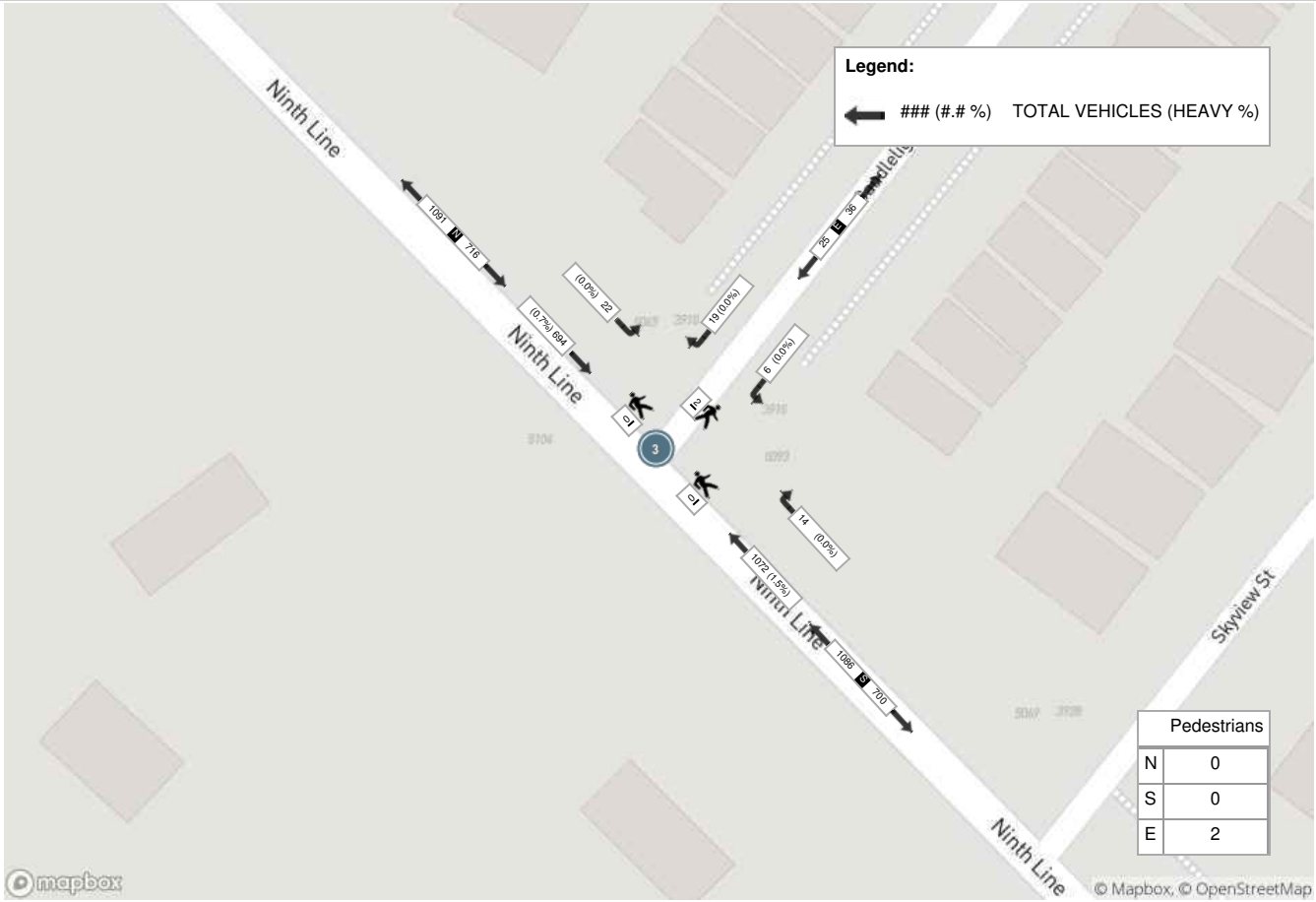


	Pedestrians
N	0
S	0
E	1

Spectrum

Turning Movement Count
Location Name: NINTH LINE & CANDLELIGHT DR
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (28.48 °C)



Spectrum

Turning Movement Count
Location Name: NINTH LINE & SKYVIEW ST
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Turning Movement Count (2 . NINTH LINE & SKYVIEW ST)

Start Time	N Approach NINTH LINE					E Approach SKYVIEW ST					S Approach NINTH LINE					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	U-Turn S:S	Peds S:	Approach Total		
06:00:00	77	1	0	0	78	0	1	0	0	1	0	17	0	0	17	96	
06:15:00	125	0	0	0	125	2	1	0	2	3	0	33	0	0	33	161	
06:30:00	170	1	0	0	171	2	1	0	0	3	0	45	0	0	45	219	
06:45:00	179	1	0	0	180	2	1	0	0	3	0	48	0	0	48	231	707
07:00:00	173	0	0	0	173	3	1	0	0	4	0	60	0	0	60	237	848
07:15:00	216	1	0	0	217	2	0	0	0	2	0	76	0	0	76	295	982
07:30:00	241	1	0	0	242	1	2	0	0	3	0	113	0	0	113	358	1121
07:45:00	290	1	0	0	291	3	1	0	0	4	0	127	0	0	127	422	1312
08:00:00	274	0	0	0	274	6	3	0	0	9	1	139	0	0	140	423	1498
08:15:00	288	1	0	0	289	1	1	0	0	2	1	120	0	0	121	412	1615
08:30:00	300	0	0	0	300	2	0	0	1	2	0	115	0	0	115	417	1674
08:45:00	271	1	0	0	272	2	2	0	2	4	1	105	1	0	107	383	1635
09:00:00	213	0	0	0	213	2	1	0	2	3	1	97	0	0	98	314	1526
09:15:00	184	2	0	0	186	0	1	0	1	1	0	95	0	0	95	282	1396
09:30:00	172	0	0	0	172	2	1	0	0	3	1	95	0	0	96	271	1250
09:45:00	148	1	0	0	149	2	0	0	0	2	0	71	0	0	71	222	1089
BREAK																	
15:00:00	117	3	0	0	120	2	1	0	0	3	0	169	0	0	169	292	
15:15:00	127	2	0	0	129	0	1	0	0	1	0	167	0	0	167	297	
15:30:00	145	1	0	0	146	0	0	0	0	0	3	161	0	0	164	310	
15:45:00	141	1	0	0	142	3	0	0	0	3	3	213	0	0	216	361	1260
16:00:00	134	2	0	0	136	1	1	0	0	2	0	238	1	0	239	377	1345
16:15:00	169	4	0	0	173	0	1	0	0	1	3	285	0	0	288	462	1510
16:30:00	156	3	1	0	160	4	4	0	0	8	4	236	0	0	240	408	1608
16:45:00	180	5	0	0	185	1	0	0	0	1	0	256	0	0	256	442	1689
17:00:00	158	6	0	0	164	0	1	0	0	1	1	274	0	0	275	440	1752
17:15:00	150	3	0	0	153	1	1	0	0	2	4	267	0	0	271	426	1716
17:30:00	189	2	0	0	191	0	0	0	0	0	0	274	0	0	274	465	1773
17:45:00	184	3	0	0	187	3	2	0	2	5	0	269	0	0	269	461	1792
18:00:00	177	5	0	0	182	1	1	0	0	2	3	219	0	0	222	406	1758
18:15:00	175	4	0	0	179	1	0	0	0	1	0	235	0	0	235	415	1747
18:30:00	148	6	0	0	154	1	1	0	1	2	1	240	0	0	241	397	1679
18:45:00	132	2	0	0	134	2	2	0	1	4	2	183	0	0	185	323	1541

Spectrum

Turning Movement Count
Location Name: NINTH LINE & SKYVIEW ST
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Grand Total	5803	63	1	0	5867	52	33	0	12	85	29	5042	2	0	5073	**11025**	-
Approach%	98.9%	1.1%	0%		-	61.2%	38.8%	0%		-	0.6%	99.4%	0%		-	**-**	-
Totals %	52.6%	0.6%	0%		53.2%	0.5%	0.3%	0%		0.8%	0.3%	45.7%	0%		46%	**-**	-
Heavy	95	0	0		-	3	2	0		-	0	143	0		-	**-**	-
Heavy %	1.6%	0%	0%		-	5.8%	6.1%	0%		-	0%	2.8%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: NINTH LINE & SKYVIEW ST
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (19.07 °C)

Start Time	N Approach NINTH LINE					E Approach SKYVIEW ST					S Approach NINTH LINE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
07:45:00	290	1	0	0	291	3	1	0	0	4	0	127	0	0	127	422
08:00:00	274	0	0	0	274	6	3	0	0	9	1	139	0	0	140	423
08:15:00	288	1	0	0	289	1	1	0	0	2	1	120	0	0	121	412
08:30:00	300	0	0	0	300	2	0	0	1	2	0	115	0	0	115	417
Grand Total	1152	2	0	0	1154	12	5	0	1	17	2	501	0	0	503	**1674**
Approach%	99.8%	0.2%	0%		-	70.6%	29.4%	0%		-	0.4%	99.6%	0%		-	**-**
Totals %	68.8%	0.1%	0%		68.9%	0.7%	0.3%	0%		1%	0.1%	29.9%	0%		30%	**-**
PHF	0.96	0.5	0		0.96	0.5	0.42	0		0.47	0.5	0.9	0		0.9	**-**
Heavy	21	0	0		21	0	0	0		0	0	27	0		27	**-**
Heavy %	1.8%	0%	0%		1.8%	0%	0%	0%		0%	0%	5.4%	0%		5.4%	**-**
Lights	1130	2	0		1132	12	5	0		17	2	474	0		476	**-**
Lights %	98.1%	100%	0%		98.1%	100%	100%	0%		100%	100%	94.6%	0%		94.6%	**-**
Single-Unit Trucks	12	0	0		12	0	0	0		0	0	16	0		16	**-**
Single-Unit Trucks %	1%	0%	0%		1%	0%	0%	0%		0%	0%	3.2%	0%		3.2%	**-**
Buses	2	0	0		2	0	0	0		0	0	7	0		7	**-**
Buses %	0.2%	0%	0%		0.2%	0%	0%	0%		0%	0%	1.4%	0%		1.4%	**-**
Articulated Trucks	7	0	0		7	0	0	0		0	0	4	0		4	**-**
Articulated Trucks %	0.6%	0%	0%		0.6%	0%	0%	0%		0%	0%	0.8%	0%		0.8%	**-**
Bicycles on Road	1	0	0		1	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	0.1%	0%	0%		0.1%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	100%		-	-	-	0%		**-**

Spectrum

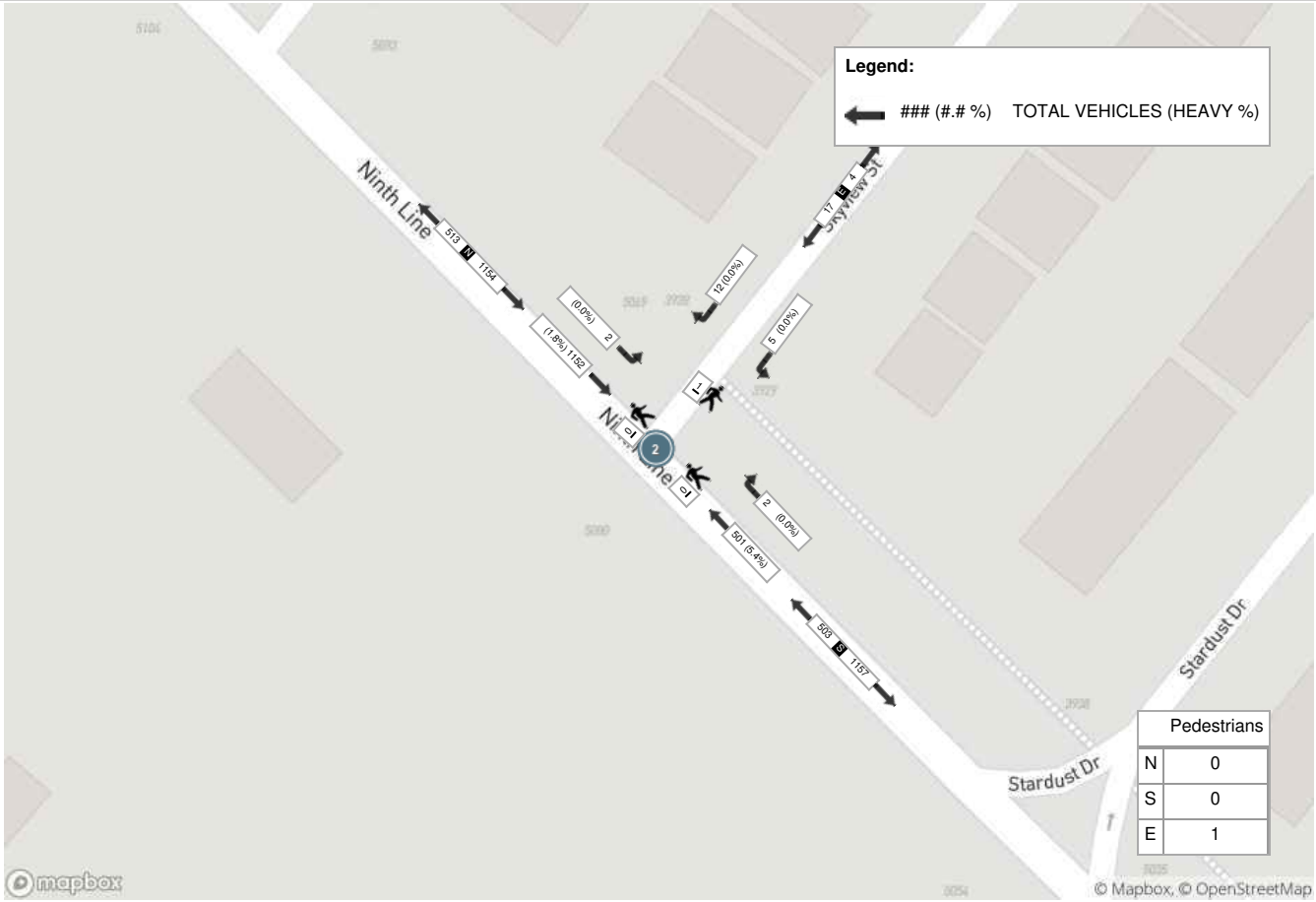
Turning Movement Count
Location Name: NINTH LINE & SKYVIEW ST
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (28.48 °C)

Start Time	N Approach NINTH LINE					E Approach SKYVIEW ST					S Approach NINTH LINE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
17:00:00	158	6	0	0	164	0	1	0	0	1	1	274	0	0	275	440
17:15:00	150	3	0	0	153	1	1	0	0	2	4	267	0	0	271	426
17:30:00	189	2	0	0	191	0	0	0	0	0	0	274	0	0	274	465
17:45:00	184	3	0	0	187	3	2	0	2	5	0	269	0	0	269	461
Grand Total	681	14	0	0	695	4	4	0	2	8	5	1084	0	0	1089	**1792**
Approach%	98%	2%	0%		-	50%	50%	0%		-	0.5%	99.5%	0%		-	**-**
Totals %	38%	0.8%	0%		38.8%	0.2%	0.2%	0%		0.4%	0.3%	60.5%	0%		60.8%	**-**
PHF	0.9	0.58	0		0.91	0.33	0.5	0		0.4	0.31	0.99	0		0.99	**-**
Heavy	5	0	0		5	0	1	0		1	0	16	0		16	**-**
Heavy %	0.7%	0%	0%		0.7%	0%	25%	0%		12.5%	0%	1.5%	0%		1.5%	**-**
Lights	676	14	0		690	4	3	0		7	5	1068	0		1073	**-**
Lights %	99.3%	100%	0%		99.3%	100%	75%	0%		87.5%	100%	98.5%	0%		98.5%	**-**
Single-Unit Trucks	3	0	0		3	0	1	0		1	0	6	0		6	**-**
Single-Unit Trucks %	0.4%	0%	0%		0.4%	0%	25%	0%		12.5%	0%	0.6%	0%		0.6%	**-**
Buses	1	0	0		1	0	0	0		0	0	7	0		7	**-**
Buses %	0.1%	0%	0%		0.1%	0%	0%	0%		0%	0%	0.6%	0%		0.6%	**-**
Articulated Trucks	1	0	0		1	0	0	0		0	0	3	0		3	**-**
Articulated Trucks %	0.1%	0%	0%		0.1%	0%	0%	0%		0%	0%	0.3%	0%		0.3%	**-**
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	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	100%		-	-	-	0%		**-**

Turning Movement Count
Location Name: NINTH LINE & SKYVIEW ST
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

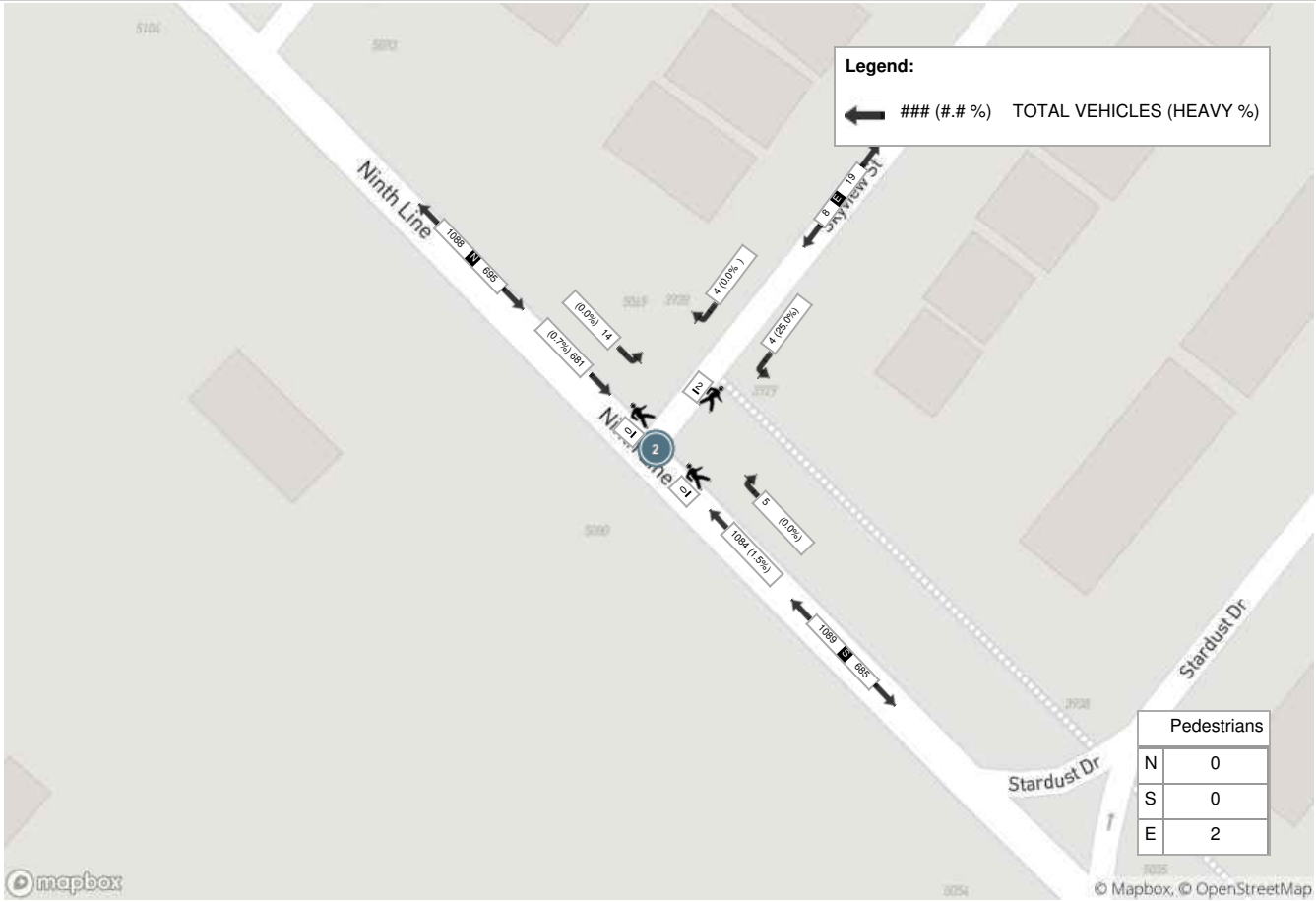
Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (19.07 °C)



Spectrum

Turning Movement Count
Location Name: NINTH LINE & SKYVIEW ST
Date: Tue, Jul 16, 2019 Deployment Lead: David Chu

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Rain (28.48 °C)



File: CA.13.SIG
Signal Timing Request
RT.07.5716
RT.07.5701

August 6, 2019

C.F. Crozier & Associates Consulting Engineers
40 Huron Street, Suite 301
Collingwood, ON, L9Y 4R3

Dear Darren Loro:

Re: Traffic Signal Timing

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

Ninth Line West at Erin Centre Boulevard
Eglinton Avenue W at Ninth Line West

The side street phases (4,8) are actuated; meaning a vehicle or pedestrian must be present on the side street before the side street is given a green indication. Vehicle presence on the side street would result in a possible green time of between the minimum and maximum time noted, depending on demand. Similarly, phase (1,3) are also actuated. Pedestrian "Walk" and flashing "Don't Walk" time on the side street, as noted, would be used in the event that the pedestrian push button is activated. During the side street pedestrian indications, the side street vehicle green is concurrently displayed. Should there be no demand on the actuated phases, the signals would result in a green indication on the major street (2,6).

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

The time of day plan is used for system control operation. In the event that the coordination pattern has a cycle length, offset and split value identified, the cycle length split and offset values, as noted, would be used. However, when the time of day plan is programed using

'Action' 8, the mode is 'Free', meaning no cycle length, split and offset values are given and the intersection operates using the phase timings provided in the report.

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

Sincerely,

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

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

Signal Timing Report

Runtime: 2019-08-01 14:28:54

Device: 5701

Region: Mississauga **Signal ID:** 5701 **Location:** EGLINTON AVENUE W W at Ninth Line W

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	10	0	8	0	10	0	8
Ped Clear	Sec	0	15	0	10	0	15	0	10
Min Green	Sec	0	8	5	8	0	8	0	8
Passage	Sec	0.0	4.0	2.0	4.0	0.0	4.0	0.0	4.0
Maximum 1	Sec	0	65	10	71	0	65	0	71
Maximum 2	Sec	0	65	10	71	0	65	0	71
Yellow Change	Sec	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
Red Clearance	Sec	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	other	redClear	phaseNotOn	phaseNotOn	other	redClear	other	phaseNotOn
[P2] Options	Bit	0	Enabled Non-Actuated 1 Non Lock Det Min Veh Recall Dual Entry	Enabled Non Lock Det	Enabled Non Lock Det Dual Entry	0	Enabled Non-Actuated 1 Non Lock Det Min Veh Recall Dual Entry	0	Enabled Non Lock Det Dual Entry
[P2] Ring	Ring	0	1	1	1	0	2	0	2
[P2] Concurrency	Phase (,)	()	(6)	(8)	(8)	()	(2)	()	(3,4)

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	160	0	160	0	0	0	0	0
Offset	Sec	101	0	22	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	other	none	none	none	other	none	none
Split 1 - Time	Sec	0	70	30	60	0	70	0	90
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	none	other	none	none	none	other	none	none
Split 2 - Time	Sec	0	0	0	0	0	0	0	0
Split 2 - Coord	Enum	false	true	false	false	false	true	false	false
Split 3 - Mode	Enum	none	other	none	none	none	other	none	none
Split 3 - Time	Sec	0	70	21	69	0	70	0	90
Split 3 - Coord	Enum	false	true	false	false	false	true	false	false

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

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

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

Signal Timing Report

Runtime: 2019-08-01 14:25:36

Device: 5716

Region: Mississauga **Signal ID:** 5716 **Location:** NINTH LINE WEST N at Erin Centre Boulevard

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	8	0	8	0	0	0	0
Ped Clear	Sec	0	8	0	8	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	50	0	20	0	0	0	0
Maximum 2	Sec	10	50	0	20	0	0	0	0
Yellow Change	Sec	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	2.0	0.0	2.5	0.0	0.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	phaseNotOn	redClear	other	phaseNotOn	other	other	other	other
[P2] Options	Bit	Enabled 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 (,)	()	()	()	()	()	()	()	()

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	123456789012345678901234567890 1	123456789012345678901234567890 1	123456789012345678901234567890 1	1---------- ------	----------8------ ------	----------9---- --------	----------0----- ------	1---------- ------
Day Plan	Number	1	3	2	3	3	3	3	3

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

TB Dayplan	Units	1	2	3	4	5	6	7	8
Plan 1 Hour	Hour	0	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 E

Collision Data

Collision Details Report

NINTH LINE CANDLELIGHT DR

From: January 1, 2014 **To:** September 28, 2021

Location ..... CANDLELIGHT DR @ NINTH LINE **Municipality.....** Mississauga

Traffic Control.... Two-way Stop **Total Collisions....** 1

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
150356994	2015-Sep-10, Thu,09:26	Clear	Turning movement	P.D. only	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Improper turn	
					East	Dry	Turning left	School bus	Other motor vehicle	Driving properly	

Comments: Statement #1: A full size school bus was southboung on Ninth Line and attempted to negotiate a left hand turn onto Candlelight Dr. Due to the vehicle's size it was forced to enter into the opposite lanes on travel on Candlelight Dr however, failed to avoid a stopped vehicle waiting to turn left from Candlelight onto southbound Ninth Line.

Collision Details Report

NINTH LINE SKYVIEW ST

From: January 1, 2014 **To:** September 28, 2021

Location ..... NINTH LINE @ SKYVIEW ST **Municipality.....** Mississauga

Traffic Control.... Two-way Stop **Total Collisions....** 1

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
190025447	2019-Jan-21, Mon,08:30	Snow	SMV other	P.D. only	North	Packed snow	Going ahead	Automobile, station wagon	Pole (sign, parking meter)	Lost control	

Comments: Statement #1: V1 TRAVELLING NORTH BOUND ON NINTH LINE IN THE CITY OF MISSISSAUGA. V1 SLID OFF ROADWAY AND STRUCK YELLOW STREET SIGN CAUSING DAMAGE TO VEHICLE AND SIGN.

Collision Details Report

NINTH LINE STARDUST DR

From: January 1, 2014 **To:** September 28, 2021

Location ..... NINTH LINE @ STARDUST DR **Municipality.....** Mississauga

Traffic Control.... Two-way Stop **Total Collisions....** 1

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
150412985	2015-Oct-22, Thu,08:17	Clear	Rear end	P.D. only	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:	Statement #1: D2 HEADING WESTBOUND ON STARDUST WAITING AT INTERSECTION OF NINTH LINE FOR TRAFFIC TO CLEAR. D1 BEHIND D2 THOUGHT TRAFFIC WAS CLEAR AND THAT D2 HAD MOVED WHEN THEY HAD NOT. D1 REAR ENDED D2.				West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	

APPENDIX F

Excerpts - Background Studies

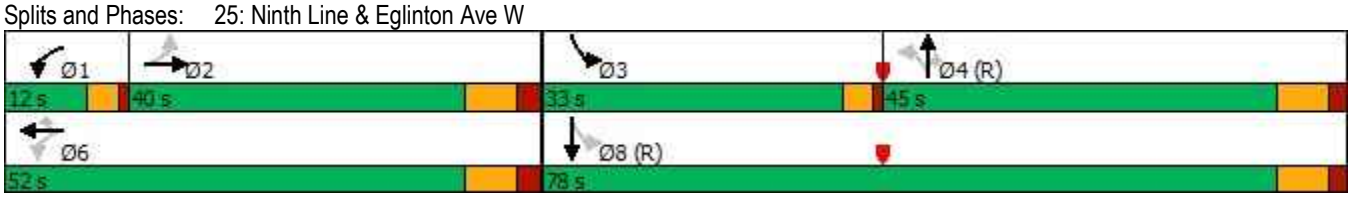
APPENDIX F.1

Ninth Line Environmental Project Report Excerpts

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	37	612	99	264	256	23	757	137	400	1280
Future Volume (vph)	37	612	99	264	256	23	757	137	400	1280
Turn Type	Perm	NA	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		2	1	6			4		3	8
Permitted Phases	2		6		6	4		4	8	
Detector Phase	2	2	1	6	6	4	4	4	3	8
Switch Phase										
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0
Minimum Split (s)	32.5	32.5	11.0	32.5	32.5	40.0	40.0	40.0	11.0	40.0
Total Split (s)	40.0	40.0	12.0	52.0	52.0	45.0	45.0	45.0	33.0	78.0
Total Split (%)	30.8%	30.8%	9.2%	40.0%	40.0%	34.6%	34.6%	34.6%	25.4%	60.0%
Yellow Time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0
All-Red Time (s)	2.5	2.5	1.0	2.5	2.5	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	4.0	7.5	7.5	7.0	7.0	7.0	4.0	7.0
Lead/Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	Max	Max	C-Max	C-Max	C-Max	None	C-Max
Act Effct Green (s)	32.7	32.7	48.0	44.5	44.5	42.0	42.0	42.0	74.0	71.0
Actuated g/C Ratio	0.25	0.25	0.37	0.34	0.34	0.32	0.32	0.32	0.57	0.55
v/c Ratio	0.14	0.82	0.54	0.41	0.38	0.33	0.67	0.24	0.87	0.69
Control Delay	39.8	53.7	38.9	35.2	5.2	52.2	42.6	11.4	38.4	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	53.7	38.9	35.2	5.2	52.2	42.6	11.4	38.4	28.4
LOS	D	D	D	D	A	D	D	B	D	C
Approach Delay		53.0		23.4			38.2			30.7
Approach LOS		D		C			D			C

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 100 (77%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 35.5	Intersection LOS: D
Intersection Capacity Utilization 95.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 25: Ninth Line & Eglinton Ave W





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	37	730	99	264	256	23	757	137	400	1347
v/c Ratio	0.14	0.82	0.54	0.41	0.38	0.33	0.67	0.24	0.87	0.69
Control Delay	39.8	53.7	38.9	35.2	5.2	52.2	42.6	11.4	38.4	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	53.7	38.9	35.2	5.2	52.2	42.6	11.4	38.4	28.4
Queue Length 50th (m)	6.8	84.4	15.5	47.5	0.0	4.2	83.7	5.4	53.8	149.0
Queue Length 95th (m)	15.6	106.0	27.3	70.2	16.6	13.6	106.2	19.7	m#83.7	176.1
Internal Link Dist (m)		373.3		388.7			291.0			248.0
Turn Bay Length (m)	20.0		35.0			65.0		30.0	65.0	
Base Capacity (vph)	263	889	185	638	674	69	1122	579	501	1945
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.82	0.54	0.41	0.38	0.33	0.67	0.24	0.80	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



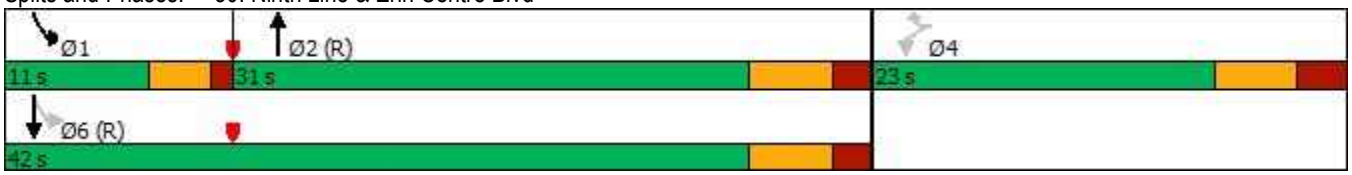
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	612	118	99	264	256	23	757	137	400	1280	67
Future Volume (vph)	37	612	118	99	264	256	23	757	137	400	1280	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.5	7.5		4.0	7.5	7.5	7.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1668	3490		1733	1865	1479	1069	3476	1574	1716	3555	
Flt Permitted	0.60	1.00		0.14	1.00	1.00	0.19	1.00	1.00	0.19	1.00	
Satd. Flow (perm)	1047	3490		257	1865	1479	215	3476	1574	343	3555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	37	612	118	99	264	256	23	757	137	400	1280	67
RTOR Reduction (vph)	0	12	0	0	0	168	0	0	71	0	3	0
Lane Group Flow (vph)	37	718	0	99	264	88	23	757	66	400	1344	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	67%	5%	0%	4%	2%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Actuated Green, G (s)	32.7	32.7		44.5	44.5	44.5	42.0	42.0	42.0	71.0	71.0	
Effective Green, g (s)	32.7	32.7		44.5	44.5	44.5	42.0	42.0	42.0	71.0	71.0	
Actuated g/C Ratio	0.25	0.25		0.34	0.34	0.34	0.32	0.32	0.32	0.55	0.55	
Clearance Time (s)	7.5	7.5		4.0	7.5	7.5	7.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	263	877		176	638	506	69	1123	508	451	1941	
v/s Ratio Prot		c0.21		c0.03	0.14			0.22		c0.17	0.38	
v/s Ratio Perm	0.04			0.16		0.06	0.11		0.04	c0.31		
v/c Ratio	0.14	0.82		0.56	0.41	0.17	0.33	0.67	0.13	0.89	0.69	
Uniform Delay, d1	37.7	45.9		32.2	32.8	29.9	33.4	38.1	31.1	25.9	21.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.09	1.24	
Incremental Delay, d2	1.1	8.4		4.1	2.0	0.7	12.5	3.2	0.5	13.1	1.3	
Delay (s)	38.9	54.3		36.3	34.7	30.6	45.9	41.3	31.6	41.3	28.2	
Level of Service	D	D		D	C	C	D	D	C	D	C	
Approach Delay (s)		53.5			33.3			40.0			31.2	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	142	75	1039	108	1646
Future Volume (vph)	142	75	1039	108	1646
Turn Type	Perm	Perm	NA	pm+pt	NA
Protected Phases			2	1	6
Permitted Phases	4	4		6	
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	7.0	8.0
Minimum Split (s)	22.5	22.5	22.0	11.0	22.0
Total Split (s)	23.0	23.0	31.0	11.0	42.0
Total Split (%)	35.4%	35.4%	47.7%	16.9%	64.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.5	2.5	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.0	4.0	6.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.8	10.8	36.6	46.6	45.8
Actuated g/C Ratio	0.17	0.17	0.56	0.72	0.70
v/c Ratio	0.48	0.23	0.58	0.28	0.65
Control Delay	29.7	8.1	18.6	7.5	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	8.1	18.6	7.5	11.0
LOS	C	A	B	A	B
Approach Delay	22.2		18.6		10.8
Approach LOS	C		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 12 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 30: Ninth Line & Erin Centre Blvd





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	142	75	1116	108	1646
v/c Ratio	0.48	0.23	0.58	0.28	0.65
Control Delay	29.7	8.1	18.6	7.5	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	8.1	18.6	7.5	11.0
Queue Length 50th (m)	14.6	0.0	63.6	7.5	87.8
Queue Length 95th (m)	26.3	8.1	124.2	13.2	81.3
Internal Link Dist (m)	358.4		271.6		650.7
Turn Bay Length (m)				35.0	
Base Capacity (vph)	448	461	1924	389	2521
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.16	0.58	0.28	0.65

Intersection Summary



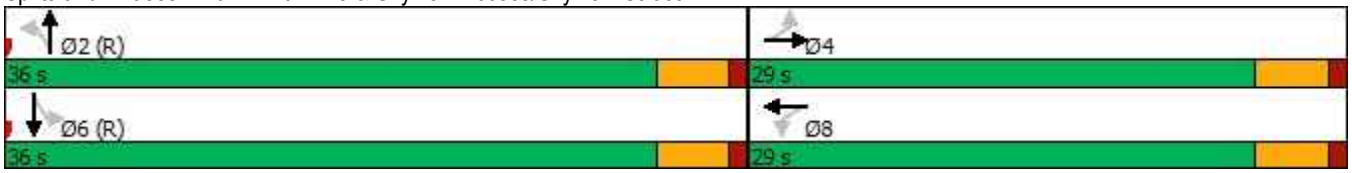
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	75	1039	77	108	1646
Future Volume (vph)	142	75	1039	77	108	1646
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	6.5	6.5	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1765	1597	3409		1785	3579
Flt Permitted	0.95	1.00	1.00		0.16	1.00
Satd. Flow (perm)	1765	1597	3409		308	3579
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	75	1039	77	108	1646
RTOR Reduction (vph)	0	64	7	0	0	0
Lane Group Flow (vph)	142	11	1109	0	108	1646
Confl. Peds. (#/hr)	1			1	1	
Heavy Vehicles (%)	1%	0%	4%	30%	0%	2%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	4	4			6	
Actuated Green, G (s)	9.2	9.2	33.3		43.3	43.3
Effective Green, g (s)	9.2	9.2	33.3		43.3	43.3
Actuated g/C Ratio	0.14	0.14	0.51		0.67	0.67
Clearance Time (s)	6.5	6.5	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	249	226	1746		341	2384
v/s Ratio Prot			0.33		0.03	c0.46
v/s Ratio Perm	c0.08	0.01			0.18	
v/c Ratio	0.57	0.05	0.64		0.32	0.69
Uniform Delay, d1	26.1	24.1	11.5		5.6	6.7
Progression Factor	1.00	1.00	1.37		1.50	1.33
Incremental Delay, d2	3.1	0.1	1.7		0.5	1.4
Delay (s)	29.2	24.2	17.3		8.9	10.3
Level of Service	C	C	B		A	B
Approach Delay (s)	27.5		17.3			10.2
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	116	5	5	5	100	957	2	1617
Future Volume (vph)	116	5	5	5	100	957	2	1617
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.5	24.5	29.0	29.0	24.0	24.0	24.0	24.0
Total Split (s)	29.0	29.0	29.0	29.0	36.0	36.0	36.0	36.0
Total Split (%)	44.6%	44.6%	44.6%	44.6%	55.4%	55.4%	55.4%	55.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	16.8	16.8	16.8	16.8	39.2	39.2	39.2	39.2
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.60	0.60	0.60	0.60
v/c Ratio	0.33	0.70	0.03	0.04	0.88	0.45	0.01	0.79
Control Delay	20.4	29.6	15.2	9.8	84.2	10.8	13.0	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	29.6	15.2	9.8	84.2	10.8	13.0	19.6
LOS	C	C	B	A	F	B	B	B
Approach Delay		27.0		11.0		17.7		19.5
Approach LOS		C		B		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 19.8	Intersection LOS: B
Intersection Capacity Utilization 80.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 64: Ninth Line & Skyview Access/Skyview Street





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	116	290	5	17	100	959	2	1659
v/c Ratio	0.33	0.70	0.03	0.04	0.88	0.45	0.01	0.79
Control Delay	20.4	29.6	15.2	9.8	84.2	10.8	13.0	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	29.6	15.2	9.8	84.2	10.8	13.0	19.6
Queue Length 50th (m)	10.4	27.9	0.4	0.4	16.4	94.6	0.2	110.2
Queue Length 95th (m)	18.5	42.5	2.1	3.5	m#53.3	116.8	m0.3	#121.0
Internal Link Dist (m)		132.8		149.0		248.0		170.5
Turn Bay Length (m)					15.0		15.0	
Base Capacity (vph)	517	599	289	628	113	2111	284	2104
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	0.22	0.48	0.02	0.03	0.88	0.45	0.01	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	5	285	5	5	12	100	957	2	2	1617	42
Future Volume (vph)	116	5	285	5	5	12	100	957	2	2	1617	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85		1.00	0.89		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1571		1750	1647		1750	3499		1750	3487	
Flt Permitted	0.75	1.00		0.42	1.00		0.10	1.00		0.26	1.00	
Satd. Flow (perm)	1375	1571		769	1647		188	3499		472	3487	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	116	5	285	5	5	12	100	957	2	2	1617	42
RTOR Reduction (vph)	0	8	0	0	9	0	0	0	0	0	2	0
Lane Group Flow (vph)	116	282	0	5	8	0	100	959	0	2	1657	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.8	16.8		16.8	16.8		39.2	39.2		39.2	39.2	
Effective Green, g (s)	16.8	16.8		16.8	16.8		39.2	39.2		39.2	39.2	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.60	0.60		0.60	0.60	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	355	406		198	425		113	2110		284	2102	
v/s Ratio Prot		c0.18			0.00			0.27			0.48	
v/s Ratio Perm	0.08			0.01			c0.53			0.00		
v/c Ratio	0.33	0.69		0.03	0.02		0.88	0.45		0.01	0.79	
Uniform Delay, d1	19.5	21.8		18.0	18.0		11.0	7.1		5.1	9.8	
Progression Factor	1.00	1.00		1.00	1.00		2.35	1.30		1.75	1.55	
Incremental Delay, d2	0.5	5.1		0.1	0.0		50.8	0.6		0.0	2.5	
Delay (s)	20.1	26.9		18.0	18.0		76.6	9.8		9.0	17.6	
Level of Service	C	C		B	B		E	A		A	B	
Approach Delay (s)		24.9			18.0			16.1			17.6	
Approach LOS		C			B			B			B	

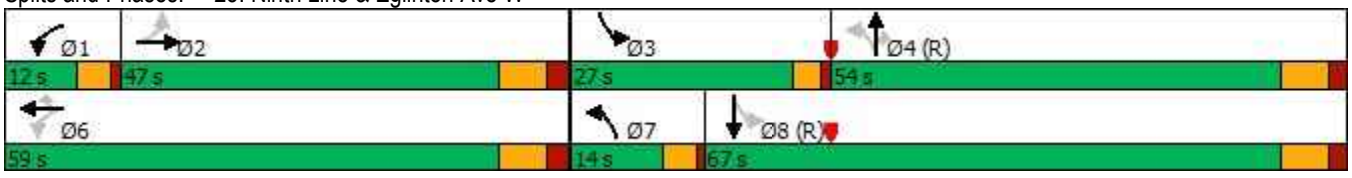
Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	54	554	133	694	537	103	1218	192	374	975
Future Volume (vph)	54	554	133	694	537	103	1218	192	374	975
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	1	6		7	4		3	8
Permitted Phases	2		6		6	4		4	8	
Detector Phase	2	2	1	6	6	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0
Minimum Split (s)	32.5	32.5	11.5	32.5	32.5	11.5	40.0	40.0	11.0	40.0
Total Split (s)	47.0	47.0	12.0	59.0	59.0	14.0	54.0	54.0	27.0	67.0
Total Split (%)	33.6%	33.6%	8.6%	42.1%	42.1%	10.0%	38.6%	38.6%	19.3%	47.9%
Yellow Time (s)	5.0	5.0	3.5	5.0	5.0	3.5	5.0	5.0	3.0	5.0
All-Red Time (s)	2.5	2.5	1.0	2.5	2.5	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	4.5	7.5	7.5	4.5	7.0	7.0	4.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	39.5	39.5	54.5	51.5	51.5	58.2	47.0	47.0	77.0	60.8
Actuated g/C Ratio	0.28	0.28	0.39	0.37	0.37	0.42	0.34	0.34	0.55	0.43
v/c Ratio	1.02	0.61	0.55	0.99	0.69	0.42	1.00	0.31	1.08	0.66
Control Delay	179.7	46.1	38.0	76.3	20.1	22.4	72.9	12.2	110.5	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.7	46.1	38.0	76.3	20.1	22.4	72.9	12.2	110.5	33.9
LOS	F	D	D	E	C	C	E	B	F	C
Approach Delay		57.0		50.4			61.8			54.4
Approach LOS		E		D			E			D

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 20 (14%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 55.9	Intersection LOS: E
Intersection Capacity Utilization 119.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 25: Ninth Line & Eglinton Ave W





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	608	133	694	537	103	1218	192	374	1024
v/c Ratio	1.02	0.61	0.55	0.99	0.69	0.42	1.00	0.31	1.08	0.66
Control Delay	179.7	46.1	38.0	76.3	20.1	22.4	72.9	12.2	110.5	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.7	46.1	38.0	76.3	20.1	22.4	72.9	12.2	110.5	33.9
Queue Length 50th (m)	~14.0	70.2	22.3	175.4	49.2	12.2	~164.6	9.8	~87.8	131.3
Queue Length 95th (m)	#40.9	88.5	36.1	#250.4	88.8	20.9	#209.2	27.0	m#141.0	157.8
Internal Link Dist (m)		373.3		388.7			291.0			258.7
Turn Bay Length (m)	20.0		35.0			65.0		30.0	65.0	
Base Capacity (vph)	53	999	243	699	773	255	1213	621	346	1560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.61	0.55	0.99	0.69	0.40	1.00	0.31	1.08	0.66

Intersection Summary

~ 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.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	554	54	133	694	537	103	1218	192	374	975	49
Future Volume (vph)	54	554	54	133	694	537	103	1218	192	374	975	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.5	7.5		4.5	7.5	7.5	4.5	7.0	7.0	4.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1785	3525		1750	1902	1566	1785	3614	1581	1767	3590	
Flt Permitted	0.10	1.00		0.24	1.00	1.00	0.20	1.00	1.00	0.08	1.00	
Satd. Flow (perm)	190	3525		446	1902	1566	380	3614	1581	146	3590	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	54	554	54	133	694	537	103	1218	192	374	975	49
RTOR Reduction (vph)	0	5	0	0	0	198	0	0	90	0	2	0
Lane Group Flow (vph)	54	603	0	133	694	339	103	1218	102	374	1022	0
Heavy Vehicles (%)	0%	2%	4%	2%	1%	2%	0%	1%	1%	1%	1%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4		4	8		
Actuated Green, G (s)	39.5	39.5		51.5	51.5	51.5	55.7	47.0	47.0	74.0	60.8	
Effective Green, g (s)	39.5	39.5		51.5	51.5	51.5	55.7	47.0	47.0	74.0	60.8	
Actuated g/C Ratio	0.28	0.28		0.37	0.37	0.37	0.40	0.34	0.34	0.53	0.43	
Clearance Time (s)	7.5	7.5		4.5	7.5	7.5	4.5	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	53	994		233	699	576	238	1213	530	343	1559	
v/s Ratio Prot		0.17		0.03	c0.36		0.03	0.34		c0.18	0.28	
v/s Ratio Perm	0.28			0.18		0.22	0.15		0.06	c0.40		
v/c Ratio	1.02	0.61		0.57	0.99	0.59	0.43	1.00	0.19	1.09	0.66	
Uniform Delay, d1	50.2	43.5		31.8	44.1	35.7	27.7	46.5	33.0	46.2	31.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.26	1.03	
Incremental Delay, d2	129.1	2.7		3.4	32.3	4.4	1.3	26.8	0.8	65.7	1.4	
Delay (s)	179.4	46.3		35.1	76.4	40.1	29.0	73.3	33.8	123.9	33.5	
Level of Service	F	D		D	E	D	C	E	C	F	C	
Approach Delay (s)		57.1			58.1			65.3			57.7	
Approach LOS		E			E			E			E	

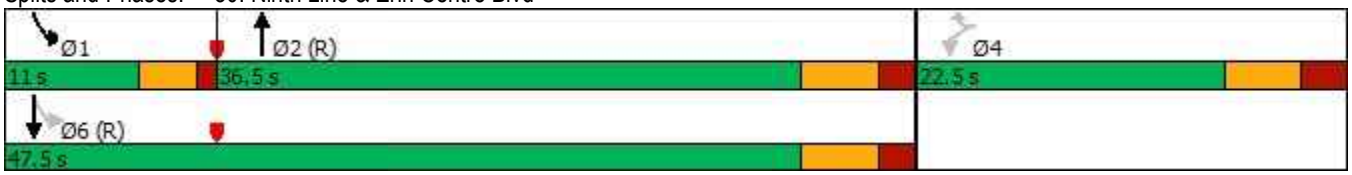
Intersection Summary			
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	119.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	114	158	1680	143	1322
Future Volume (vph)	114	158	1680	143	1322
Turn Type	Perm	Perm	NA	pm+pt	NA
Protected Phases			2	1	6
Permitted Phases	4	4		6	
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	7.0	8.0
Minimum Split (s)	22.5	22.5	22.0	11.0	22.0
Total Split (s)	22.5	22.5	36.5	11.0	47.5
Total Split (%)	32.1%	32.1%	52.1%	15.7%	67.9%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.5	2.5	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.0	4.0	6.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.2	10.2	37.8	49.3	47.3
Actuated g/C Ratio	0.15	0.15	0.54	0.70	0.68
v/c Ratio	0.44	0.43	0.93	0.47	0.54
Control Delay	32.3	8.8	30.8	17.7	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	8.8	30.8	17.7	5.0
LOS	C	A	C	B	A
Approach Delay	18.7		30.8		6.2
Approach LOS	B		C		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 65 (93%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 19.6	Intersection LOS: B
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 30: Ninth Line & Erin Centre Blvd





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	114	158	1786	143	1322
v/c Ratio	0.44	0.43	0.93	0.47	0.54
Control Delay	32.3	8.8	30.8	17.7	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	8.8	30.8	17.7	5.0
Queue Length 50th (m)	12.9	0.0	155.5	8.4	16.6
Queue Length 95th (m)	24.2	12.4	#267.3	21.8	41.5
Internal Link Dist (m)	358.4		296.2		650.7
Turn Bay Length (m)				35.0	
Base Capacity (vph)	405	486	1924	303	2443
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.33	0.93	0.47	0.54

Intersection Summary

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



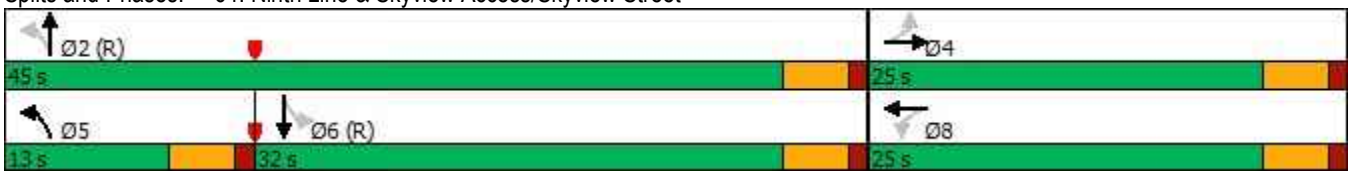
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	158	1680	106	143	1322
Future Volume (vph)	114	158	1680	106	143	1322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	6.5	6.5	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	0.99	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1776	1597	3556		1767	3614
Flt Permitted	0.95	1.00	1.00		0.10	1.00
Satd. Flow (perm)	1776	1597	3556		181	3614
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	114	158	1680	106	143	1322
RTOR Reduction (vph)	0	135	6	0	0	0
Lane Group Flow (vph)	114	23	1780	0	143	1322
Confl. Peds. (#/hr)	4			1	1	
Heavy Vehicles (%)	0%	0%	1%	11%	1%	1%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	4	4			6	
Actuated Green, G (s)	10.2	10.2	37.0		47.3	47.3
Effective Green, g (s)	10.2	10.2	37.0		47.3	47.3
Actuated g/C Ratio	0.15	0.15	0.53		0.68	0.68
Clearance Time (s)	6.5	6.5	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	258	232	1879		265	2442
v/s Ratio Prot			c0.50		0.05	c0.37
v/s Ratio Perm	c0.06	0.01			0.32	
v/c Ratio	0.44	0.10	0.95		0.54	0.54
Uniform Delay, d1	27.3	25.9	15.6		13.6	5.8
Progression Factor	1.00	1.00	1.36		2.72	0.70
Incremental Delay, d2	1.2	0.2	10.1		1.7	0.7
Delay (s)	28.5	26.1	31.3		38.6	4.7
Level of Service	C	C	C		D	A
Approach Delay (s)	27.1		31.3			8.0
Approach LOS	C		C			A

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	78	5	4	5	293	1630	14	1255
Future Volume (vph)	78	5	4	5	293	1630	14	1255
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.5	24.5	24.5	24.5	9.5	24.0	24.0	24.0
Total Split (s)	25.0	25.0	25.0	25.0	13.0	45.0	32.0	32.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	18.6%	64.3%	45.7%	45.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	9.3	9.3	9.3	9.3	51.7	51.7	34.0	34.0
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.74	0.74	0.49	0.49
v/c Ratio	0.42	0.52	0.04	0.04	0.67	0.63	0.10	0.82
Control Delay	34.0	10.3	25.0	20.1	18.3	11.6	20.3	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	10.3	25.0	20.1	18.3	11.6	20.3	26.1
LOS	C	B	C	C	B	B	C	C
Approach Delay		17.1		21.6		12.6		26.0
Approach LOS		B		C		B		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 64: Ninth Line & Skyview Access/Skyview Street





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	194	4	9	293	1635	14	1375
v/c Ratio	0.42	0.52	0.04	0.04	0.67	0.63	0.10	0.82
Control Delay	34.0	10.3	25.0	20.1	18.3	11.6	20.3	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	10.3	25.0	20.1	18.3	11.6	20.3	26.1
Queue Length 50th (m)	8.8	0.5	0.4	0.6	28.1	170.5	1.2	91.4
Queue Length 95th (m)	18.4	14.4	2.5	3.6	m27.9	m174.4	m2.6	#139.1
Internal Link Dist (m)		134.3		117.6		258.7		135.3
Turn Bay Length (m)					15.0		15.0	
Base Capacity (vph)	405	594	238	506	436	2584	134	1684
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.33	0.02	0.02	0.67	0.63	0.10	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	5	189	4	5	4	293	1630	5	14	1255	120
Future Volume (vph)	78	5	189	4	5	4	293	1630	5	14	1255	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85		1.00	0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1573		1750	1719		1750	3498		1750	3454	
Flt Permitted	0.75	1.00		0.44	1.00		0.10	1.00		0.15	1.00	
Satd. Flow (perm)	1385	1573		814	1719		191	3498		278	3454	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	78	5	189	4	5	4	293	1630	5	14	1255	120
RTOR Reduction (vph)	0	164	0	0	3	0	0	0	0	0	9	0
Lane Group Flow (vph)	78	30	0	4	6	0	293	1635	0	14	1366	0
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)	9.3	9.3		9.3	9.3		51.7	51.7		34.0	34.0	
Effective Green, g (s)	9.3	9.3		9.3	9.3		51.7	51.7		34.0	34.0	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.74	0.74		0.49	0.49	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	208		108	228		435	2583		135	1677	
v/s Ratio Prot		0.02			0.00		0.13	c0.47			c0.40	
v/s Ratio Perm	c0.06			0.00			0.37			0.05		
v/c Ratio	0.42	0.14		0.04	0.02		0.67	0.63		0.10	0.81	
Uniform Delay, d1	27.9	26.8		26.4	26.4		15.3	4.5		9.7	15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.29	2.21		1.46	1.33	
Incremental Delay, d2	1.6	0.3		0.1	0.0		2.0	0.6		1.3	3.9	
Delay (s)	29.5	27.2		26.6	26.4		21.8	10.5		15.6	24.2	
Level of Service	C	C		C	C		C	B		B	C	
Approach Delay (s)		27.8			26.5			12.2			24.2	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

4 Traffic Operations Analysis

The traffic operations analysis was conducted using Synchro 10. Synchro can analyze both signalized and unsignalized intersections for single road corridors or road networks, considering the spacing, interaction, queues and operations between intersections.

Synchro models were developed for both 2031 and 2041 horizon years. The City of Mississauga model accounts for potential future developments along Ninth Line that contributes to future trip generation. The future number of lanes for roads within the study area are consistent with the future EMME plots provided by the City.

4.1 Methodology of Scenarios Assessed

To identify the need and justification for potential corridor improvements, three future scenarios were assessed. Each scenario includes additional exclusive turn lanes that may improve traffic operations; however, pedestrian crossing distances will also increase and impact walking and cycling modes. The preferred solution should be chosen based on factors that include available property and road comfort for vulnerable modes (cyclists and pedestrians). The three scenarios and associated assumptions are described below:

- **Scenario 1 (Base Case):** Widening of Ninth Line with shared through/right-turn lanes along Ninth Line. Side street lane configurations remain unchanged.
- **Scenario 2 (Minimum Improvements):** Scenario 1 PLUS critical dedicated right turn lanes for all approaches, including side streets. Engineering judgement was used to determine critical right turn lanes, but generally looked at very high v/c ratios (greater than 1.15 for shared through/right-turn lanes) and/or high turning volumes. Improvements prioritized north-south travel along Ninth Line.
- **Scenario 3 (Ultimate Improvements):** Scenario 2 PLUS additional improvements for all approaches, including side streets. Engineering judgement was used to determine these additional exclusive right-turn lanes, but generally looked at high v/c ratios (greater than 1.0 for shared through/right-turn lanes) and/or high turning volumes.

The general methodology used to assess improvements include:

- Update of clearance times to follow OTM Book 12 as indicated by the City of Mississauga's traffic signal timing standards.
- Addition of protected/permissive turning phases.
- Addition of turning movement storage lanes.
- Change of control type at unsignalized intersections, where justified (as identified for McDowell Drive in **Section 3**).
- Adjustment of cycle lengths at major intersections.

- Adjustment of cycle lengths at minor intersections and at Highway 407 ramps to provide signal coordination opportunities.

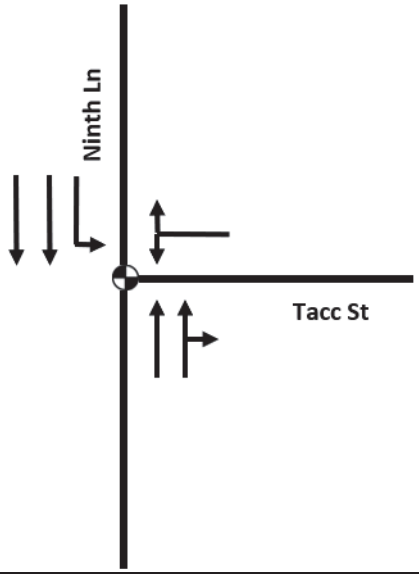
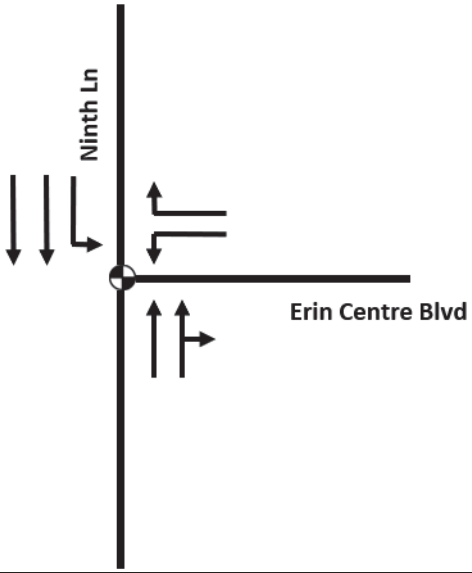
The future traffic operations for weekday AM and PM peak hours are summarized in **Sections 4.2** and **4.4** for all signalized and unsignalized intersections, respectively. The lane configuration and overall intersection level of service are presented. Through or shared through movements with v/c ratios of 0.85 or above and exclusive turning movements with v/c ratios of 1.0 or above are summarized. In addition, movements with LOS F and the corresponding delay are summarized. A summary of the methodology to assess intersection capacity and Level of Service can be found in **Appendix D**.

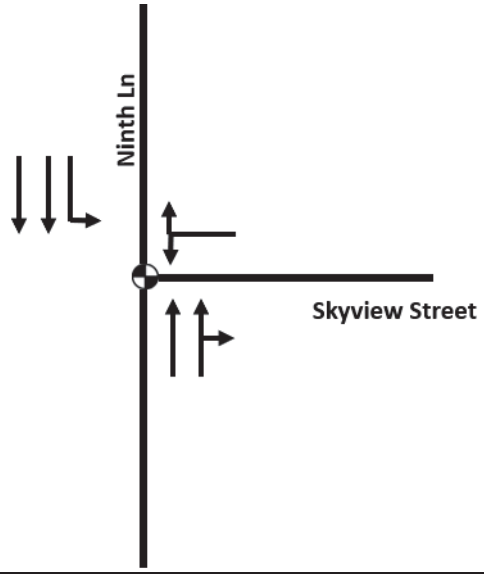
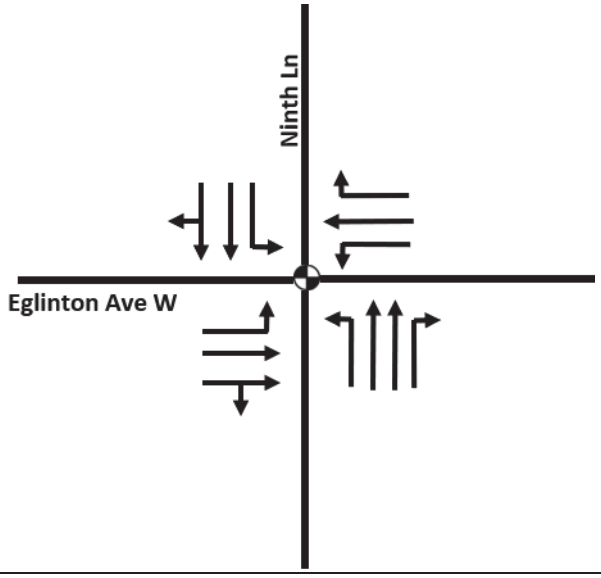
4.2 Mattamy Homes and Your Homes Development

Additional analysis for the segment of Ninth Line between Eglinton Avenue and Erin Centre Boulevard was conducted to address potential operational issues from the Mattamy Homes and Your Homes development within the area. The key concern was to investigate intersection spacing and any queuing impacts due to the closely spaced intersections. Based on a desktop review, analysis for the 2041 horizon was conducted to assess the best option for access to the Your Homes development through either Stardust Drive or Skyview Avenue. Volumes involving the developments access were provided by the City. The following options were assessed, with no changes to the other intersections between Eglinton Avenue and Erin Centre Boulevard:

- Case A: Signalized access at Your Homes development/Stardust Drive (assumed to be best case at Stardust Drive)
- Case B: Signalized access at Your Homes development/Skyview Street
- Case C: Two-way stop-control at Your Homes development/Skyview Street

Based on the analysis, Option B of a signalized access at Skyview Street is determined to be the best option to serve the Your Homes development and has been carried forward for the remainder of the traffic analysis. Option A requires northbound left storage lanes at Stardust Drive and southbound left storage lanes at Eglinton Avenue that exceed the link distance available. Option C results in high delays on the side streets at Skyview Street. Full results are provided in **Appendix E**.

Intersection	Lane Configuration Schematic
Tacc Drive	
Erin Centre Boulevard	

Intersection	Lane Configuration Schematic
Skyview Street / Skyview Access	
Eglinton Avenue	

6 Active Transportation Analysis

This section will document the analysis of the proposed active transportation facilities along Ninth Line in the future between Derry Road and Eglinton Avenue. The improvements include sidewalks of 2 metres wide on both sides of Ninth Line separated by approximately 3 to 5.5 metres of boulevard on the west side, and 3 to 18 metres of boulevards on the east side. Cycling tracks of 2 metres wide are also proposed on both sides, 1 metre away from the curb and gutter.

6.1 Pedestrian Level of Service (PLOS)

A PLOS analysis evaluates the pedestrian comfort, safety and convenience of pedestrian facilities at the user level. The PLOS methodology is based on the City of Ottawa's Multimodal Level of Service (MMLOS) Analysis Guidelines (2015). PLOS is calculated at the intersection and midblock locations to recognize the differences in experience a pedestrian may experience at both types of locations.

6.1.1 PLOS Methodology

Segment PLOS evaluation uses a look-up table approach based on considerations such as cross-section and roadway characteristics. Characteristics include sidewalk and boulevard widths, traffic volumes, presence of on-street parking, and posted speeds. Higher segment scores are characterized by locations where lower vehicle speeds, lower volumes, wider sidewalks, and larger boulevards with ample separation from moving traffic are present. Lower segment scores are observed in locations where high vehicle speeds, narrow sidewalks, and minimal separation from traffic are present.

Intersection PLOS uses the Pedestrian Exposure to Traffic at Signalized Intersections (PETSI) and assigns points based on a number of crossing characteristics (e.g., crossing distance, presence of a median, presence of a crossing refuge, turning restrictions, right hand turn characteristics, curb radii, etc.). The score of each intersection approach is averaged to determine the overall intersection PLOS. The City of Ottawa MMLOS guidelines only provides directions regarding the evaluation of signalized intersections, not unsignalized intersections.

As the Ninth Line EA study area contains context-specific elements such as unsignalized intersections, certain modifications and assumptions have been made to adapt the Ottawa methodology to the study area. These revisions include:

- Understanding that stop / yield controlled intersections affect the pedestrian experience the same way a "permissive" signalized movement does, such as when a right-turn-on-red is allowed and a green is permissive. Because the turn is allowed based on driver judgment, pedestrians will feel less safe where a car is waiting to make the turn in their vicinity.

The inputs for the PLOS are summarized in **Exhibit 6-1**.







Exhibit 6-3: Intersection PLOS Examples

Source: Google Streetview

6.1.2 PLOS Results

Future intersection and segment PLOS based on the Preferred Alternative is summarized in **Table 6-1** and **Table 6-2**.

Table 6-1. Future Intersection PLOS

North-South Street	East-West Street	Future PLOS
Ninth Line	Derry Road	**E**
	Beacham Street	**C**
	Street B North	**D**

North-South Street	East-West Street	Future PLOS
	Doug Leavens Boulevard / Street F	C
	Street C	C
	Foxwood Avenue / Street B South	C
	Osprey Boulevard / Street A	C
	Britannia Road	E
	McDowell Drive	C
	Thomas Street	D
	Tacc Drive	C
	Erin Centre Boulevard	D
	Site Access	D
	Skyview Street	D
	Eglinton Avenue	E

Table 6-2. Future Segment PLOS

Segment	From	To	West Side	East Side
Segment 1	Derry Avenue	Lisgar Neighbourhood Square Access	B	B
Segment 2	Lisgar Neighbourhood Square Access	Doug Leavens Boulevard	B	B
Segment 3	Doug Leavens Boulevard	Osprey Boulevard	B	C
Segment 4	Osprey Boulevard	North end of Osprey Marsh (240m N of Parkgate Drive)	C	B
Segment 5	North end of Osprey Marsh (240m N of Parkgate Drive)	Parkgate Drive	B	B
Segment 6	Parkgate Drive	Brittania Road	C	B
Segment 7	Brittania Road	Thomas Street	B	B
Segment 8	Thomas Street	Deepwood Heights	B	B
Segment 9	Deepwood Heights	Tacc Drive	C	B
Segment 10	Tacc Drive	35m South of Tacc Drive	B	B
Segment 11	35m South of Tacc Drive	130m North of Janice Drive	B	B
Segment 12	130m North of Janice Drive	Janice Drive	B	B

Segment	From	To	West Side	East Side
Segment 13	Janice Drive	Henrietta Way	**B**	**B**
Segment 14	Henrietta Way	Mayla Drive	**B**	**B**
Segment 15	Mayla Drive	Erin Centre Boulevard	**B**	**B**
Segment 16	Erin Centre Boulevard	Quiet Creek Drive (North Portion)	**B**	**C**
Segment 17	Quiet Creek Drive (North Portion)	Skyview Street	**B**	**B**
Segment 18	Skyview Street	Stardust Drive	**B**	**B**
Segment 19	Stardust Drive	133m North of Eglinton Avenue	**B**	**B**
Segment 20	133m North of Eglinton Avenue	Eglinton Avenue	**B**	**B**

Intersection PLOS results indicate intersections along Ninth Line will operate at LOS C to E in the future preferred alternative, compared to LOS B to E under existing conditions. Results have not changed significantly, as the LOS B captured in existing conditions only reflects one intersection at Foxwood Avenue. Contributing factors to the scoring despite future proposed changes include additional through lanes from the Ninth Line widening, turning lanes to accommodate critical movements, and new approaches at existing intersections due to future developments west of Ninth Line. To further improve pedestrian conditions, it is recommended the detailed design considers measures such as reducing curb radii, providing high-visibility/tactile markings at crosswalks, and including items such as medians, curb extensions, and bollards.

Segment PLOS results operate at LOS B to C along both sides of Ninth Line for the future preferred alternative, compared to LOS F on the west side and LOS B to F on the east side under existing conditions. The provision of a dedicated pedestrian facility on the west side of Ninth Line to serve the new developments is a key contributor to the score improvement. Other proposed characteristics that improve the scoring on both sides of the corridor include consistent 2 meter sidewalks, wide boulevards (3 to 18 metres) separating the sidewalk from road traffic, and reduced posted speeds along the corridor.

6.2 Biking Level of Service (BLOS)

Similar to the PLOS analysis, the BLOS also used the City of MMLOS Analysis Guidelines (2015). The facilities are assessed using considerations such as user comfort, safety, and convenience. BLOS is calculated both at the intersection and mid-block in recognition that a cyclist's experience is determined by the conditions both between crossings and at the crossing itself.

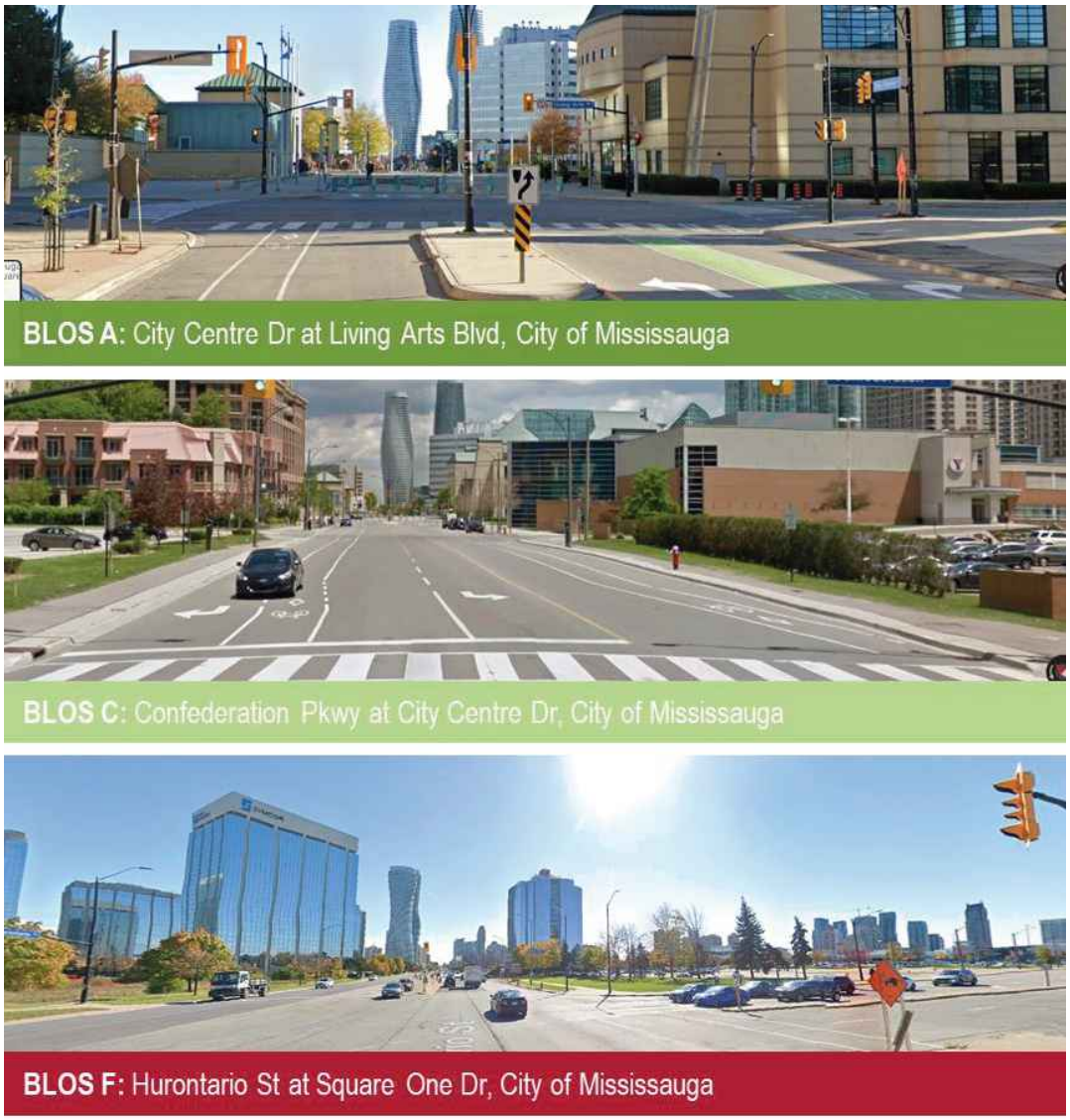


Exhibit 6-5: Intersection BLOS Examples
Source: Google Streetview

6.2.2 BLOS Results

Future intersection and segment BLOS based on the preferred design is summarized in **Table 6-3** and **Table 6-4**.

Table 6-3. Future Intersection BLOS

N-S street	E-W street	Future BLOS
Ninth Line	Derry Road	C
	Beacham Street	B
	Street B North	B
	Doug Leavens Boulevard / Street F	C
	Street C	B

N-S street	E-W street	Future BLOS
	Foxwood Avenue / Street B South	B
	Osprey Boulevard / Street A	C
	Britannia Road	C
	McDowell Drive	B
	Thomas Street	B
	Tacc Drive	B
	Erin Centre Boulevard	B
	Site Access	B
	Skyview Street	C
	Eglinton Avenue	D

Table 6-4. Future Segment BLOS

Segment	From	To	West side	East side
Segment 1	Derry Avenue	Lisgar Neighbourhood Square Access	A	A
Segment 2	Lisgar Neighbourhood Square Access	Doug Leavens Boulevard	A	A
Segment 3	Doug Leavens Boulevard	Osprey Boulevard	A	A
Segment 4	Osprey Boulevard	North end of Osprey Marsh (240m N of Parkgate Drive)	A	A
Segment 5	North end of Osprey Marsh (240m N of Parkgate Drive)	Parkgate Drive	A	A
Segment 6	Parkgate Drive	Brittania Road	A	A
Segment 7	Brittania Road	Thomas Street	A	A
Segment 8	Thomas Street	Deepwood Heights	A	A
Segment 9	Deepwood Heights	Tacc Drive	A	A
Segment 10	Tacc Drive	35m South of Tacc Drive	A	A
Segment 11	35m South of Tacc Drive	130m North of Janice Drive	A	A
Segment 12	130m North of Janice Drive	Janice Drive	A	A
Segment 13	Janice Drive	Henrietta Way	A	A
Segment 14	Henrietta Way	Mayla Drive	A	A

Segment	From	To	West side	East side
Segment 15	Mayla Drive	Erin Centre Boulevard	**A**	**A**
Segment 16	Erin Centre Boulevard	Quiet Creek Drive (North Portion)	**A**	**A**
Segment 17	Quiet Creek Drive (North Portion)	Skyview Street	**A**	**A**
Segment 18	Skyview Street	Stardust Drive	**A**	**A**
Segment 19	Stardust Drive	133m North of Eglinton Avenue	**A**	**A**
Segment 20	133m North of Eglinton Avenue	Eglinton Avenue	**A**	**A**

Intersection BLOS results indicate intersections along Ninth Line will operate at LOS B to D in the future preferred alternative, compared to LOS D to E in the existing conditions. Results have improved at all intersections along the corridor primarily due to the provision of shared protected pedestrian and cycling cross-rides to accommodate left turns.

Segment BLOS results indicate operations of LOS A along both sides of Ninth Line for the future preferred alternative, compared to primarily LOS F in the existing conditions. The 2-metre wide dedicated cycling facility and reduced posted speeds both contribute to the improved scoring.

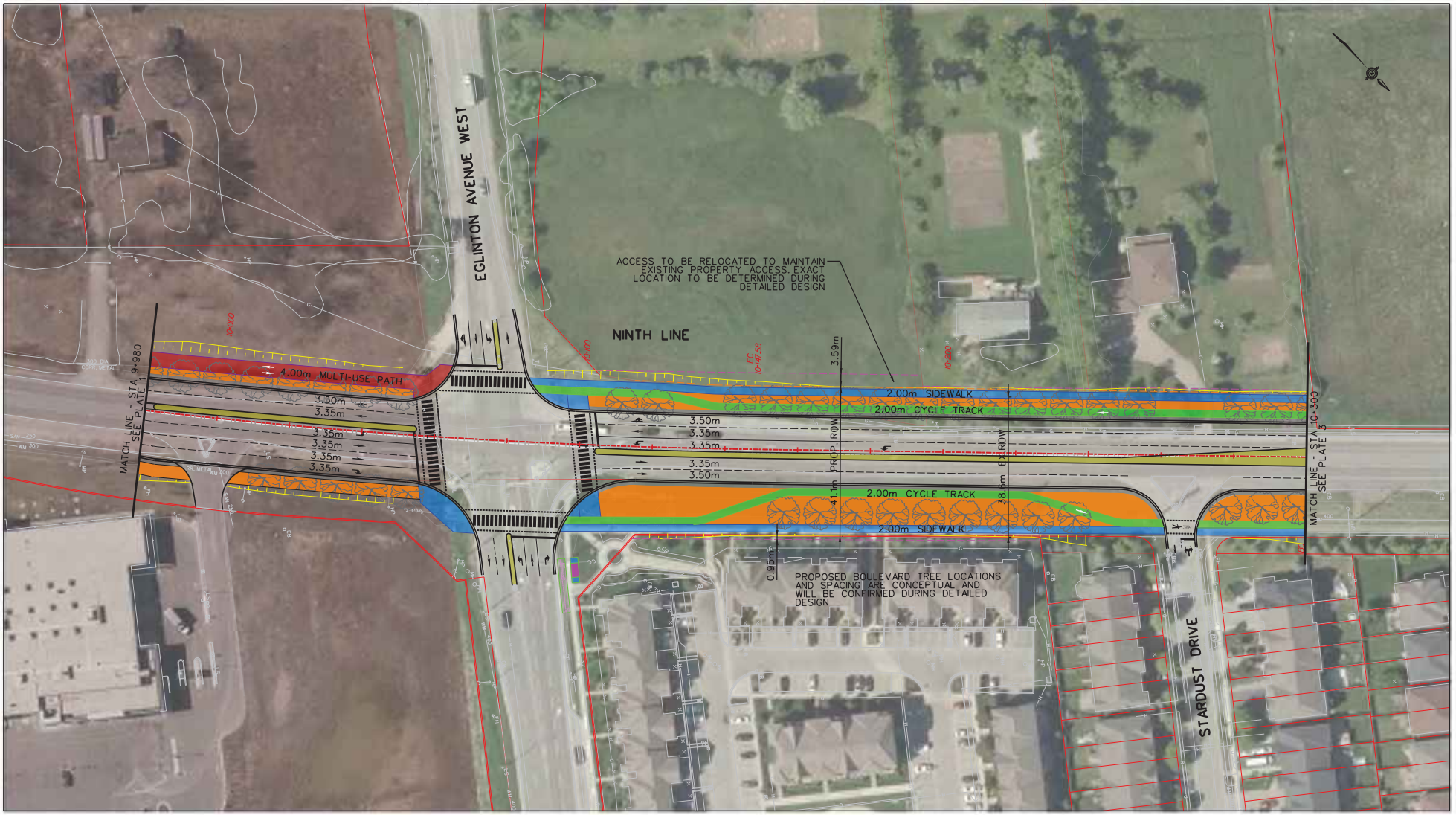
7 Conclusions

7.1 Signal Warrant Analysis

Signal warrant analyses were conducted for several locations along Ninth Line, including any unsignalized intersections of major collectors and access driveways for new developments. The warrant followed the criteria outlined in *Ontario Traffic Manual – Book 12 Traffic Signals, March 2012* (OTM Book 12). Ninth Line at Beacham Street and at Tacc Drive both warrant signalization based on 4-hour volumes. The McDowell Drive intersection did not warrant signalization based on OTM Book 12 methodology; however, signalization is recommended due to high volumes and delays experienced on side streets during the PM peak hour. It is noted the signal at Tacc Drive is required by 2031 whereas the signal at McDowell Drive is required by 2041.

7.2 Traffic Operations

Analysis for both 2031 and 2041 horizon years under all 3 future scenarios show traffic operations at the major intersections of Derry Road, Britannia Road, and Eglinton Avenue operate at or near capacity during the AM and PM peak hours, with LOS ‘E’ or ‘F’ and multiple critical movements, especially for exclusive turning movements. Other intersections (including minor intersections and Highway 407 ramps) have some critical movements but operate below capacity. Travel demand management (TDM) should be provided to support growth along Ninth Line and relieve the



NOTE: PROPOSED BOULEVARD TREE LOCATIONS AND SPACING ARE CONCEPTUAL AND WILL BE CONFIRMED DURING DETAILED DESIGN

LEGEND

- PROPOSED CENTRELINE
- PROPOSED RIGHT-OF-WAY (ROW)
- PROPOSED SIDEWALK
- PROPOSED CYCLE TRACK
- PROPOSED MULTI-USE PATH (MUP)
- PROPOSED GRADING LIMIT
- PROPOSED GRADING
- PROPOSED CURB
- PROPOSED DAYLIGHTING
- PROPOSED BOULEVARD
- PROPOSED BUS STOPS
- PROPSOED RAISED MEDIAN
- EXISTING CENTRELINE
- EXISTING PROPERTY LINE
- EXISTING WATERCOURSE
- EXISTING REGIONAL FLOODPLAIN SPILL

HDR | MISSISSAUGA

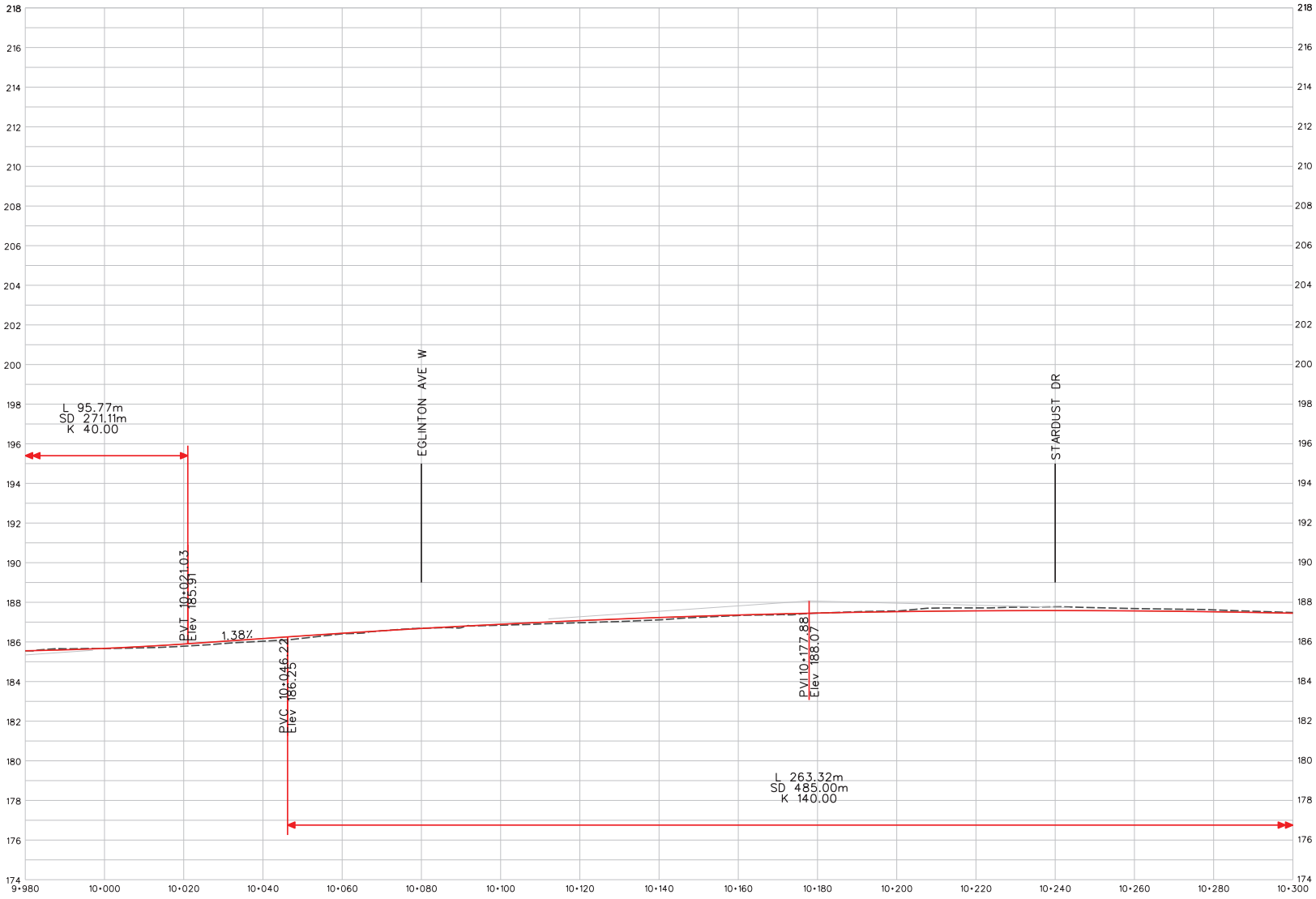
NINTH LINE IMPROVEMENTS
(EGLINTON AVE W TO DERRY RD W)
ENVIRONMENTAL ASSESSMENT
PLAN

9+980 TO 10+300

PLAN NO. P-02

SCALE H 1:1000

DATE JUNE 2021



LEGEND

PROPOSED PROFILE

EXISTING GROUND

HDR

MISSISSAUGA

NINTH LINE IMPROVEMENTS
(EGLINTON AVE W TO DERRY RD W)
ENVIRONMENTAL ASSESSMENT
PROFILE

9+980 TO 10+300

PLAN NO.
PF-02

SCALE
H 1:1000
V 1:100

DATE
JUNE 2021



NOTE: PROPOSED BOULEVARD TREE LOCATIONS AND SPACING ARE CONCEPTUAL AND WILL BE CONFIRMED DURING DETAILED DESIGN

LEGEND

- PROPOSED CENTRELINE
- PROPOSED RIGHT-OF-WAY (ROW)
- PROPOSED SIDEWALK
- PROPOSED CYCLE TRACK
- PROPOSED MULTI-USE PATH (MUP)
- PROPOSED GRADING LIMIT
- PROPOSED GRADING
- PROPOSED CURB
- PROPOSED DAYLIGHTING
- PROPOSED BOULEVARD
- PROPOSED BUS STOPS
- PROPSOED RAISED MEDIAN
- EXISTING CENTRELINE
- EXISTING PROPERTY LINE
- EXISTING WATERCOURSE
- EXISTING REGIONAL FLOODPLAIN SPILL

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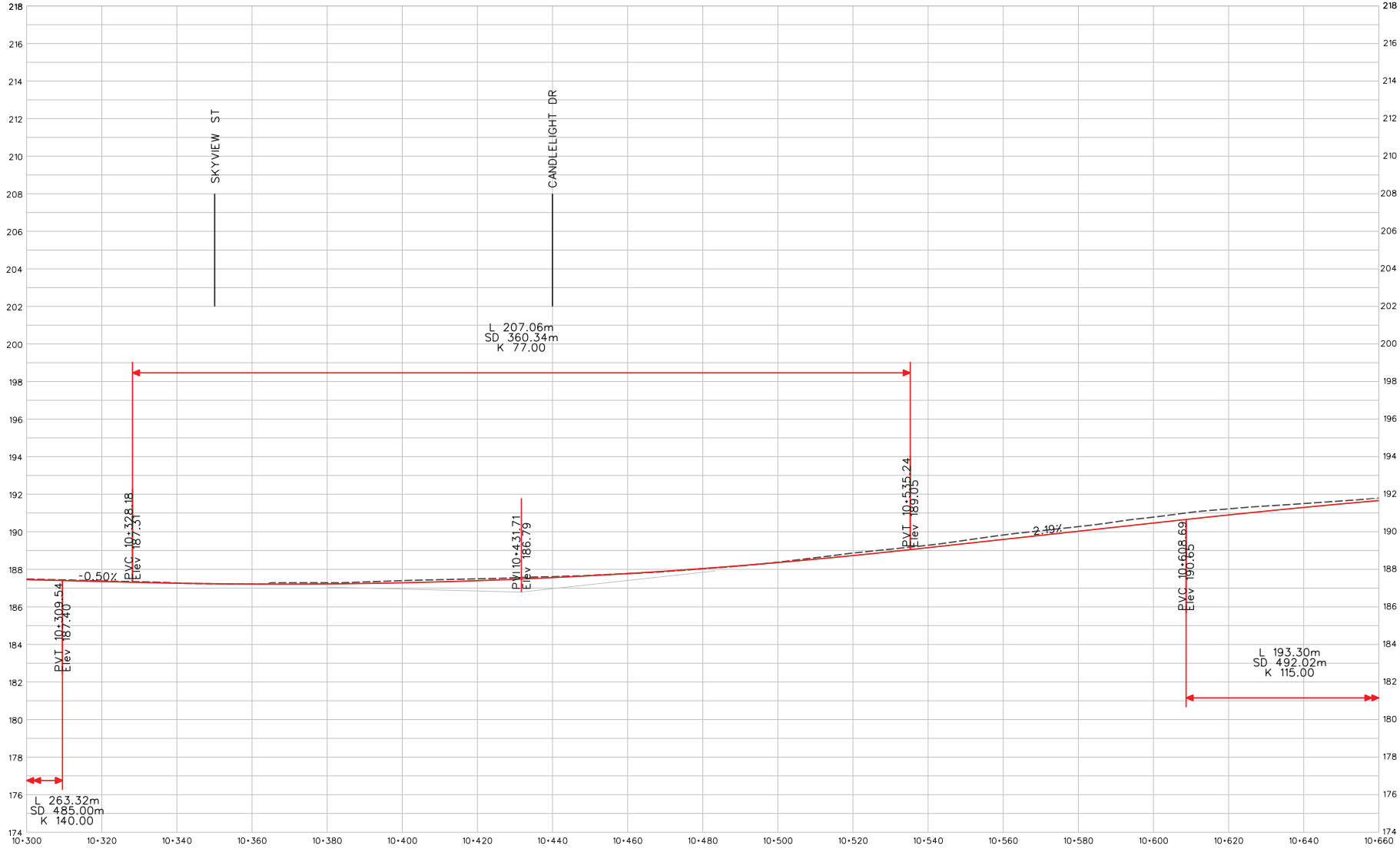
NINTH LINE IMPROVEMENTS (EGLINTON AVE W TO DERRY RD W) ENVIRONMENTAL ASSESSMENT PLAN

10+300 TO 10+660

PLAN NO. P-03

SCALE H 1:1000

DATE JUNE 2021



LEGEND

PROPOSED PROFILE

EXISTING GROUND

HDR

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NINTH LINE IMPROVEMENTS
(EGLINTON AVE W TO DERRY RD W)
ENVIRONMENTAL ASSESSMENT
PROFILE

10+300 TO 10+660

PLAN NO.
PF-03

SCALE
H 1:1000
V 1:100

DATE
JUNE 2021



NOTE: PROPOSED BOULEVARD TREE LOCATIONS AND SPACING ARE CONCEPTUAL AND WILL BE CONFIRMED DURING DETAILED DESIGN

LEGEND

- PROPOSED CENTRELINE
- PROPOSED RIGHT-OF-WAY (ROW)
- PROPOSED SIDEWALK
- PROPOSED CYCLE TRACK
- PROPOSED MULTI-USE PATH (MUP)
- PROPOSED GRADING LIMIT
- PROPOSED GRADING
- PROPOSED CURB
- PROPOSED DAYLIGHTING
- PROPOSED BOULEVARD
- PROPOSED BUS STOPS
- PROPSOED RAISED MEDIAN
- EXISTING CENTRELINE
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- EXISTING WATERCOURSE
- EXISTING REGIONAL FLOODPLAIN SPILL

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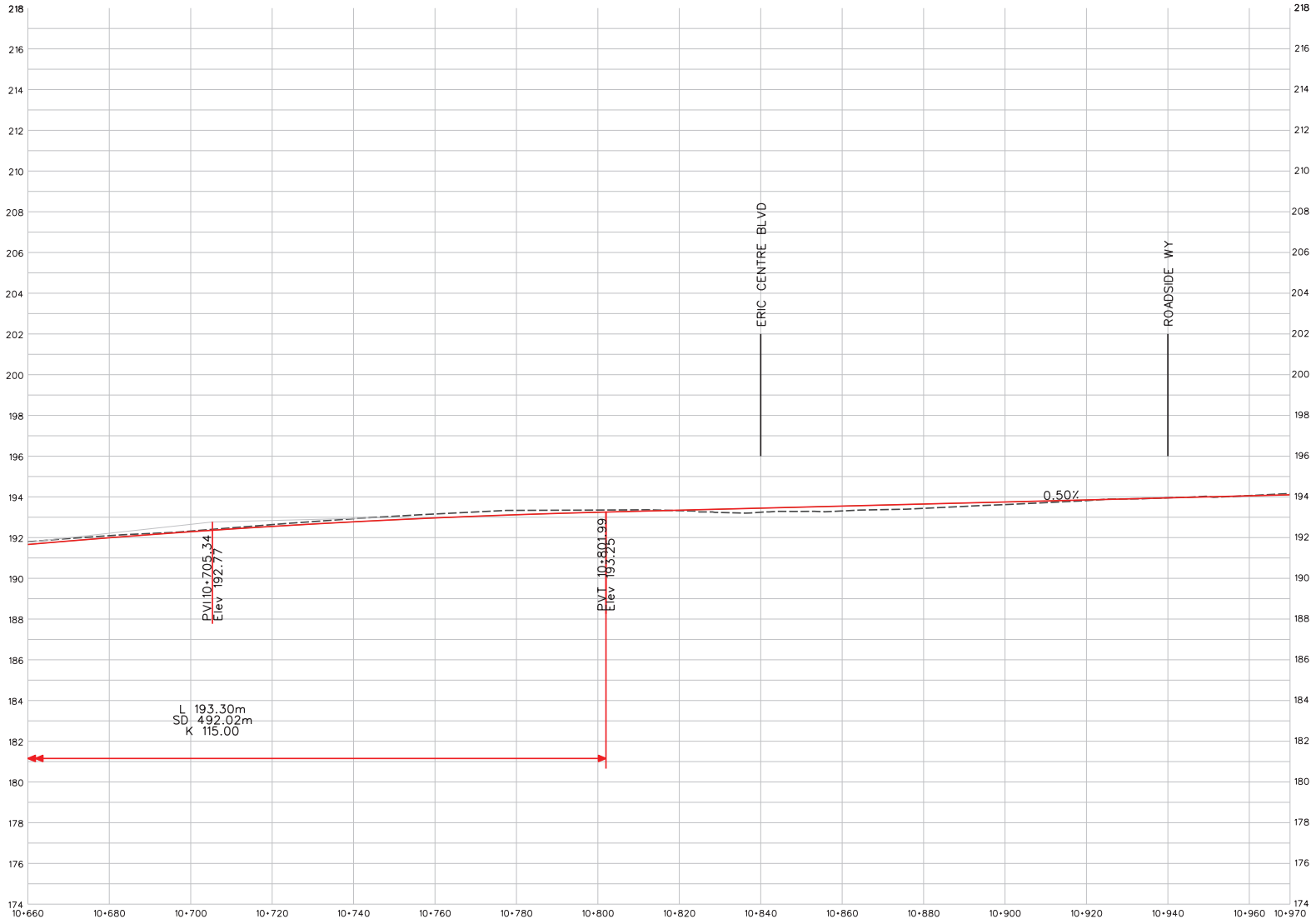
NINTH LINE IMPROVEMENTS
(EGLINTON AVE W TO DERRY RD W)
ENVIRONMENTAL ASSESSMENT
PLAN

10+660 TO 10+970

PLAN NO. P-04

SCALE H 1:1000

DATE JUNE 2021



LEGEND

PROPOSED PROFILE

EXISTING GROUND

HDR

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NINTH LINE IMPROVEMENTS
(EGLINTON AVE W TO DERRY RD W)
ENVIRONMENTAL ASSESSMENT
PROFILE

10+660 TO 10+970

PLAN NO.
PF-04

SCALE
H 1:1000
V 1:100

DATE
JUNE 2021

Appendix E

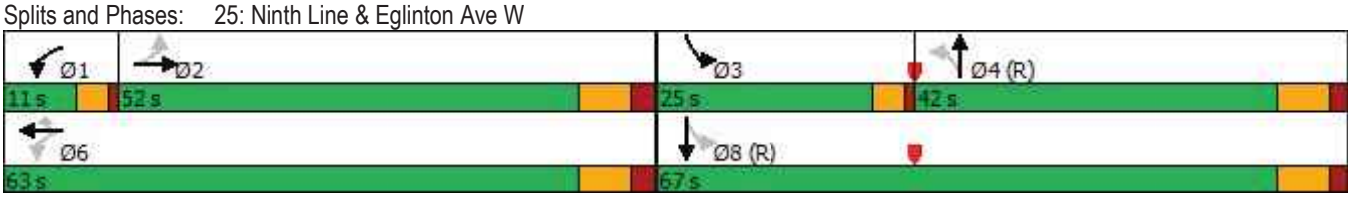
Your Homes Analysis – Updated Analysis (Case B Preferred)

Timings
25: Ninth Line & Eglinton Ave W

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	38	612	99	264	256	28	856	400	1316
Future Volume (vph)	38	612	99	264	256	28	856	400	1316
Turn Type	Perm	NA	pm+pt	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		2	1	6			4	3	8
Permitted Phases	2		6		6	4		8	
Detector Phase	2	2	1	6	6	4	4	3	8
Switch Phase									
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	7.0	8.0
Minimum Split (s)	32.5	32.5	11.0	32.5	32.5	40.0	40.0	11.0	40.0
Total Split (s)	52.0	52.0	11.0	63.0	63.0	42.0	42.0	25.0	67.0
Total Split (%)	40.0%	40.0%	8.5%	48.5%	48.5%	32.3%	32.3%	19.2%	51.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	3.0	5.0
All-Red Time (s)	2.5	2.5	1.0	2.5	2.5	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	4.0	7.5	7.5	7.0	7.0	4.0	7.0
Lead/Lag	Lag	Lag	Lead			Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	
Recall Mode	Max	Max	None	Max	Max	C-Max	C-Max	None	C-Max
Act Effct Green (s)	44.5	44.5	59.0	55.5	55.5	35.0	35.0	63.0	60.0
Actuated g/C Ratio	0.34	0.34	0.45	0.43	0.43	0.27	0.27	0.48	0.46
v/c Ratio	0.11	1.16	0.65	0.33	0.33	0.82	1.08	1.19	0.84
Control Delay	30.4	127.6	41.3	26.4	3.9	155.2	98.2	136.7	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	127.6	41.3	26.4	3.9	155.2	98.2	136.7	33.1
LOS	C	F	D	C	A	F	F	F	C
Approach Delay		122.8		19.4			99.8		56.3
Approach LOS		F		B			F		E

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 64 (49%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 73.8	Intersection LOS: E
Intersection Capacity Utilization 114.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 25: Ninth Line & Eglinton Ave W





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	735	99	264	256	28	1006	400	1386
v/c Ratio	0.11	1.16	0.65	0.33	0.33	0.82	1.08	1.19	0.84
Control Delay	30.4	127.6	41.3	26.4	3.9	155.2	98.2	136.7	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	127.6	41.3	26.4	3.9	155.2	98.2	136.7	33.1
Queue Length 50th (m)	6.1	~204.5	13.3	40.9	0.0	6.2	~138.3	~101.1	135.4
Queue Length 95th (m)	13.8	#273.2	#29.2	60.5	14.3	#24.4	#176.8 m	#150.6	163.1
Internal Link Dist (m)		373.3		388.7			291.0		251.0
Turn Bay Length (m)	20.0		35.0			65.0		65.0	
Base Capacity (vph)	358	633	153	796	778	34	930	337	1642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	1.16	0.65	0.33	0.33	0.82	1.08	1.19	0.84

Intersection Summary

~ 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.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	612	123	99	264	256	28	856	150	400	1316	70
Future Volume (vph)	38	612	123	99	264	256	28	856	150	400	1316	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.5	7.5		4.0	7.5	7.5	7.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1668	1834		1733	1865	1479	1069	3416		1716	3555	
Flt Permitted	0.60	1.00		0.08	1.00	1.00	0.11	1.00		0.10	1.00	
Satd. Flow (perm)	1047	1834		150	1865	1479	129	3416		185	3555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	612	123	99	264	256	28	856	150	400	1316	70
RTOR Reduction (vph)	0	5	0	0	0	147	0	11	0	0	3	0
Lane Group Flow (vph)	38	730	0	99	264	109	28	995	0	400	1383	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	67%	5%	0%	4%	2%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	44.5	44.5		55.5	55.5	55.5	35.0	35.0		60.0	60.0	
Effective Green, g (s)	44.5	44.5		55.5	55.5	55.5	35.0	35.0		60.0	60.0	
Actuated g/C Ratio	0.34	0.34		0.43	0.43	0.43	0.27	0.27		0.46	0.46	
Clearance Time (s)	7.5	7.5		4.0	7.5	7.5	7.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	358	627		149	796	631	34	919		332	1640	
v/s Ratio Prot		c0.40		c0.04	0.14			0.29		c0.19	0.39	
v/s Ratio Perm	0.04			0.25		0.07	0.22			c0.36		
v/c Ratio	0.11	1.16		0.66	0.33	0.17	0.82	1.08		1.20	0.84	
Uniform Delay, d1	29.2	42.8		30.7	24.9	23.1	44.6	47.5		40.7	30.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.06	0.95	
Incremental Delay, d2	0.6	90.4		10.6	1.1	0.6	105.9	54.7		108.5	3.4	
Delay (s)	29.8	133.1		41.3	26.0	23.6	150.5	102.2		151.7	32.7	
Level of Service	C	F		D	C	C	F	F		F	C	
Approach Delay (s)		128.0			27.5			103.5			59.4	
Approach LOS		F			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	78.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	114.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Timings
61: Ninth Line & Street B/Skyview St

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	116	5	5	5	100	1081	2	1718
Future Volume (vph)	116	5	5	5	100	1081	2	1718
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	42.0	42.0	42.0	42.0
Total Split (%)	35.4%	35.4%	35.4%	35.4%	64.6%	64.6%	64.6%	64.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	15.4	15.4	15.4	15.4	40.6	40.6	40.6	40.6
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.62	0.62	0.62	0.62
v/c Ratio	0.36	0.75	0.03	0.04	0.88	0.50	0.01	0.81
Control Delay	22.8	33.7	17.6	11.4	65.8	9.2	1.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	33.7	17.6	11.4	65.8	9.2	1.5	7.3
LOS	C	C	B	B	E	A	A	A
Approach Delay		30.6		12.8		14.0		7.3
Approach LOS		C		B		B		A

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 83.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 61: Ninth Line & Street B/Skyview St



61: Ninth Line & Street B/Skyview St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	116	290	5	17	100	1083	2	1760
v/c Ratio	0.36	0.75	0.03	0.04	0.88	0.50	0.01	0.81
Control Delay	22.8	33.7	17.6	11.4	65.8	9.2	1.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	33.7	17.6	11.4	65.8	9.2	1.5	7.3
Queue Length 50th (m)	10.5	27.3	0.4	0.4	15.3	49.8	0.0	9.7
Queue Length 95th (m)	21.0	47.0	2.4	3.9	m#21.7	m54.1	m0.0	#13.8
Internal Link Dist (m)		103.3		105.5		251.0		172.9
Turn Bay Length (m)					15.0		15.0	
Base Capacity (vph)	391	460	205	477	113	2186	252	2179
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	0.30	0.63	0.02	0.04	0.88	0.50	0.01	0.81

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	5	285	5	5	12	100	1081	2	2	1718	42
Future Volume (vph)	116	5	285	5	5	12	100	1081	2	2	1718	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85		1.00	0.89		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1571		1750	1647		1750	3499		1750	3487	
Flt Permitted	0.75	1.00		0.39	1.00		0.10	1.00		0.22	1.00	
Satd. Flow (perm)	1375	1571		723	1647		181	3499		405	3487	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	116	5	285	5	5	12	100	1081	2	2	1718	42
RTOR Reduction (vph)	0	14	0	0	9	0	0	0	0	0	2	0
Lane Group Flow (vph)	116	276	0	5	8	0	100	1083	0	2	1758	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.4	15.4		15.4	15.4		40.6	40.6		40.6	40.6	
Effective Green, g (s)	15.4	15.4		15.4	15.4		40.6	40.6		40.6	40.6	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.62	0.62		0.62	0.62	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	325	372		171	390		113	2185		252	2178	
v/s Ratio Prot		c0.18			0.00			0.31			0.50	
v/s Ratio Perm	0.08			0.01			c0.55			0.00		
v/c Ratio	0.36	0.74		0.03	0.02		0.88	0.50		0.01	0.81	
Uniform Delay, d1	20.7	23.0		19.1	19.0		10.2	6.6		4.6	9.2	
Progression Factor	1.00	1.00		1.00	1.00		2.27	1.24		0.26	0.37	
Incremental Delay, d2	0.7	7.7		0.1	0.0		35.4	0.4		0.0	2.6	
Delay (s)	21.3	30.7		19.1	19.0		58.7	8.6		1.2	6.0	
Level of Service	C	C		B	B		E	A		A	A	
Approach Delay (s)		28.0			19.1			12.8			6.0	
Approach LOS		C			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

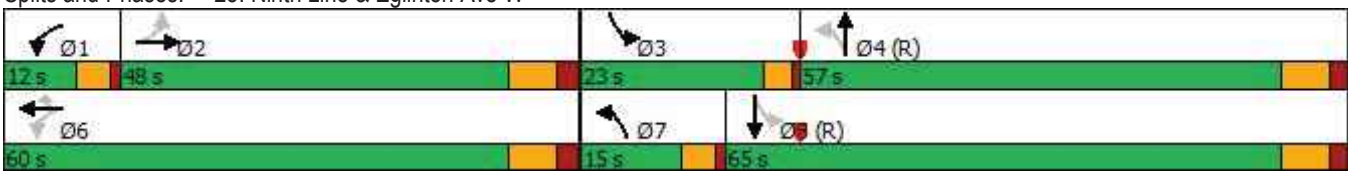
c Critical Lane Group

Timings
25: Ninth Line & Eglinton Ave W

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	54	562	154	728	538	110	1244	374	1042
Future Volume (vph)	54	562	154	728	538	110	1244	374	1042
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		2	1	6		7	4	3	8
Permitted Phases	2		6		6	4		8	
Detector Phase	2	2	1	6	6	7	4	3	8
Switch Phase									
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	32.5	32.5	11.5	32.5	32.5	11.5	40.0	11.0	40.0
Total Split (s)	48.0	48.0	12.0	60.0	60.0	15.0	57.0	23.0	65.0
Total Split (%)	34.3%	34.3%	8.6%	42.9%	42.9%	10.7%	40.7%	16.4%	46.4%
Yellow Time (s)	5.0	5.0	3.5	5.0	5.0	3.5	5.0	3.0	5.0
All-Red Time (s)	2.5	2.5	1.0	2.5	2.5	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	4.5	7.5	7.5	4.5	7.0	4.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	40.5	40.5	55.5	52.5	52.5	62.9	50.0	76.0	58.1
Actuated g/C Ratio	0.29	0.29	0.40	0.38	0.38	0.45	0.36	0.54	0.42
v/c Ratio	1.08	1.15	1.04	1.04	0.76	0.80	1.18	1.30	0.74
Control Delay	199.3	130.4	117.4	87.7	27.3	60.2	129.1	183.2	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	199.3	130.4	117.4	87.7	27.3	60.2	129.1	183.2	31.1
LOS	F	F	F	F	C	E	F	F	C
Approach Delay		135.9		68.0			124.3		69.9
Approach LOS		F		E			F		E

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 25 (18%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.30	
Intersection Signal Delay: 94.7	Intersection LOS: F
Intersection Capacity Utilization 128.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 25: Ninth Line & Eglinton Ave W





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	54	622	154	728	538	110	1452	374	1091
v/c Ratio	1.08	1.15	1.04	1.04	0.76	0.80	1.18	1.30	0.74
Control Delay	199.3	130.4	117.4	87.7	27.3	60.2	129.1	183.2	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	199.3	130.4	117.4	87.7	27.3	60.2	129.1	183.2	31.1
Queue Length 50th (m)	~15.3	~185.5	~27.1	~200.2	66.6	13.9	~232.4	~110.3	104.9
Queue Length 95th (m)	#41.7	#252.6	#69.0	#268.9	110.6	#40.9	#272.2	m#136.0	m123.2
Internal Link Dist (m)		373.3		388.7			291.0		251.3
Turn Bay Length (m)	20.0		35.0			65.0		65.0	
Base Capacity (vph)	50	542	148	699	712	139	1231	287	1478
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	1.15	1.04	1.04	0.76	0.79	1.18	1.30	0.74

Intersection Summary

~ 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.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	562	60	154	728	538	110	1244	208	374	1042	49
Future Volume (vph)	54	562	60	154	728	538	110	1244	208	374	1042	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.5	7.5		4.5	7.5	7.5	4.5	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1668	1863		1733	1865	1479	1069	3418		1716	3558	
Flt Permitted	0.10	1.00		0.09	1.00	1.00	0.14	1.00		0.07	1.00	
Satd. Flow (perm)	173	1863		162	1865	1479	157	3418		134	3558	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	54	562	60	154	728	538	110	1244	208	374	1042	49
RTOR Reduction (vph)	0	3	0	0	0	158	0	10	0	0	2	0
Lane Group Flow (vph)	54	619	0	154	728	381	110	1442	0	374	1089	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	67%	5%	0%	4%	2%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	40.5	40.5		52.5	52.5	52.5	60.4	50.0		73.0	58.1	
Effective Green, g (s)	40.5	40.5		52.5	52.5	52.5	60.4	50.0		73.0	58.1	
Actuated g/C Ratio	0.29	0.29		0.38	0.38	0.38	0.43	0.36		0.52	0.42	
Clearance Time (s)	7.5	7.5		4.5	7.5	7.5	4.5	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	50	538		144	699	554	135	1220		284	1476	
v/s Ratio Prot		c0.33		0.06	c0.39		0.06	0.42		c0.18	0.31	
v/s Ratio Perm	0.31			0.34		0.26	0.29			c0.51		
v/c Ratio	1.08	1.15		1.07	1.04	0.69	0.81	1.18		1.32	0.74	
Uniform Delay, d1	49.8	49.8		37.8	43.8	36.8	28.3	45.0		46.2	34.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.97	0.84	
Incremental Delay, d2	151.5	87.7		94.7	45.3	3.5	30.0	90.7		155.2	1.8	
Delay (s)	201.2	137.4		132.6	89.1	40.4	58.3	135.7		199.8	30.9	
Level of Service	F	F		F	F	D	E	F		F	C	
Approach Delay (s)		142.5			75.3			130.2			74.0	
Approach LOS		F			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	100.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	128.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Timings
17: Ninth Line & Street B/Skyview St

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	78	5	4	5	293	1724	14	1377
Future Volume (vph)	78	5	4	5	293	1724	14	1377
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	11.0	22.5	22.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	11.0	47.0	36.0	36.0
Total Split (%)	32.9%	32.9%	32.9%	32.9%	15.7%	67.1%	51.4%	51.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	9.3	9.3	9.3	9.3	52.2	51.7	33.3	33.3
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.75	0.74	0.48	0.48
v/c Ratio	0.42	0.52	0.04	0.04	0.63	0.67	0.12	0.91
Control Delay	34.1	10.3	25.0	20.1	24.3	7.8	11.1	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	10.3	25.0	20.1	24.3	7.8	11.1	25.6
LOS	C	B	C	C	C	A	B	C
Approach Delay		17.1		21.6		10.2		25.4
Approach LOS		B		C		B		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 39 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 16.7	Intersection LOS: B
Intersection Capacity Utilization 80.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 17: Ninth Line & Street B/Skyview St



Queues
17: Ninth Line & Street B/Skyview St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	194	4	9	293	1729	14	1497
v/c Ratio	0.42	0.52	0.04	0.04	0.63	0.67	0.12	0.91
Control Delay	34.1	10.3	25.0	20.1	24.3	7.8	11.1	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	10.3	25.0	20.1	24.3	7.8	11.1	25.6
Queue Length 50th (m)	8.8	0.5	0.4	0.6	44.2	87.0	0.7	108.2
Queue Length 95th (m)	18.4	14.4	2.6	3.6	m45.4	m79.5	m2.0	#134.7
Internal Link Dist (m)		126.1		123.3		251.3		178.3
Turn Bay Length (m)					15.0		15.0	
Base Capacity (vph)	366	554	215	457	466	2585	120	1653
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	0.35	0.02	0.02	0.63	0.67	0.12	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



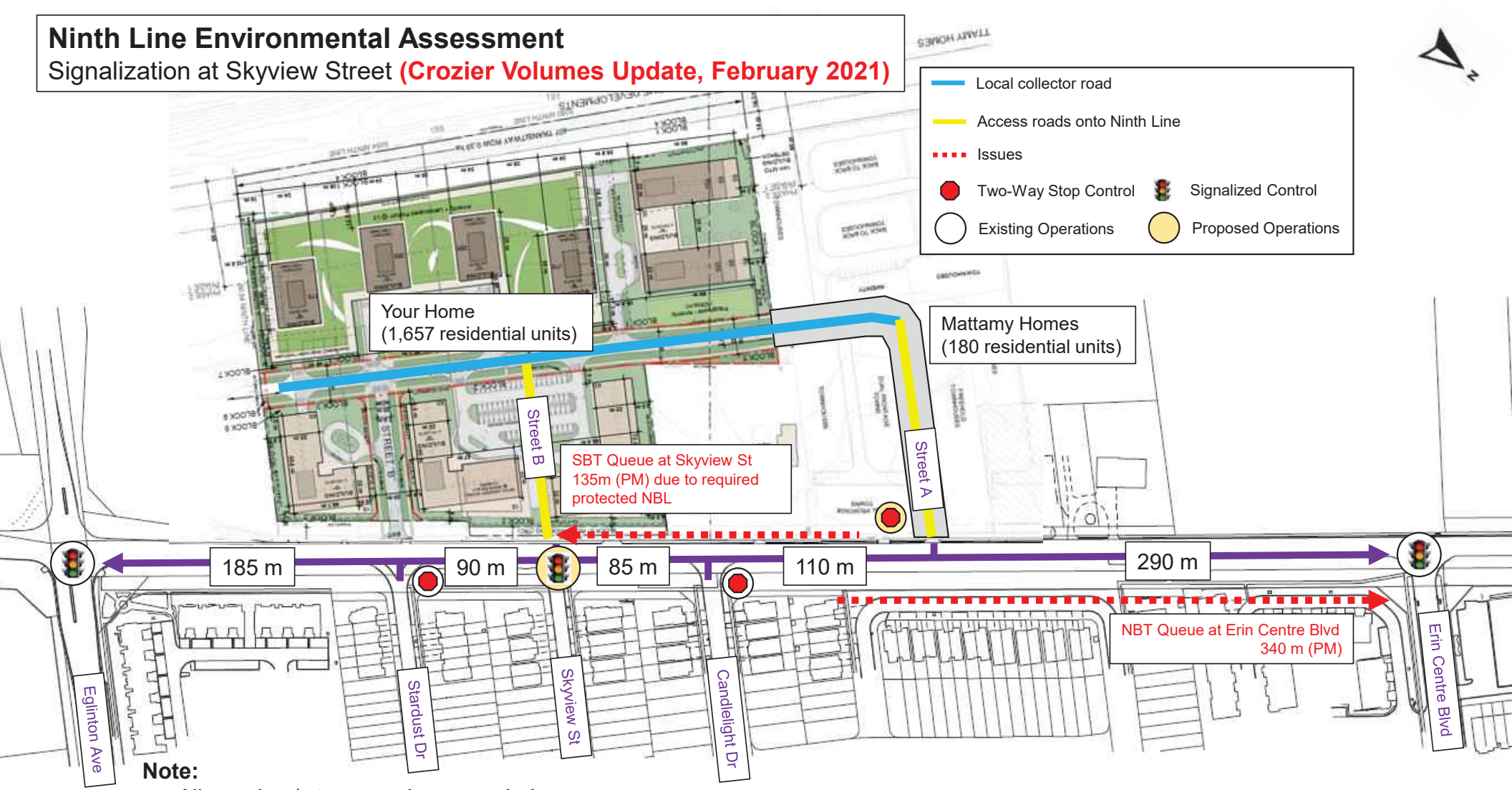
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	5	189	4	5	4	293	1724	5	14	1377	120
Future Volume (vph)	78	5	189	4	5	4	293	1724	5	14	1377	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.0	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85		1.00	0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1573		1750	1719		1750	3498		1750	3458	
Flt Permitted	0.75	1.00		0.44	1.00		0.11	1.00		0.14	1.00	
Satd. Flow (perm)	1385	1573		814	1719		198	3498		253	3458	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	78	5	189	4	5	4	293	1724	5	14	1377	120
RTOR Reduction (vph)	0	164	0	0	3	0	0	0	0	0	9	0
Lane Group Flow (vph)	78	30	0	4	6	0	293	1729	0	14	1488	0
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)	9.3	9.3		9.3	9.3		51.7	51.7		33.3	33.3	
Effective Green, g (s)	9.3	9.3		9.3	9.3		51.7	51.7		33.3	33.3	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.74	0.74		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	208		108	228		465	2583		120	1645	
v/s Ratio Prot		0.02			0.00		0.13	c0.49			c0.43	
v/s Ratio Perm	c0.06			0.00			0.34			0.06		
v/c Ratio	0.42	0.14		0.04	0.02		0.63	0.67		0.12	0.90	
Uniform Delay, d1	27.9	26.8		26.4	26.4		15.2	4.7		10.2	16.9	
Progression Factor	1.00	1.00		1.00	1.00		2.03	1.41		0.79	0.99	
Incremental Delay, d2	1.6	0.3		0.1	0.0		0.9	0.4		1.7	7.7	
Delay (s)	29.5	27.2		26.6	26.4		31.7	7.1		9.8	24.4	
Level of Service	C	C		C	C		C	A		A	C	
Approach Delay (s)		27.8			26.5			10.6			24.3	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Ninth Line Environmental Assessment

Signalization at Skyview Street **(Crozier Volumes Update, February 2021)**



Note:

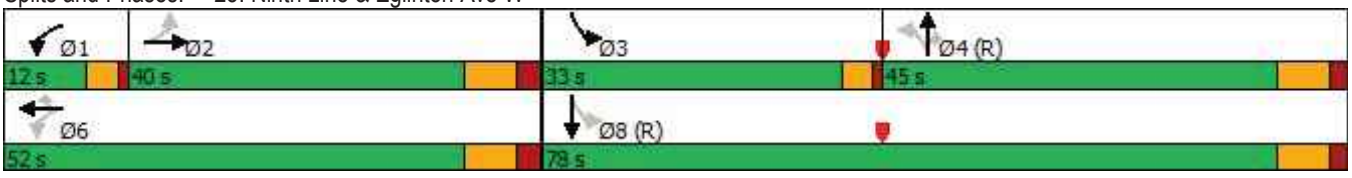
- All queuing / storage values rounded up.
- Intersection spacing is 'middle-of-intersection' to 'middle-of-intersection'

NOT TO SCALE

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	37	612	99	264	256	23	757	137	400	1280
Future Volume (vph)	37	612	99	264	256	23	757	137	400	1280
Turn Type	Perm	NA	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		2	1	6			4		3	8
Permitted Phases	2		6		6	4		4	8	
Detector Phase	2	2	1	6	6	4	4	4	3	8
Switch Phase										
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0
Minimum Split (s)	32.5	32.5	11.0	32.5	32.5	40.0	40.0	40.0	11.0	40.0
Total Split (s)	40.0	40.0	12.0	52.0	52.0	45.0	45.0	45.0	33.0	78.0
Total Split (%)	30.8%	30.8%	9.2%	40.0%	40.0%	34.6%	34.6%	34.6%	25.4%	60.0%
Yellow Time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0
All-Red Time (s)	2.5	2.5	1.0	2.5	2.5	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	4.0	7.5	7.5	7.0	7.0	7.0	4.0	7.0
Lead/Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	Max	Max	C-Max	C-Max	C-Max	None	C-Max
Act Effct Green (s)	32.7	32.7	48.0	44.5	44.5	42.0	42.0	42.0	74.0	71.0
Actuated g/C Ratio	0.25	0.25	0.37	0.34	0.34	0.32	0.32	0.32	0.57	0.55
v/c Ratio	0.14	0.82	0.54	0.41	0.38	0.33	0.67	0.24	0.87	0.69
Control Delay	39.8	53.7	38.9	35.2	5.2	52.2	42.6	11.4	38.4	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	53.7	38.9	35.2	5.2	52.2	42.6	11.4	38.4	28.4
LOS	D	D	D	D	A	D	D	B	D	C
Approach Delay		53.0		23.4			38.2			30.7
Approach LOS		D		C			D			C

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 100 (77%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 35.5	Intersection LOS: D
Intersection Capacity Utilization 95.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 25: Ninth Line & Eglinton Ave W





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	37	730	99	264	256	23	757	137	400	1347
v/c Ratio	0.14	0.82	0.54	0.41	0.38	0.33	0.67	0.24	0.87	0.69
Control Delay	39.8	53.7	38.9	35.2	5.2	52.2	42.6	11.4	38.4	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	53.7	38.9	35.2	5.2	52.2	42.6	11.4	38.4	28.4
Queue Length 50th (m)	6.8	84.4	15.5	47.5	0.0	4.2	83.7	5.4	53.8	149.0
Queue Length 95th (m)	15.6	106.0	27.3	70.2	16.6	13.6	106.2	19.7	m#83.7	176.1
Internal Link Dist (m)		373.3		388.7			291.0			248.0
Turn Bay Length (m)	20.0		35.0			65.0		30.0	65.0	
Base Capacity (vph)	263	889	185	638	674	69	1122	579	501	1945
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.82	0.54	0.41	0.38	0.33	0.67	0.24	0.80	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	612	118	99	264	256	23	757	137	400	1280	67
Future Volume (vph)	37	612	118	99	264	256	23	757	137	400	1280	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.5	7.5		4.0	7.5	7.5	7.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1668	3490		1733	1865	1479	1069	3476	1574	1716	3555	
Flt Permitted	0.60	1.00		0.14	1.00	1.00	0.19	1.00	1.00	0.19	1.00	
Satd. Flow (perm)	1047	3490		257	1865	1479	215	3476	1574	343	3555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	37	612	118	99	264	256	23	757	137	400	1280	67
RTOR Reduction (vph)	0	12	0	0	0	168	0	0	71	0	3	0
Lane Group Flow (vph)	37	718	0	99	264	88	23	757	66	400	1344	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	67%	5%	0%	4%	2%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Actuated Green, G (s)	32.7	32.7		44.5	44.5	44.5	42.0	42.0	42.0	71.0	71.0	
Effective Green, g (s)	32.7	32.7		44.5	44.5	44.5	42.0	42.0	42.0	71.0	71.0	
Actuated g/C Ratio	0.25	0.25		0.34	0.34	0.34	0.32	0.32	0.32	0.55	0.55	
Clearance Time (s)	7.5	7.5		4.0	7.5	7.5	7.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	263	877		176	638	506	69	1123	508	451	1941	
v/s Ratio Prot		c0.21		c0.03	0.14			0.22		c0.17	0.38	
v/s Ratio Perm	0.04			0.16		0.06	0.11		0.04	c0.31		
v/c Ratio	0.14	0.82		0.56	0.41	0.17	0.33	0.67	0.13	0.89	0.69	
Uniform Delay, d1	37.7	45.9		32.2	32.8	29.9	33.4	38.1	31.1	25.9	21.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.09	1.24	
Incremental Delay, d2	1.1	8.4		4.1	2.0	0.7	12.5	3.2	0.5	13.1	1.3	
Delay (s)	38.9	54.3		36.3	34.7	30.6	45.9	41.3	31.6	41.3	28.2	
Level of Service	D	D		D	C	C	D	D	C	D	C	
Approach Delay (s)		53.5			33.3			40.0			31.2	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	142	75	1039	108	1646
Future Volume (vph)	142	75	1039	108	1646
Turn Type	Perm	Perm	NA	pm+pt	NA
Protected Phases			2	1	6
Permitted Phases	4	4		6	
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	7.0	8.0
Minimum Split (s)	22.5	22.5	22.0	11.0	22.0
Total Split (s)	23.0	23.0	31.0	11.0	42.0
Total Split (%)	35.4%	35.4%	47.7%	16.9%	64.6%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.5	2.5	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.0	4.0	6.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.8	10.8	36.6	46.6	45.8
Actuated g/C Ratio	0.17	0.17	0.56	0.72	0.70
v/c Ratio	0.48	0.23	0.58	0.28	0.65
Control Delay	29.7	8.1	18.6	7.5	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	8.1	18.6	7.5	11.0
LOS	C	A	B	A	B
Approach Delay	22.2		18.6		10.8
Approach LOS	C		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 12 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

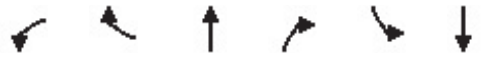
Splits and Phases: 30: Ninth Line & Erin Centre Blvd





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	142	75	1116	108	1646
v/c Ratio	0.48	0.23	0.58	0.28	0.65
Control Delay	29.7	8.1	18.6	7.5	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	8.1	18.6	7.5	11.0
Queue Length 50th (m)	14.6	0.0	63.6	7.5	87.8
Queue Length 95th (m)	26.3	8.1	124.2	13.2	81.3
Internal Link Dist (m)	358.4		271.6		650.7
Turn Bay Length (m)				35.0	
Base Capacity (vph)	448	461	1924	389	2521
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.16	0.58	0.28	0.65

Intersection Summary



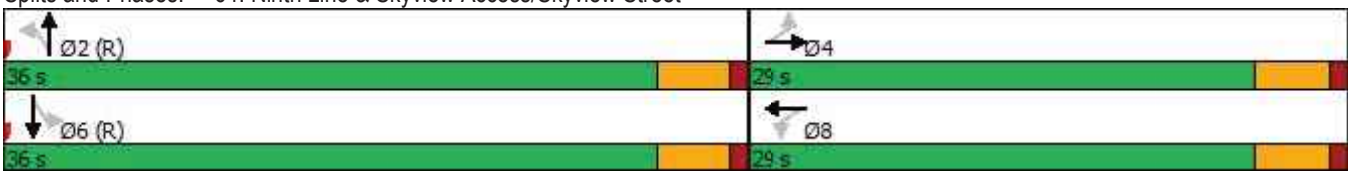
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	75	1039	77	108	1646
Future Volume (vph)	142	75	1039	77	108	1646
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	6.5	6.5	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1765	1597	3409		1785	3579
Flt Permitted	0.95	1.00	1.00		0.16	1.00
Satd. Flow (perm)	1765	1597	3409		308	3579
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	75	1039	77	108	1646
RTOR Reduction (vph)	0	64	7	0	0	0
Lane Group Flow (vph)	142	11	1109	0	108	1646
Confl. Peds. (#/hr)	1			1	1	
Heavy Vehicles (%)	1%	0%	4%	30%	0%	2%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	4	4			6	
Actuated Green, G (s)	9.2	9.2	33.3		43.3	43.3
Effective Green, g (s)	9.2	9.2	33.3		43.3	43.3
Actuated g/C Ratio	0.14	0.14	0.51		0.67	0.67
Clearance Time (s)	6.5	6.5	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	249	226	1746		341	2384
v/s Ratio Prot			0.33		0.03	c0.46
v/s Ratio Perm	c0.08	0.01			0.18	
v/c Ratio	0.57	0.05	0.64		0.32	0.69
Uniform Delay, d1	26.1	24.1	11.5		5.6	6.7
Progression Factor	1.00	1.00	1.37		1.50	1.33
Incremental Delay, d2	3.1	0.1	1.7		0.5	1.4
Delay (s)	29.2	24.2	17.3		8.9	10.3
Level of Service	C	C	B		A	B
Approach Delay (s)	27.5		17.3			10.2
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	116	5	5	5	100	957	2	1617
Future Volume (vph)	116	5	5	5	100	957	2	1617
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.5	24.5	29.0	29.0	24.0	24.0	24.0	24.0
Total Split (s)	29.0	29.0	29.0	29.0	36.0	36.0	36.0	36.0
Total Split (%)	44.6%	44.6%	44.6%	44.6%	55.4%	55.4%	55.4%	55.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	16.8	16.8	16.8	16.8	39.2	39.2	39.2	39.2
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.60	0.60	0.60	0.60
v/c Ratio	0.33	0.70	0.03	0.04	0.88	0.45	0.01	0.79
Control Delay	20.4	29.6	15.2	9.8	84.2	10.8	13.0	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	29.6	15.2	9.8	84.2	10.8	13.0	19.6
LOS	C	C	B	A	F	B	B	B
Approach Delay		27.0		11.0		17.7		19.5
Approach LOS		C		B		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 19.8	Intersection LOS: B
Intersection Capacity Utilization 80.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 64: Ninth Line & Skyview Access/Skyview Street





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	116	290	5	17	100	959	2	1659
v/c Ratio	0.33	0.70	0.03	0.04	0.88	0.45	0.01	0.79
Control Delay	20.4	29.6	15.2	9.8	84.2	10.8	13.0	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	29.6	15.2	9.8	84.2	10.8	13.0	19.6
Queue Length 50th (m)	10.4	27.9	0.4	0.4	16.4	94.6	0.2	110.2
Queue Length 95th (m)	18.5	42.5	2.1	3.5	m#53.3	116.8	m0.3	#121.0
Internal Link Dist (m)		132.8		149.0		248.0		170.5
Turn Bay Length (m)					15.0		15.0	
Base Capacity (vph)	517	599	289	628	113	2111	284	2104
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	0.22	0.48	0.02	0.03	0.88	0.45	0.01	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	5	285	5	5	12	100	957	2	2	1617	42
Future Volume (vph)	116	5	285	5	5	12	100	957	2	2	1617	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85		1.00	0.89		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1571		1750	1647		1750	3499		1750	3487	
Flt Permitted	0.75	1.00		0.42	1.00		0.10	1.00		0.26	1.00	
Satd. Flow (perm)	1375	1571		769	1647		188	3499		472	3487	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	116	5	285	5	5	12	100	957	2	2	1617	42
RTOR Reduction (vph)	0	8	0	0	9	0	0	0	0	0	2	0
Lane Group Flow (vph)	116	282	0	5	8	0	100	959	0	2	1657	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.8	16.8		16.8	16.8		39.2	39.2		39.2	39.2	
Effective Green, g (s)	16.8	16.8		16.8	16.8		39.2	39.2		39.2	39.2	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.60	0.60		0.60	0.60	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	355	406		198	425		113	2110		284	2102	
v/s Ratio Prot		c0.18			0.00			0.27			0.48	
v/s Ratio Perm	0.08			0.01			c0.53			0.00		
v/c Ratio	0.33	0.69		0.03	0.02		0.88	0.45		0.01	0.79	
Uniform Delay, d1	19.5	21.8		18.0	18.0		11.0	7.1		5.1	9.8	
Progression Factor	1.00	1.00		1.00	1.00		2.35	1.30		1.75	1.55	
Incremental Delay, d2	0.5	5.1		0.1	0.0		50.8	0.6		0.0	2.5	
Delay (s)	20.1	26.9		18.0	18.0		76.6	9.8		9.0	17.6	
Level of Service	C	C		B	B		E	A		A	B	
Approach Delay (s)		24.9			18.0			16.1			17.6	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.7%	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)	21	38	11	1083	1784	6
Future Volume (Veh/h)	21	38	11	1083	1784	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	38	11	1083	1784	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	TWLTL	
Median storage veh)					2	
Upstream signal (m)				194	296	
pX, platoon unblocked	0.72	0.65	0.65			
vC, conflicting volume	2350	895	1790			
vC1, stage 1 conf vol	1787					
vC2, stage 2 conf vol	564					
vCu, unblocked vol	1199	0	1141			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	95	97			
cM capacity (veh/h)	170	706	396			

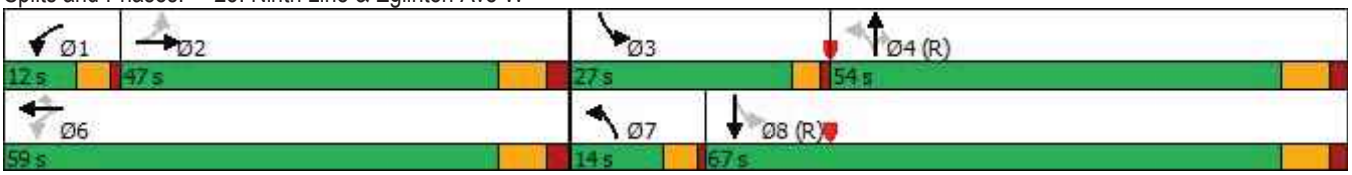
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	21	38	11	542	542	1189	601
Volume Left	21	0	11	0	0	0	0
Volume Right	0	38	0	0	0	0	6
cSH	170	706	396	1700	1700	1700	1700
Volume to Capacity	0.12	0.05	0.03	0.32	0.32	0.70	0.35
Queue Length 95th (m)	2.9	1.2	0.6	0.0	0.0	0.0	0.0
Control Delay (s)	29.1	10.4	14.4	0.0	0.0	0.0	0.0
Lane LOS	D	B	B				
Approach Delay (s)	17.1		0.1			0.0	
Approach LOS	C						

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	54	554	133	694	537	103	1218	192	374	975
Future Volume (vph)	54	554	133	694	537	103	1218	192	374	975
Turn Type	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		2	1	6		7	4		3	8
Permitted Phases	2		6		6	4		4	8	
Detector Phase	2	2	1	6	6	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0
Minimum Split (s)	32.5	32.5	11.5	32.5	32.5	11.5	40.0	40.0	11.0	40.0
Total Split (s)	47.0	47.0	12.0	59.0	59.0	14.0	54.0	54.0	27.0	67.0
Total Split (%)	33.6%	33.6%	8.6%	42.1%	42.1%	10.0%	38.6%	38.6%	19.3%	47.9%
Yellow Time (s)	5.0	5.0	3.5	5.0	5.0	3.5	5.0	5.0	3.0	5.0
All-Red Time (s)	2.5	2.5	1.0	2.5	2.5	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	4.5	7.5	7.5	4.5	7.0	7.0	4.0	7.0
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	39.5	39.5	54.5	51.5	51.5	58.2	47.0	47.0	77.0	60.8
Actuated g/C Ratio	0.28	0.28	0.39	0.37	0.37	0.42	0.34	0.34	0.55	0.43
v/c Ratio	1.02	0.61	0.55	0.99	0.69	0.42	1.00	0.31	1.08	0.66
Control Delay	179.7	46.1	38.0	76.3	20.1	22.4	72.9	12.2	110.5	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.7	46.1	38.0	76.3	20.1	22.4	72.9	12.2	110.5	33.9
LOS	F	D	D	E	C	C	E	B	F	C
Approach Delay		57.0		50.4			61.8			54.4
Approach LOS		E		D			E			D

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 20 (14%), Referenced to phase 4:NBTL and 8:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 55.9	Intersection LOS: E
Intersection Capacity Utilization 119.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 25: Ninth Line & Eglinton Ave W





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	608	133	694	537	103	1218	192	374	1024
v/c Ratio	1.02	0.61	0.55	0.99	0.69	0.42	1.00	0.31	1.08	0.66
Control Delay	179.7	46.1	38.0	76.3	20.1	22.4	72.9	12.2	110.5	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.7	46.1	38.0	76.3	20.1	22.4	72.9	12.2	110.5	33.9
Queue Length 50th (m)	~14.0	70.2	22.3	175.4	49.2	12.2	~164.6	9.8	~87.8	131.3
Queue Length 95th (m)	#40.9	88.5	36.1	#250.4	88.8	20.9	#209.2	27.0 m	#141.0	157.8
Internal Link Dist (m)		373.3		388.7			291.0			258.7
Turn Bay Length (m)	20.0		35.0			65.0		30.0	65.0	
Base Capacity (vph)	53	999	243	699	773	255	1213	621	346	1560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.61	0.55	0.99	0.69	0.40	1.00	0.31	1.08	0.66

Intersection Summary

~ 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.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	554	54	133	694	537	103	1218	192	374	975	49
Future Volume (vph)	54	554	54	133	694	537	103	1218	192	374	975	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.5	7.5		4.5	7.5	7.5	4.5	7.0	7.0	4.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1785	3525		1750	1902	1566	1785	3614	1581	1767	3590	
Flt Permitted	0.10	1.00		0.24	1.00	1.00	0.20	1.00	1.00	0.08	1.00	
Satd. Flow (perm)	190	3525		446	1902	1566	380	3614	1581	146	3590	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	54	554	54	133	694	537	103	1218	192	374	975	49
RTOR Reduction (vph)	0	5	0	0	0	198	0	0	90	0	2	0
Lane Group Flow (vph)	54	603	0	133	694	339	103	1218	102	374	1022	0
Heavy Vehicles (%)	0%	2%	4%	2%	1%	2%	0%	1%	1%	1%	1%	0%
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4		4	8		
Actuated Green, G (s)	39.5	39.5		51.5	51.5	51.5	55.7	47.0	47.0	74.0	60.8	
Effective Green, g (s)	39.5	39.5		51.5	51.5	51.5	55.7	47.0	47.0	74.0	60.8	
Actuated g/C Ratio	0.28	0.28		0.37	0.37	0.37	0.40	0.34	0.34	0.53	0.43	
Clearance Time (s)	7.5	7.5		4.5	7.5	7.5	4.5	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	53	994		233	699	576	238	1213	530	343	1559	
v/s Ratio Prot		0.17		0.03	c0.36		0.03	0.34		c0.18	0.28	
v/s Ratio Perm	0.28			0.18		0.22	0.15		0.06	c0.40		
v/c Ratio	1.02	0.61		0.57	0.99	0.59	0.43	1.00	0.19	1.09	0.66	
Uniform Delay, d1	50.2	43.5		31.8	44.1	35.7	27.7	46.5	33.0	46.2	31.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.26	1.03	
Incremental Delay, d2	129.1	2.7		3.4	32.3	4.4	1.3	26.8	0.8	65.7	1.4	
Delay (s)	179.4	46.3		35.1	76.4	40.1	29.0	73.3	33.8	123.9	33.5	
Level of Service	F	D		D	E	D	C	E	C	F	C	
Approach Delay (s)		57.1			58.1			65.3			57.7	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	119.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	114	158	1680	143	1322
Future Volume (vph)	114	158	1680	143	1322
Turn Type	Perm	Perm	NA	pm+pt	NA
Protected Phases			2	1	6
Permitted Phases	4	4		6	
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	7.0	8.0
Minimum Split (s)	22.5	22.5	22.0	11.0	22.0
Total Split (s)	22.5	22.5	36.5	11.0	47.5
Total Split (%)	32.1%	32.1%	52.1%	15.7%	67.9%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.5	2.5	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.0	4.0	6.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.2	10.2	37.8	49.3	47.3
Actuated g/C Ratio	0.15	0.15	0.54	0.70	0.68
v/c Ratio	0.44	0.43	0.93	0.47	0.54
Control Delay	32.3	8.8	30.8	17.7	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	8.8	30.8	17.7	5.0
LOS	C	A	C	B	A
Approach Delay	18.7		30.8		6.2
Approach LOS	B		C		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 65 (93%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 19.6	Intersection LOS: B
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 30: Ninth Line & Erin Centre Blvd





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	114	158	1786	143	1322
v/c Ratio	0.44	0.43	0.93	0.47	0.54
Control Delay	32.3	8.8	30.8	17.7	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	8.8	30.8	17.7	5.0
Queue Length 50th (m)	12.9	0.0	155.5	8.4	16.6
Queue Length 95th (m)	24.2	12.4	#267.3	21.8	41.5
Internal Link Dist (m)	358.4		296.2		650.7
Turn Bay Length (m)				35.0	
Base Capacity (vph)	405	486	1924	303	2443
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.33	0.93	0.47	0.54

Intersection Summary

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



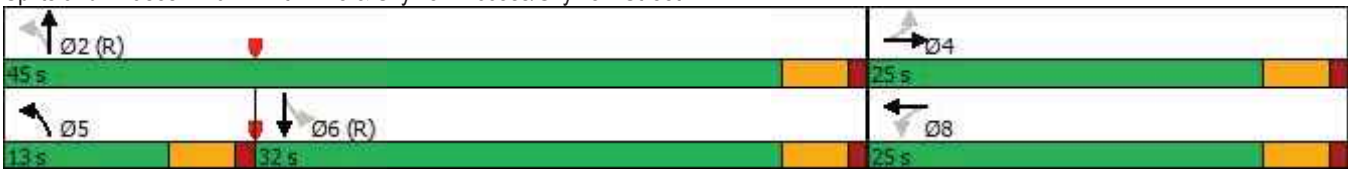
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	158	1680	106	143	1322
Future Volume (vph)	114	158	1680	106	143	1322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	6.5	6.5	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	0.99	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1776	1597	3556		1767	3614
Flt Permitted	0.95	1.00	1.00		0.10	1.00
Satd. Flow (perm)	1776	1597	3556		181	3614
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	114	158	1680	106	143	1322
RTOR Reduction (vph)	0	135	6	0	0	0
Lane Group Flow (vph)	114	23	1780	0	143	1322
Confl. Peds. (#/hr)	4			1	1	
Heavy Vehicles (%)	0%	0%	1%	11%	1%	1%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	4	4			6	
Actuated Green, G (s)	10.2	10.2	37.0		47.3	47.3
Effective Green, g (s)	10.2	10.2	37.0		47.3	47.3
Actuated g/C Ratio	0.15	0.15	0.53		0.68	0.68
Clearance Time (s)	6.5	6.5	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	258	232	1879		265	2442
v/s Ratio Prot			c0.50		0.05	c0.37
v/s Ratio Perm	c0.06	0.01			0.32	
v/c Ratio	0.44	0.10	0.95		0.54	0.54
Uniform Delay, d1	27.3	25.9	15.6		13.6	5.8
Progression Factor	1.00	1.00	1.36		2.72	0.70
Incremental Delay, d2	1.2	0.2	10.1		1.7	0.7
Delay (s)	28.5	26.1	31.3		38.6	4.7
Level of Service	C	C	C		D	A
Approach Delay (s)	27.1		31.3			8.0
Approach LOS	C		C			A

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	78	5	4	5	293	1630	14	1255
Future Volume (vph)	78	5	4	5	293	1630	14	1255
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.5	24.5	24.5	24.5	9.5	24.0	24.0	24.0
Total Split (s)	25.0	25.0	25.0	25.0	13.0	45.0	32.0	32.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	18.6%	64.3%	45.7%	45.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	9.3	9.3	9.3	9.3	51.7	51.7	34.0	34.0
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.74	0.74	0.49	0.49
v/c Ratio	0.42	0.52	0.04	0.04	0.67	0.63	0.10	0.82
Control Delay	34.0	10.3	25.0	20.1	18.3	11.6	20.3	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	10.3	25.0	20.1	18.3	11.6	20.3	26.1
LOS	C	B	C	C	B	B	C	C
Approach Delay		17.1		21.6		12.6		26.0
Approach LOS		B		C		B		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 64: Ninth Line & Skyview Access/Skyview Street





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	194	4	9	293	1635	14	1375
v/c Ratio	0.42	0.52	0.04	0.04	0.67	0.63	0.10	0.82
Control Delay	34.0	10.3	25.0	20.1	18.3	11.6	20.3	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	10.3	25.0	20.1	18.3	11.6	20.3	26.1
Queue Length 50th (m)	8.8	0.5	0.4	0.6	28.1	170.5	1.2	91.4
Queue Length 95th (m)	18.4	14.4	2.5	3.6	m27.9	m174.4	m2.6	#139.1
Internal Link Dist (m)		134.3		117.6		258.7		135.3
Turn Bay Length (m)					15.0		15.0	
Base Capacity (vph)	405	594	238	506	436	2584	134	1684
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.33	0.02	0.02	0.67	0.63	0.10	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	5	189	4	5	4	293	1630	5	14	1255	120
Future Volume (vph)	78	5	189	4	5	4	293	1630	5	14	1255	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85		1.00	0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1573		1750	1719		1750	3498		1750	3454	
Flt Permitted	0.75	1.00		0.44	1.00		0.10	1.00		0.15	1.00	
Satd. Flow (perm)	1385	1573		814	1719		191	3498		278	3454	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	78	5	189	4	5	4	293	1630	5	14	1255	120
RTOR Reduction (vph)	0	164	0	0	3	0	0	0	0	0	9	0
Lane Group Flow (vph)	78	30	0	4	6	0	293	1635	0	14	1366	0
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)	9.3	9.3		9.3	9.3		51.7	51.7		34.0	34.0	
Effective Green, g (s)	9.3	9.3		9.3	9.3		51.7	51.7		34.0	34.0	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.74	0.74		0.49	0.49	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	208		108	228		435	2583		135	1677	
v/s Ratio Prot		0.02			0.00		0.13	c0.47			c0.40	
v/s Ratio Perm	c0.06			0.00			0.37			0.05		
v/c Ratio	0.42	0.14		0.04	0.02		0.67	0.63		0.10	0.81	
Uniform Delay, d1	27.9	26.8		26.4	26.4		15.3	4.5		9.7	15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.29	2.21		1.46	1.33	
Incremental Delay, d2	1.6	0.3		0.1	0.0		2.0	0.6		1.3	3.9	
Delay (s)	29.5	27.2		26.6	26.4		21.8	10.5		15.6	24.2	
Level of Service	C	C		C	C		C	B		B	C	
Approach Delay (s)		27.8			26.5			12.2			24.2	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.0%	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)	12	22	38	1793	1417	20
Future Volume (Veh/h)	12	22	38	1793	1417	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	22	38	1793	1417	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)				159	320	
pX, platoon unblocked	0.85	0.79	0.79			
vC, conflicting volume	2400	718	1437			
vC1, stage 1 conf vol	1427					
vC2, stage 2 conf vol	972					
vCu, unblocked vol	1193	123	1029			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	97	93			
cM capacity (veh/h)	234	718	532			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	12	22	38	896	896	945	492
Volume Left	12	0	38	0	0	0	0
Volume Right	0	22	0	0	0	0	20
cSH	234	718	532	1700	1700	1700	1700
Volume to Capacity	0.05	0.03	0.07	0.53	0.53	0.56	0.29
Queue Length 95th (m)	1.1	0.7	1.6	0.0	0.0	0.0	0.0
Control Delay (s)	21.2	10.2	12.3	0.0	0.0	0.0	0.0
Lane LOS	C	B	B				
Approach Delay (s)	14.1		0.3			0.0	
Approach LOS	B						

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

APPENDIX F.2

Ninth Line Corridor Study (MMM) Excerpts



Ninth Line Lands
Growing Mississauga

SHAPING NINTH LINE

Mississauga's Northwestern Gateway

Ninth Line Corridor Study
Transportation Assessment

City of Mississauga

16-13112-001-T01

COMMUNITIES
TRANSPORTATION
BUILDINGS
INFRASTRUCTURE

MMM GROUP

July 2017

In addition to the City's growth rates, a 2% per annum growth rate has also been applied to the freeway off-ramp approaches at the following MTO off-ramps, as per MTO's input in Appendix I.

- Highway 401 WB/ Winston Churchill Blvd.;
- Highway 401 EB/ Winston Churchill Blvd.;
- Highway 403 WB/ Winston Churchill Blvd.;
- Highway 403 EB/ Winston Churchill Blvd.;
- Highway 403 NB/ Dundas St.; and
- Highway 403 SB/ Dundas St.

The weekday a.m. and p.m. peak hour general traffic volume growths are presented in **Figures 7.1A** and **7.1B**.

7.1.2 Background Developments

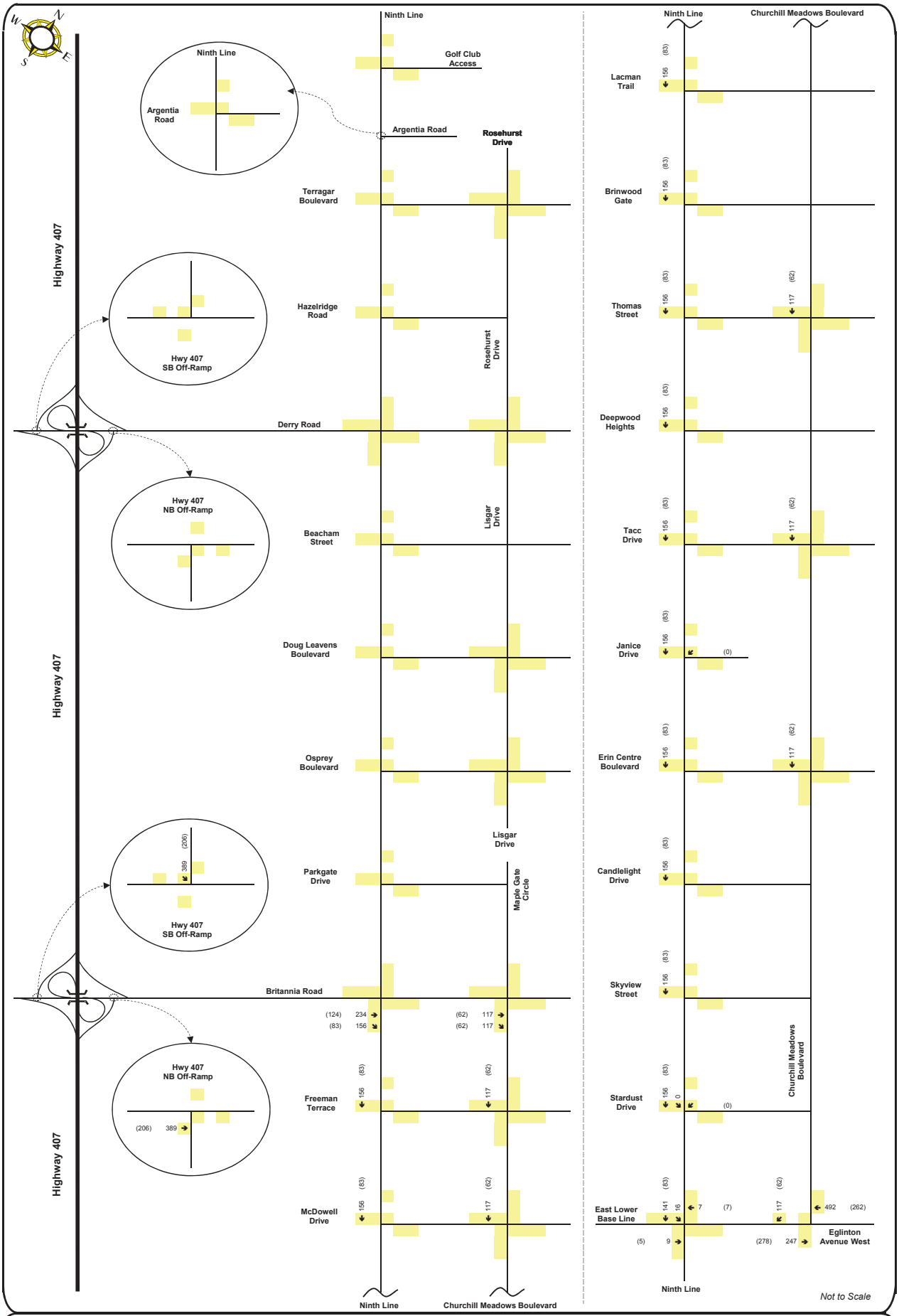
Based on discussion with City staff, the following background developments need to be considered in the future background conditions:

- Erin Mills Development – Northeast quadrant of Highway 403/407: This development comprises approximately 112,630 sq.m. of industrial park, 6,762 sq.m. of retail, and 8,074 sq.m. of office use. City staff provided a Traffic Impact Study, dated February 2014, completed by AECOM to provide context for this Ninth Line study. The site-generated traffic information was extracted and are provided in **Appendix H**. The traffic study only provides high-level site-traffic assignment information and MMM was instructed by City staff to interpret the results and incorporate the results into the future background conditions of this Ninth Line Study. The resulting site-generated traffic volumes for the Erin Mills development are shown in **Figures 7.2A** and **7.2B**.

- ProLogis Industrial Development – 10th Line at Argentia Road: This development comprises approximately 180,507 sq.m. of warehouse land use. City staff informed MMM that this background development has been incorporated in the City's EMME model and thus the growth volumes shown in Figures 7.1A and 7.1B already includes the site-generated volumes of the ProLogis development, therefore, no further forecasting was required.

7.1.3 407 Transitway Initiative

In 2008, Metrolinx's Board of Directors adopted the "Big Move", a plan that outlines a vision for a new regional transportation system, including the 407 Transitway. The Transitway is to be a separate right-of-way, located parallel to Highway 407 and includes running way, stations, platforms, parking, passenger pick-up and drop-off facilities. The Transitway will initially be implemented as bus rapid transit, with an opportunity to convert to light rail transit in the future.



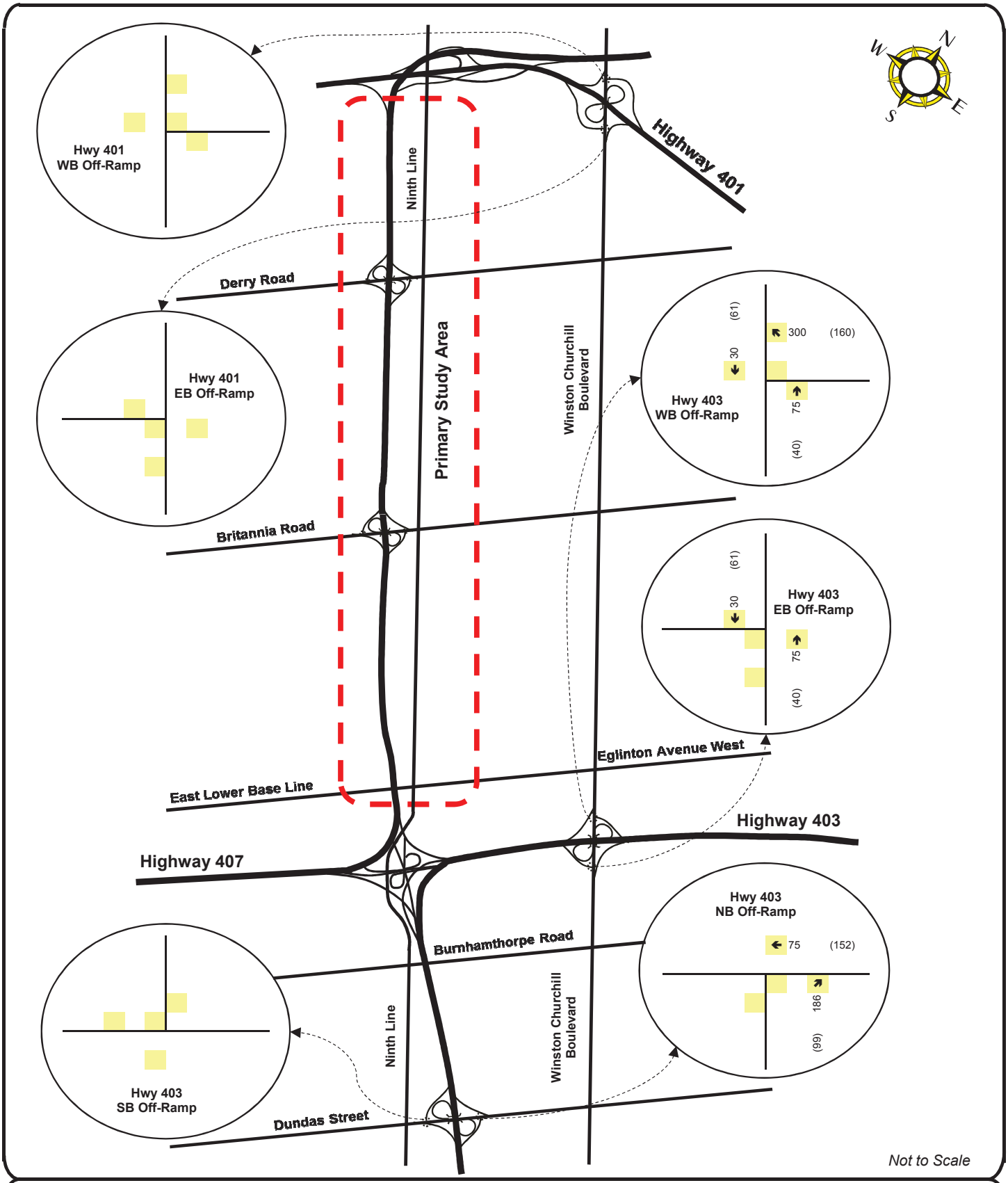
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes

MMM GROUP

FIGURE 7.2A

Background Development Traffic Volumes-
Primary Study Area



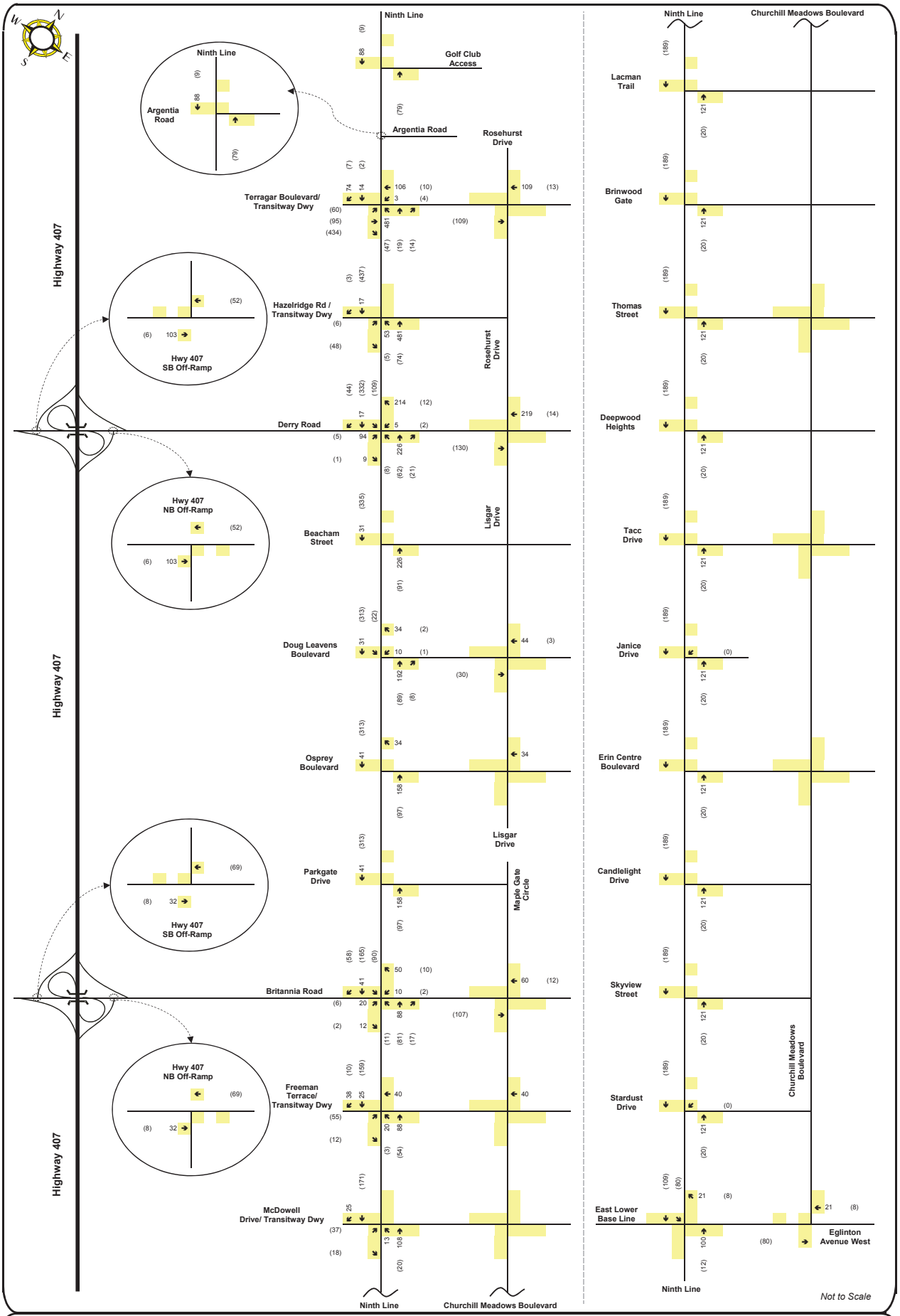
MMM GROUP

LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes

FIGURE 7.2B

Background Development Traffic Volumes - Secondary Study Area

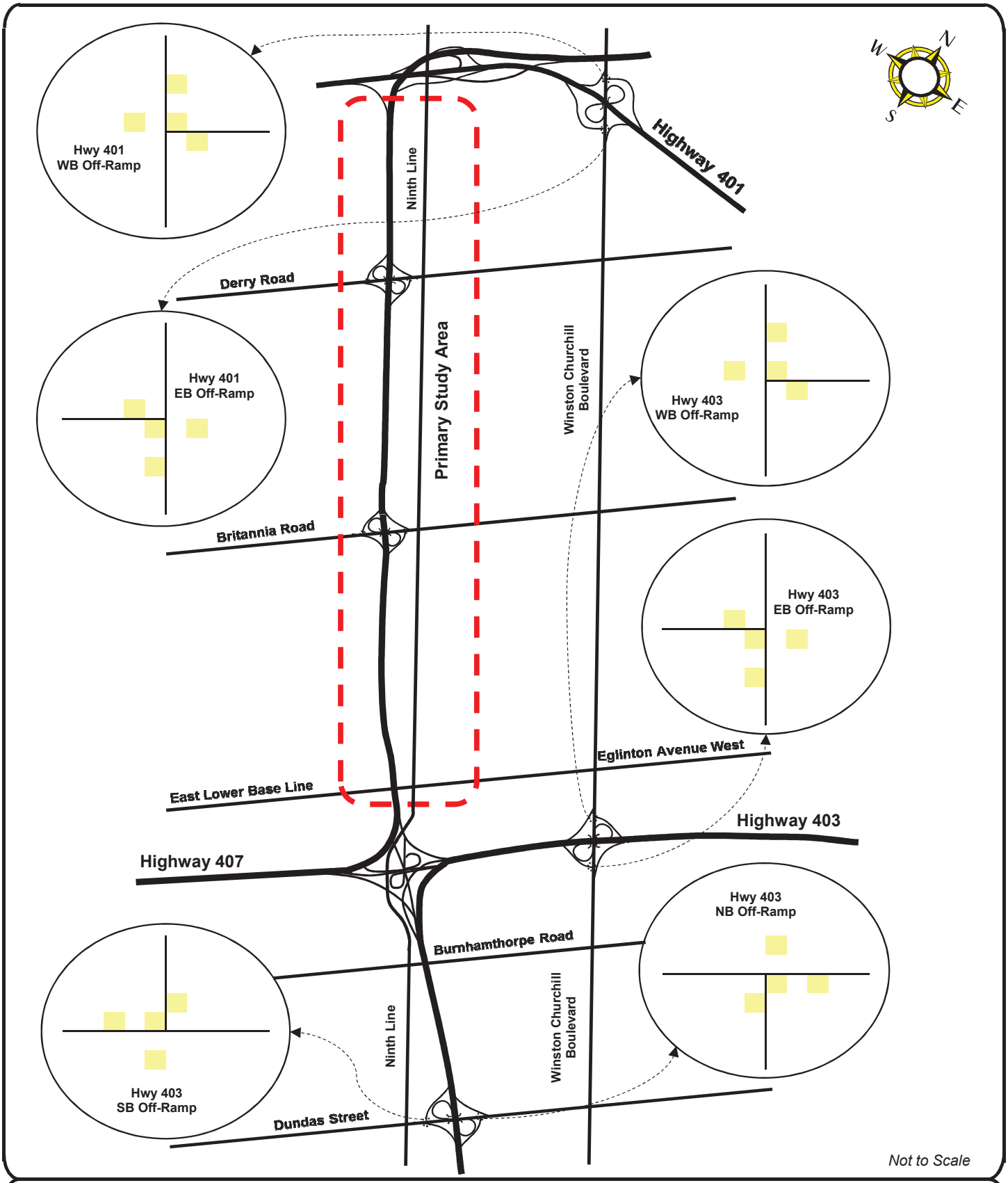


LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes

FIGURE 7.3A

407 Transitway Traffic Volumes-
Primary Study Area



MMM GROUP

LEGEND

XX — AM Peak Hour Volumes
(XX) — PM Peak Hour Volumes

FIGURE 7.3B

407 Transitway Traffic Volumes - Secondary Study Area

Use has at the intersection. Further discussion of the future evaluation of this off-ramp intersection are provided in Section 9.0; and

- MTO has indicated that the intersection of Highway 401 Westbound off-ramp at Winston Churchill Boulevard is proposed to be improved in the future. Specifically, the intersection is proposed to be converted from a 3-legged intersection to a 4-legged intersection, with the new leg connecting to a new carpool lot. Upon consultation with City staff, the approach this study takes is to continue evaluating the future forecast volumes based on the current configuration of the off-ramp intersection. Since this intersection is a secondary study intersection, the focus will be on the incremental impact the Emerging Land Use has at the intersection. Further discussion of the future evaluation of this off-ramp intersection are provided in Section 9.0.

7.3.2 Additional Required Improvements

The following additional improvements have been identified by MMM to be required in order to accommodate the future background traffic volumes.

Road Widening:

- Widening of Derry Road from 4 lanes to 6 lanes from the City's westmost limit east to Winston Churchill Boulevard. This improvement is critical because the EMME model has forecast high-levels of growth on Derry Road as a result of the widening of this road within Halton Region (from 2 lanes in each direction to 3 lanes). Without this widening, traffic volumes bottleneck in the vicinity of Ninth Line creating significantly over-capacity movements at the intersections of Derry Road/Ninth Line, and Derry Road/ Rosehurst Drive/Lisgar Drive. This is further detailed in Section 7.4.

- Widening of Britannia Road from 4 lanes to 6 lanes from the City's westmost limit east to Winston Churchill Boulevard. This improvement is critical because the EMME model has forecast high-levels of growth on Britannia Road as a result of the widening of this road within Halton Region (from 1 lane in each direction to 3 lanes). Without this widening, traffic volumes bottleneck in the vicinity of Ninth Line creating significantly over-capacity movements at the intersections of Britannia Road/Ninth Line, and Britannia Road/Maple Gate Circle/Churchill Meadows Boulevard. This is further detailed in Section 7.4.

The above recommendations to Regional roads were based on findings in Section 7.4 that showed the future forecasted traffic volumes would exceed the current capacity without these additional widenings. Regional staff noted that the Region of Peel takes a more strategic and holistic approach to addressing Regional road improvements such as road widening issues, and this is articulated in the Long Range Transportation Plan (LRTP). This approach includes exploring if the Ninth

Line Lands Study recommendations support particular overarching goals such as the movement of goods and sustainable modes of travel, transit strategies and using physical space effectively. These recommendations will be used as an input to the Region's 2017 Update of the LRTP, and subsequently to the upcoming Transportation ROPA. Until such analysis has been undertaken, Regional staff does not propose any amendments to the Regional Official Plan as it relates to transportation.

- Widening the west leg of Eglinton Avenue at Ninth Line from 1 eastbound through lane to 2. There are already two receiving lanes in the east leg of this intersection. This improvement is required to support the general background growth on Eglinton Avenue, as well as traffic generated by the Erin Mills background development in close proximity to the intersection. This is further detailed in Section 7.4.

Control and Signal timing modifications: The following improvements are needed. Signal timings at the critical intersections were also optimized.

- At the intersection of Derry Road and Ninth Line, implement a permissive/ protected phase for the westbound left-turn movement during the weekday a.m. peak hour.

- At the intersection of Derry Road and Rosehurst Drive/Lisgar Drive, implement a permissive/protected phase for the westbound left-turn movement during the weekday a.m. peak hour.

- At the intersection of Britannia Road and Maple Gate Circle/Churchill Meadows Boulevard, implement a permissive/protected phase for the westbound left-turn movement during the weekday a.m. peak hour.

- At the intersection of Ninth Line and Terragar Boulevard/Transitway Driveway, the future background volumes with the Transitway station in place meets the signal warrants as documented in **Appendix K**. The other Transitway Driveways and site driveways do not meet the signal warrant.

- The intersection of Ninth Line/Beacham Street operates at significantly over capacity as stop-controlled on Beacham Street during the weekday a.m. peak hour. As shown in Table 2.1, this intersection already operates with constrained capacity movements under existing traffic conditions. The growth along Ninth Line exacerbates the congestion resulting in long delays and queues for cars from Beacham Street to turn onto Ninth Line. This intersection is approximately 670 m and 600 m from the upstream (Derry Road) and downstream (Doug Leavens) signalized intersections on Ninth Line, respectively. Ontario Traffic Manual (OTM) signal warrant analysis was completed at this intersection based on the future background volumes.

8.0 EMERGING LAND USE CONCEPT TRIP GENERATION

8.1 Land Uses

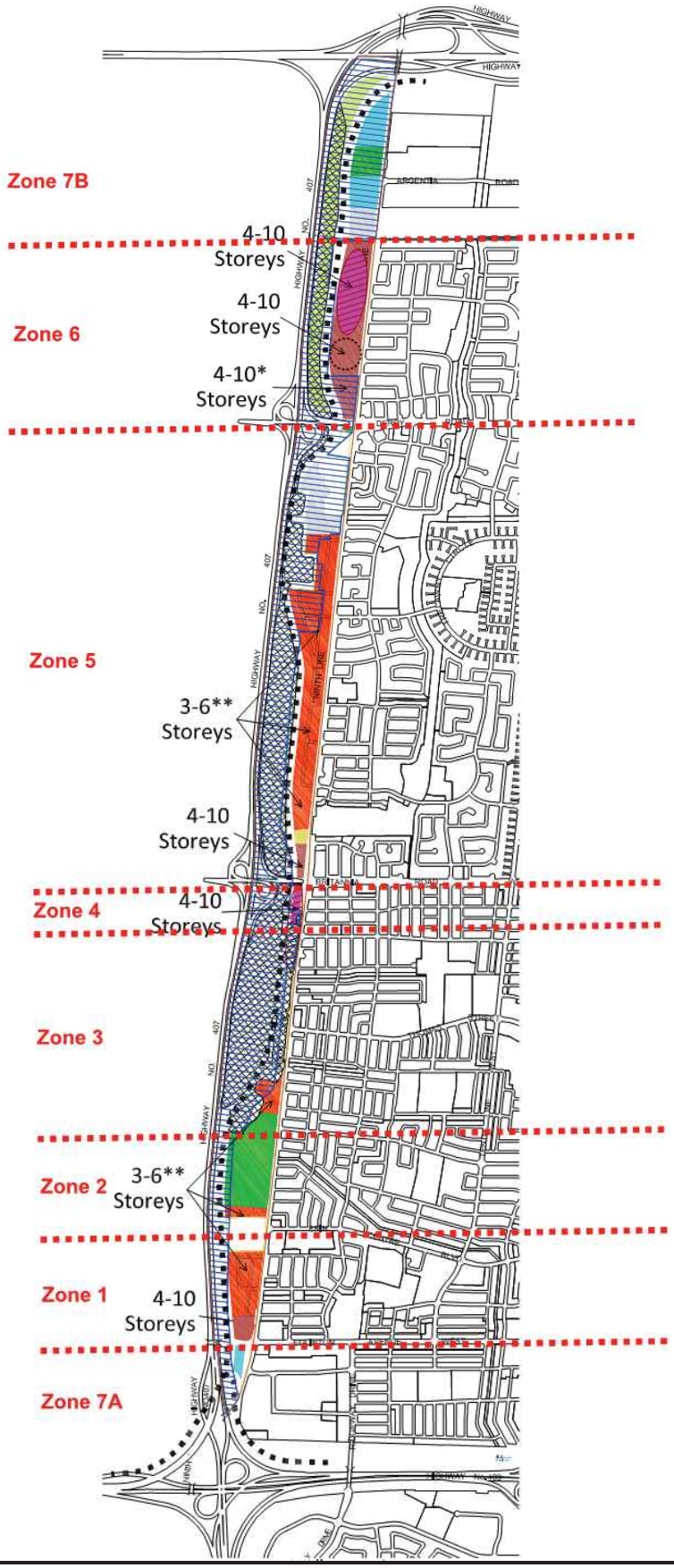
The site statistics associated with the Emerging Land Use Concept, dated September 18 2016, are provided in **Appendix N**. MMM was advised by the project team to use a population and employment forecast based on a density of a minimum 80 persons plus jobs/hectare for the purpose of this Transportation Assessment. This density is based on the most recent Provincial review of the Growth Plan and represents the planned direction for new Greenfield communities such as the Ninth Line lands. Therefore, the Ninth Line Lands have been subdivided into seven zones, as shown in **Figure 8.1**. **Table 8.1** summarizes the land uses within each zone.

Table 8.1
Emerging Land Use Concept Land Uses

Zone	Residential (units)	Commercial Retail (sq.ft. GFA)	General Office (sq.ft. GFA)	General Light Industrial (sq.ft. GFA)	Transitway Station (spaces)
1	470	--	--	--	--
2	92	--	--	--	--
3	103	--	--	--	--
4	43	1,625	--	--	640
5	1,739	26,673	--	--	--
6	1,096	7,169	--	--	3360
7A (southerly area)	--	--	3,638	26,921	--
7B (northerly area)	--	--	36,371	269,270	--
Total	**3,543**	**35,467**	**40,009**	**296,191**	**4,000**

8.2 Non-Auto Modal Splits

The existing non-auto modal splits for the study area (zones 3615-3617, 3809, 3637-3638, 3810-3811, 3634-3636, 3812, and 4024) for home-work trips were determined from the 2011 Transportation Tomorrow Survey (TTS). The non-auto modal split includes the percentages of public transit, cycling and walking during the weekday morning (7:00 to 9:00 a.m.) and afternoon (4:00 to 6:00 p.m.) peak periods. The existing modal split information is presented in **Table 8.2**.



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FIGURE 8.1

Ninth Line Land Use Concept
Study Zones

Table 8.2
Existing Non-Auto Modal Split

Trip Purpose	Direction	Non-Auto Percentages	
		Weekday A.M. Peak Period	Weekday P.M. Peak Period
Work-Home Based Trips	Inbound	4%	19%
	Outbound	24%	6%

As noted earlier in Section 7.1.3, the Britannia and Derry 407 Transitway Stations assumed to be in place in the future will have an impact on the trip generation pattern of land uses surrounding the Ninth Line study area. Based on discussion with City staff as documented in Appendix I, a sensitivity methodology has been applied to evaluate the potential degree of success of the 407 Transitway program. Specifically, the non-auto modal splits shown in Table 8.2 will be increased by 5%, 10% and 20% to represent low, moderate and high-levels of ridership within the study area. **Table 8.3** summarizes the three sensitivity modal split scenarios.

Table 8.3
407 Transitway Sensitivity Non-Auto Modal Split Scenarios

407 Scenarios	Direction	Non-Auto Percentages	
		Weekday A.M. Peak Period	Weekday P.M. Peak Period
Low (5% increase)	Inbound	9%	24%
	Outbound	29%	11%
Moderate (10% increase)	Inbound	14%	29%
	Outbound	34%	16%
High (20% increase)	Inbound	24%	39%
	Outbound	44%	26%

8.3 Transportation Demand Management (TDM)

For the conservative nature of this assessment, no additional non-auto modal split increase have been considered in the future horizon beyond what is shown in Table 8.3. Nevertheless, **Section 10.0** outlines some of the TDM strategies that can be implemented as part of the Emerging Land Use Concept within the study area.

8.4 Multi-use Internal Capture Trips

Chapter 7 of the "Trip Generation Handbook – An ITE Recommended Practice" (June 2004) indicates that "a multi-use development is typically a single real-estate project that consists of two or more land use classifications between which trips can be made without using the off-site road system. Due to the nature of these land uses, the trip-making characteristics are interrelated, and some trips are made among the on-site

uses while commuting within the internal road network. This capture of trips internal to the site has the net effect of reducing vehicle trip generation between the overall development site and the external street system compared to the total number of trips generated by comparable, stand-alone sites."

Based on the mixed-use nature of the Emerging Land Use Concept, a conservative multi-use internal site capture adjustment of 10% has been applied to the trip generation of Areas 5 and 6. These areas comprise a mixture of residential, commercial or office uses that are in proximity that would likely induce live-work trips and trips where a motorist can visit more than one use within each area using the internal road network.

8.5 Trip Generation

The trip generation of the Emerging Land Use Concept were based on the Institute of Transportation Engineers (ITE) Trip Generation Manual 9th Edition. **Table 8.4** summarizes the ITE land use codes, the associated trip generation rates and the percentage splits applied for each of the land uses

Table 8.4
ITE Land Use Codes and Trip Generation Rates

ITE LAND USE	WEEKDAY PEAK HOUR RATE (X IS THE # UNITS OR SQ.FT) (T IS THE # TRIPS)	PERCENTAGE SPLIT IN (OUT)
Residential – Condominiums (# 230)	Ln (T) = 0.8 Ln(X) + 0.26 (weekday a.m.)	17% (83%)
	Ln (T) = 0.82 Ln(X) + 0.32 (weekday p.m.)	67% (33%)
General Office (# 710)	Ln (T) = 0.8 Ln(X) + 1.57 (weekday a.m.)	88% (12%)
	T = 1.12(X) + 78.45 (weekday p.m.)	17% (83%)
Commercial Retail (# 820)	Ln (T) = 0.61 Ln(X) + 2.24 (weekday a.m.)	62% (38%)
	ln(T) = 0.67 ln(X) + 3.31 (weekday p.m.)	48% (52%)
General Light Industrial (# 110)	T = 1.18(X) – 89.28 (weekday a.m.)	88% (12%)
	T = 1.43(X) – 157.36 (weekday p.m.)	12% (88%)

Based on the trip generation rates in Table 8.4, the non-auto modal splits in Table 8.3, and the use of multi-use adjustments where appropriate, *trip generation has been completed for each of the zones* summarized in Table 8.1. This approach of forecasting trip generation zone by zone is more conservative and indicative because the alternative aggregate approach of trip generation would result in lower trip

generation rates due to the logarithmic nature of the equations and it would also be harder to know how much traffic is generated by each zone.

The overall trip generation summaries based on the three 407 Transitway sensitivity scenarios are provided in **Tables 8.5A**, **B** and **C**. Detailed trip generation of each zone for the 10% non-auto increase scenario are provided in **Appendix O**, the summation of which match the totals in Table 8.5B. The same methods are used to calculate the 5% and 20% trip generation scenarios.

Table 8.5A
Net New Site Auto Trip Generation (5% Non-Auto Increase)

Uses	Net Proposed Magnitude	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		Inbound	Outbound	Inbound	Outbound
Residential	3,543	198	966	948	467
General Office	40,009 ft^2	55	8	10	49
Commercial Retail	35,467 ft^2	21	13	63	68
General Light Industrial	296,191 ft^2	240	33	34	253
Sub Total		514	1,020	1,055	837
Multi-Use Trips (NCHRP)		-17	-72	-77	-41
Non-auto Modal Split (Existing + 5%)		-45	-274	-235	-88
Net New Site Trips		452	674	743	708
Total Inbound/Outbound Trips		**1,126**		**1,451**	

Table 8.5B
Net New Site Auto Trip Generation (10% Non-Auto Increase)

Uses	Net Proposed Magnitude	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		Inbound	Outbound	Inbound	Outbound
Residential	3,543	198	966	948	467
General Office	40,009 ft^2	55	8	10	49
Commercial Retail	35,467 ft^2	21	13	63	68
General Light Industrial	296,191 ft^2	240	33	34	253
Sub Total		514	1,020	1,055	837
Multi-Use Trips (NCHRP)		-17	-72	-77	-41
Non-auto Modal Split (Existing + 10%)		-70	-322	-284	-127
Net New Site Trips		427	626	694	669
Total Inbound/Outbound Trips		**1,053**		**1,363**	

Table 8.5C
Net New Site Auto Trip Generation (20% Non-Auto Increase)

Uses	Net Proposed Magnitude	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
		Inbound	Outbound	Inbound	Outbound
Residential	3,543	198	966	948	467
General Office	40,009 ft^2	55	8	10	49
Commercial Retail	35,467 ft^2	21	13	63	68
General Light Industrial	296,191 ft^2	240	33	34	253
Sub Total		514	1,020	1,055	837
Multi-Use Trips (NCHRP)		-17	-72	-77	-41
Non-auto Modal Split (Existing + 20%)		-119	-416	-382	-207
Net New Site Trips		378	532	596	589
Total Inbound/Outbound Trips		**910**		**1,185**	

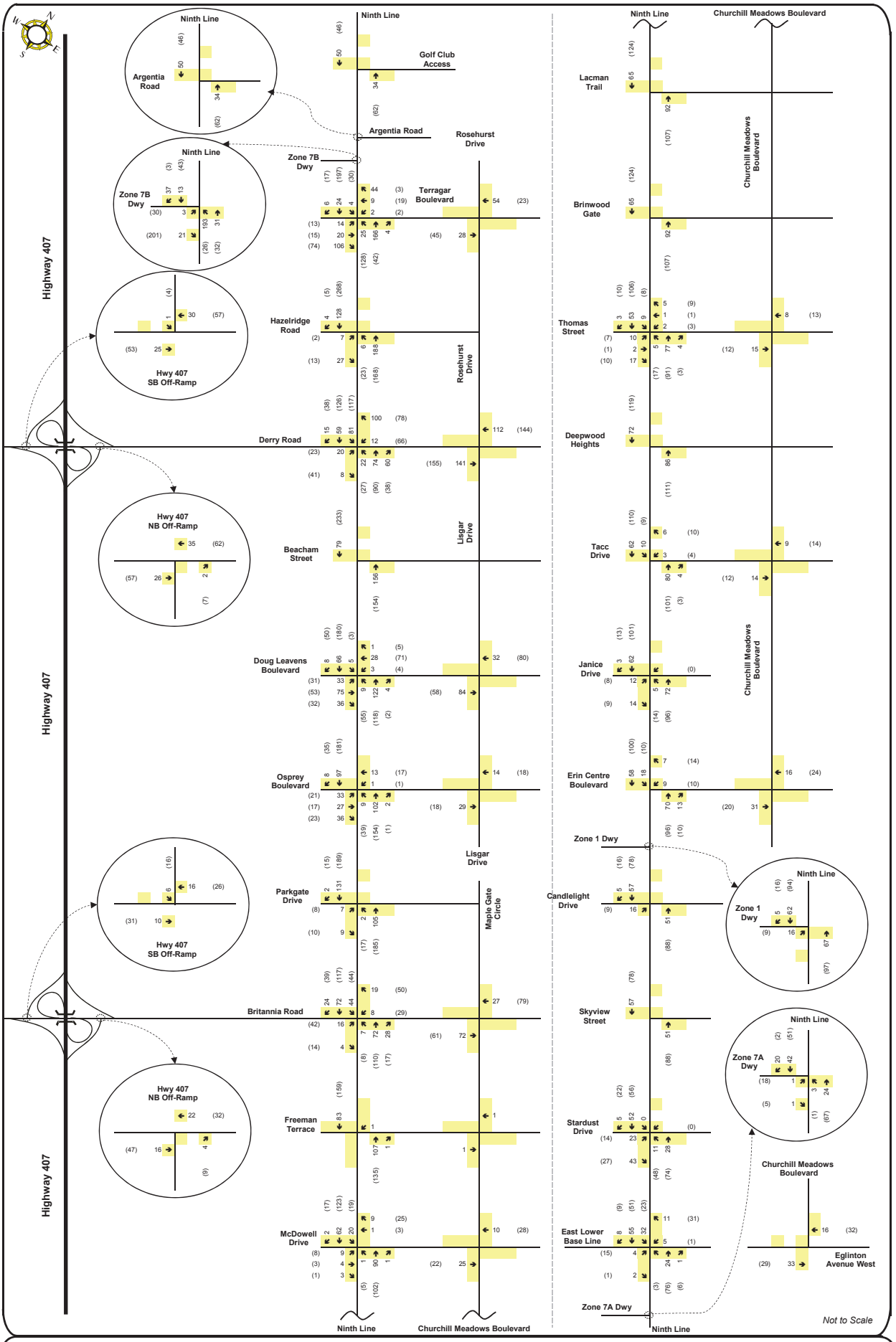
8.6 Trip Distribution and Assignment

The distribution and assignment of the site-generated traffic was developed based on the trip distribution information provided by City staff as shown in Appendix N, as well as existing traffic patterns in the vicinity of the study area and the route logic to minimize motorist travel distance and maximize connectivity. Route logic is based on the consideration of how the study intersections are operating under existing and future background conditions. For example, if a study intersection is already dealing with at, or near capacity turning constraints under BAU conditions, then drivers will likely gravitate to another route/movement that is less congested, while recognizing that drivers will not opt for an overly circuitous route.

MMM staff also confirmed with City staff that the site-generated traffic from each zone are assumed to primarily enter and exit from the driveways aligned with the study intersections, which is a conservative assessment. The locations of all of the access locations assumed to serve the Ninth Line subject land uses are illustrated in the site-generated traffic volume figures noted below.

At the driveway/study intersections evaluated, City staff instructed MMM to assume that the lane configurations on the west leg of the intersection should be matched with the existing east leg where possible. If improvements are required at the driveway/study intersections, they were determined in **Section 9.0** and documented accordingly.

The resulting assignment of the net site-generated traffic associated with the three trip generation scenarios summarized in Tables 8.5A, B and C are illustrated in **Figures 8.2 A-B**, **8.3 A-B** and **8.4 A-B**, respectively.



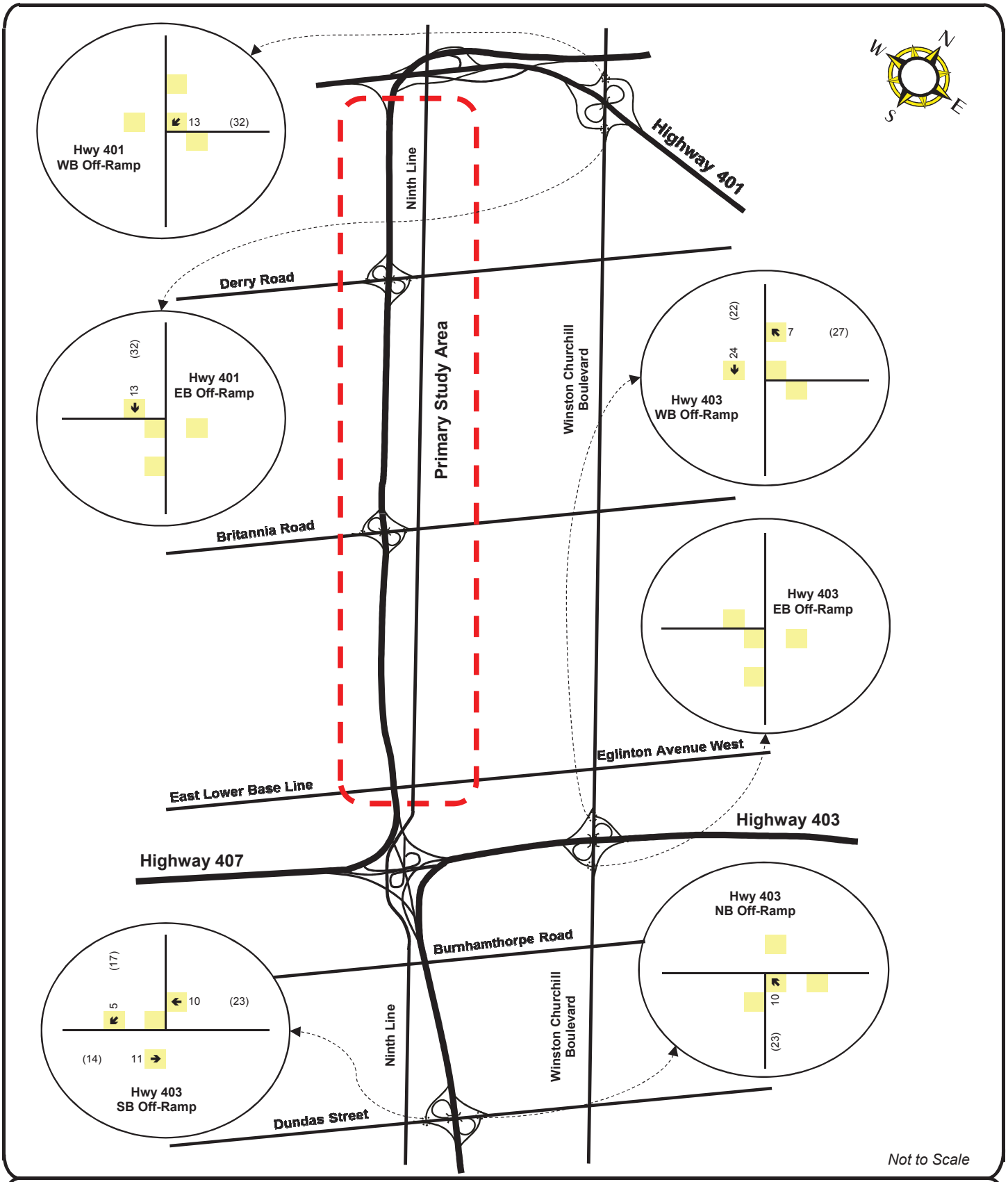
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes

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FIGURE 8.2A

Emerging Land Use-Generated Volumes
(5% Non-Auto Transitway Scenario)
Primary Study Area



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LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes

FIGURE 8.2B

Emerging Land Use-Generated Volumes
(5% Non-Auto Transitway Scenario)
Secondary Study Area

1. Introduction

AECOM was retained to undertake a Traffic Impact Study (TIS) of the proposed draft plan of subdivisions located at the northeast corner of the Highway 403 and Highway 407 interchange as shown in **Figure 1**. This report provides a summary of the transportation assessment for the proposed mixed-use development. The subject development will include a total of approximately 112,630 m^2 of industrial park, 6,762 m^2 of retail (including 433 m^2 of highway commercial) and 8,074 m^2 of office building. The site plan of the proposed development is depicted in **Figure 2.**

This report provides an overview of the analysis that was undertaken to determine the potential traffic impact of the proposed development on the highway ramp terminals adjacent to the subject site. The study examined nine traffic scenarios: existing conditions, future background and future total traffic conditions at year 2018, 2023, 2028 and 2033 (2018 at interim, 2023 at opening day, 2028 at five years after the opening, and 2033 at 10 years after the opening). The analyses were completed for weekday morning and afternoon peak periods using the Synchro software version 7.0 which is developed based on Highway Capacity Manual (2000). The conclusions and recommendations are presented in **Section 5**.

Figure 1. Site Location Map



112 630 m^2 ↳ 1 212 339 ft^2
6 762 m^2 ↳ 72 785 ft^2
8 074 m^2 ↳ 86 907 ft^2

Figure 5. Site Traffic Volume in Ultimate Year (2023)



APPENDIX F.3

Highway 407 Transitway Environmental Assessment Excerpts

Chapter 1 – Introduction

407 TRANSITWAY – WEST OF BRANT STREET TO WEST OF HURONTARIO STREET

MINISTRY OF TRANSPORTATION - CENTRAL REGION

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1. INTRODUCTION

The 407 Transitway project from west of Brant Street to west of Hurontario Street encompasses the Design of an exclusive all grade-separated 43 km runningway and eight station facilities adjacent to the 407 ETR Corridor. The 407 Transitway will provide transit service across the GTA and will link a variety of major urban centres and transit intermodal hubs. The 407 Transitway will be implemented as a busway (BRT); however, the design and footprint of the BRT will allow opportunity to convert to light rail transit (LRT) in the future, if needed.

This Environmental Project Report (EPR) is a document whose main purpose is to provide a comprehensive summary of each step in the study, including;

- Transportation system assessment and derivation of the potential ridership forecast;
- Summary of the existing conditions along the corridor;
- Identification and assessment of alignment and station alternatives;
- Selection of the preferred alignment and station locations;
- Assessment of any environmental impacts of the preferred alternative and the identification of measures to mitigate or reduce any negative impacts;
- Commitments being made by MTO in regard to the future implementation phases;
- Summary of consultation activities with agencies, Indigenous and Métis communities and members of the public; and,
- Potential implementation plan.

The EPR also includes the environmental and technical specialized reports as appendices of the document.

1.1. 407 Transitway Background and Status

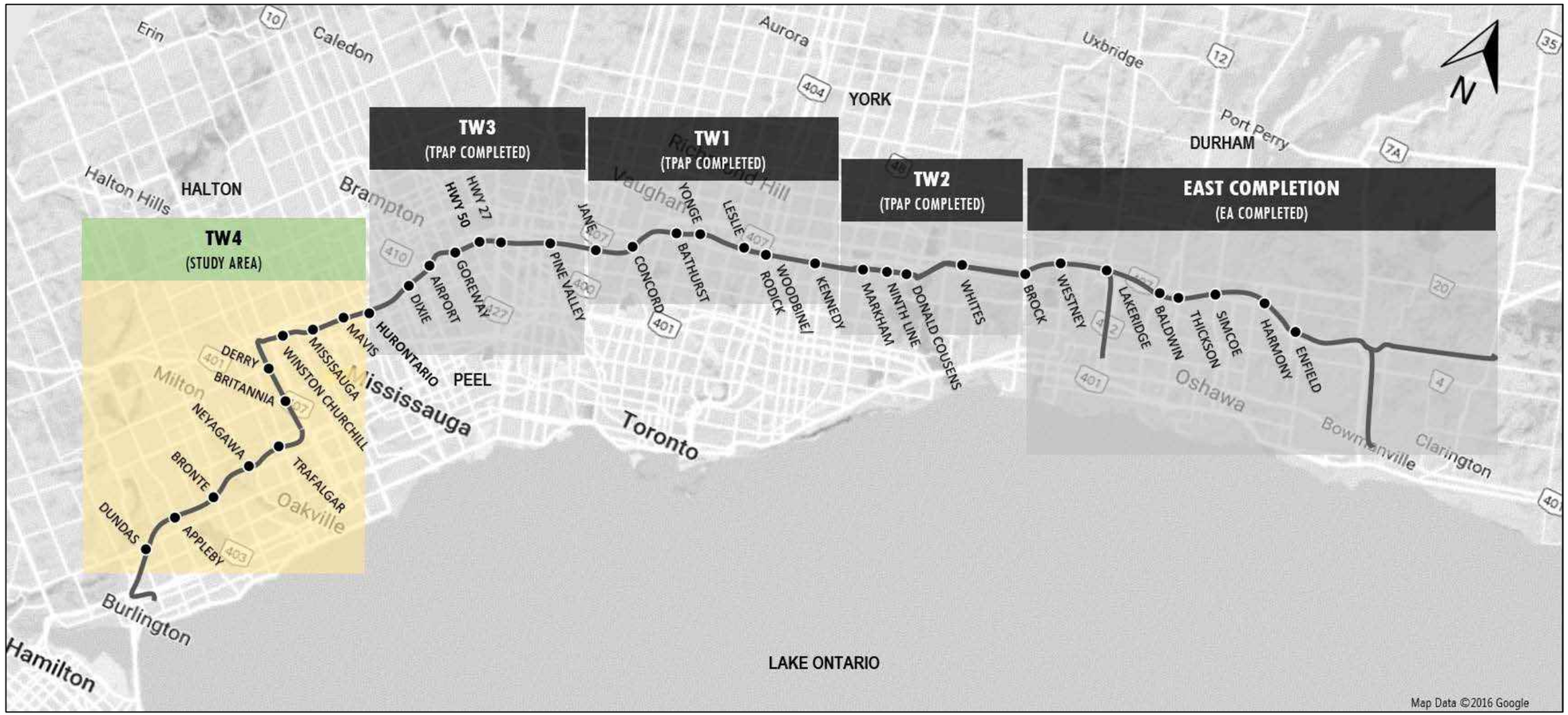
The complete planned 407 Transitway is a 150 km high-speed public transit facility on a separate right-of-way. It will parallel the existing 407 ETR from Burlington (Halton Region) to the Highway 35/115 interchange (Durham Region) (**Figure 1.1**). To meet rapidly growing transportation demands, a cross GTA (east-west) transit facility has been identified as a key element of the future. The 407 Transitway is intended to form a northern spine parallel to the Lakeshore GO corridor that will connect the municipalities in this corridor. The 407 Transitway will also integrate with north-south transit services by providing stations for quick and convenient transfers. The 407 Transitway is a component of the official plans of the stakeholder municipalities and is part of the Province's Move Ontario 2020 Project and the Metrolinx Rapid Transit Plan.

The Ministry of Transportation (MTO) has been actively planning and protecting the required land for the 407 Transitway for the past 30 years. For the section between the Burlington GO Station and Markham Road, the Ministry completed corridor protection studies to ensure that the land required for the 407 Transitway was protected from Provincial land disposal and private development activities.

MTO has received Ministry of the Environment, Conservation and Parks (MECP) approval under the Transit Project Assessment Process (TPAP) Regulation for the sections located between Hurontario Street in Brampton and Brock Road in Pickering and has finalized the TPAP study from Brant Street to Hurontario Street, which is presented in this EPR. For the section between Brock Road and the Highway 35/115 interchange, the Ministry has received Environmental Assessment (EA) approval for the 407 Transitway corridor as part of the Highway 407 East Completion/Transitway EA study.

This current study extends from west of Brant Street (City of Burlington) to west of Hurontario Street (City of Brampton). This section was covered by two MTO Transitway Corridor Protection Studies (CPS) completed in December 1998 and December 2005 and is also designated in the Provincial Parkway Belt West Plan. MTO is seeking TPAP approval for the 407 Transitway, stations, and associated facilities for this section. The study objectives are explained below.

FIGURE 1.1: FULL 407 TRANSITWAY STUDY LIMITS



1.2. Study Purpose & Objectives

The primary purpose and objectives of the undertaking include the following:

- Enhance east-west cross-regional mobility and increase transit capacity to meet forecast travel demand;
- Offer a viable, cost-effective alternative way of moving people in the 407 Corridor;
- Improve accessibility to existing/planned major urban centres/nodes, post-secondary educational institutions, and other nodes of high demand, such as: Burlington Centre, Oakville Centre, Sheridan College, University of Toronto – Erindale Campus and Brampton City Centre;
- Improve integration with the regional transportation network – connecting to the Spadina Subway, the future Yonge Subway Extension, GO Lakeshore, Kitchener, Barrie, Richmond Hill and Stouffville rail lines, the future Hurontario LRT, as well as Halton, Peel, York and Durham Transit systems;
- Reduce automobile dependence and greenhouse gas emissions, contributing to climate change effects; and,
- Identify land protection requirements to accommodate the 407 Transitway infrastructure.

To support these objectives, the scope required that the following activities be undertaken:

- Maintain and apply the comprehensive set of approved design standards for the 407 Transitway, created and approved during the design of the Central, Highway 400 to Kennedy Road section;
- Update and develop detailed ridership estimates based on a 2041 horizon year with projections to 2051;
- Gather existing conditions and future municipal plans, and identify and evaluate alignment and station alternatives, and select preferred design;
- Conduct detailed field investigations in support of the preferred option; assess the environmental effects and develop a mitigation plan for any negative impacts generated by the preferred design;
- Deliver a cost-effective, safe, and innovative design and staging plan for this 43 km section of the 407 Transitway for busway technology that allows for conversion to light rail transit (LRT) in the future, promotes transit ridership and optimizes transit operation and integration; and,
- Recommend and present a phased implementation strategy.

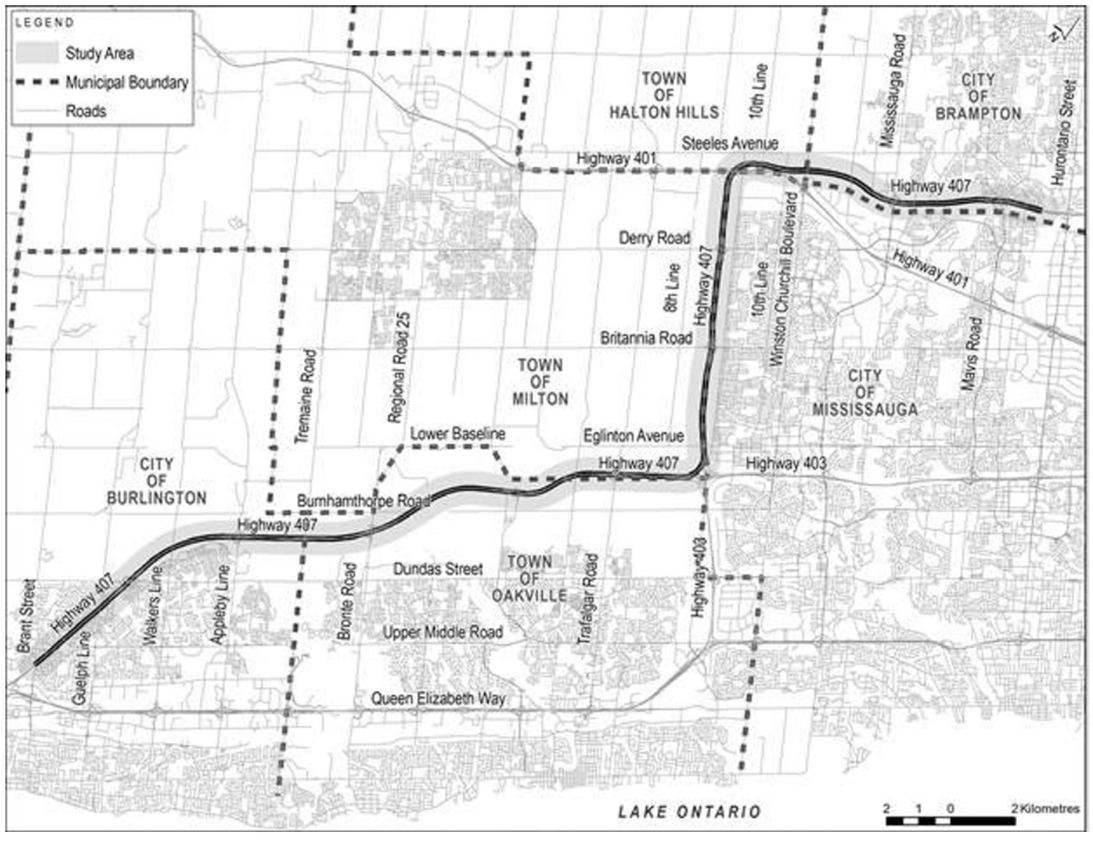
1.3. Study Area

The study area encompasses the proposed section of 407 Transitway corridor from west of Brant Street in the City of Burlington, Region of Halton, to west of Hurontario Street in the City of Mississauga, Region of Peel. **Figure 1.2** illustrates an area of 500 m on each side of the alignment that was covered by the study area; however, the boundaries in which the environmental effects were identified and assessed; and the reason(s) why these areas were considered to be sufficient, is explained below:

- **Terrestrial:** MTO Environmental Reference for Highway Design (2013) states that for all terrestrial ecosystems field investigations, the study area be defined as within the existing and proposed ROW and adjacent lands for 120 m unless a sensitive receptor located more than a distance of 120 m is likely to be adversely affected. As the majority of the anticipated impacts are footprint impacts the project team believes that the study area limits adequately address any terrestrial impacts.
- **Fish Habitat:** MTO Environmental Guide for Fish and Fish Habitat (latest version) presents minimum requirements for area of field investigation which consists of 50 m upstream and 200 m downstream of the limits of the proposed ROW. Further, the zone of detailed field investigation conducted for this study is greater than the area prescribed by the Guide. It consisted of 50 m upstream and downstream. The prescribed area for this zone by the Guide is 20 m upstream and 50 m downstream. Please note that the upstream and downstream distance is measured from the thalweg of the stream and not the straight linear distance from the proposed ROW.
- **Groundwater:** The purpose of the Secondary Source Groundwater Assessment was to identify hydrogeological constraints to the implementation of the 407 Transitway and to assess potential impacts on existing groundwater resources. The 1 km corridor study area is sufficient to identify any potential impacts and requirements for future study at a later phase.
- **Property Contamination and Waste, Archaeology, Cultural Heritage:** The potential impacts are footprint impacts in nature therefore the 1 km wide corridor was determined to be adequate to identify any impacts for the implementation of the transitway.
- **Noise:** Noise Sensitive Areas were identified regardless of size and location. The study area limits cover the noise sensitive areas that will be potentially affected.
- **Air:** The physical boundary does not have any meaning. Impacts were assessed at a much larger regional scale. A detailed description is presented in the Air Quality Report regarding the study area limits.

The assessed boundaries are within the 500 m set-back on either side of the runningway named the study area in the EPR.

FIGURE 1.2: STUDY AREA



1.4. Transit Project Assessment Process

This study was conducted following the Transit Project Assessment Process (TPAP) under Ontario Regulation 231/08: Transit Projects and Metrolinx Undertakings. This regulation allows proponents of all public transit projects to proceed with the TPAP process rather than as traditionally done through Part II of the *Environmental Assessment Act*. The TPAP is a fully-prescribed process in which the proponent must follow specified procedures and timeframes. The Minister of the Environment, Conservation and Parks (MECP) determines if the final transit project can proceed. This integrated TPAP approach is illustrated in **Figure 1.3**.

The study was comprised of three stages: The Planning Stage, the Pre-TPAP (Transit Project Assessment Process), and the TPAP stage. The Environmental Project Report (EPR) encompasses the background of the project, studies, analysis, functional and initial design, evaluation of alternatives, findings and recommendations of the completed stages. Consultation was carried out throughout the process.

As per the regulation, the six-month TPAP process is broken down into three distinct phases:

- The **120-day** consultation and Final EPR preparation period;
- The **30-day** Public, Stakeholder, Regulatory Agencies, and Indigenous and Métis Communities review period; and,
- The **35-day** period for the MECP to respond to all inquiries.

Figure 1.4 illustrates the comprehensive process as detailed by the MECP.

FIGURE 1.3: STUDY PROCESS

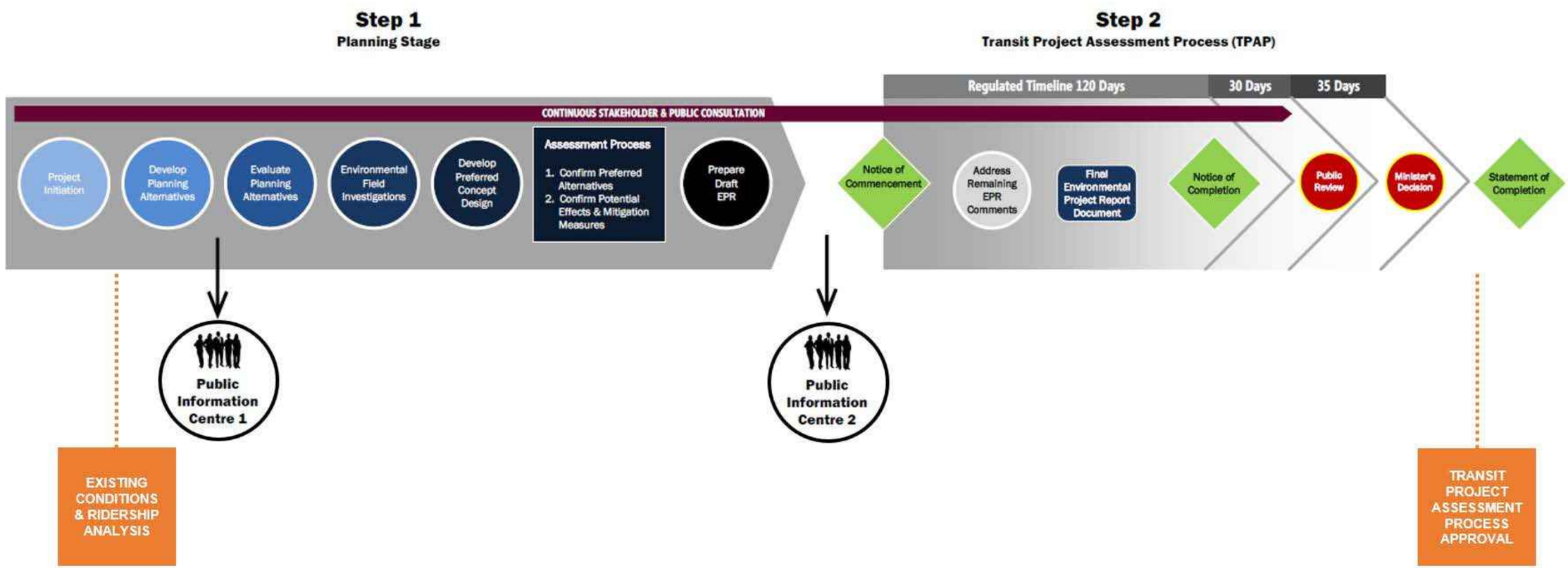
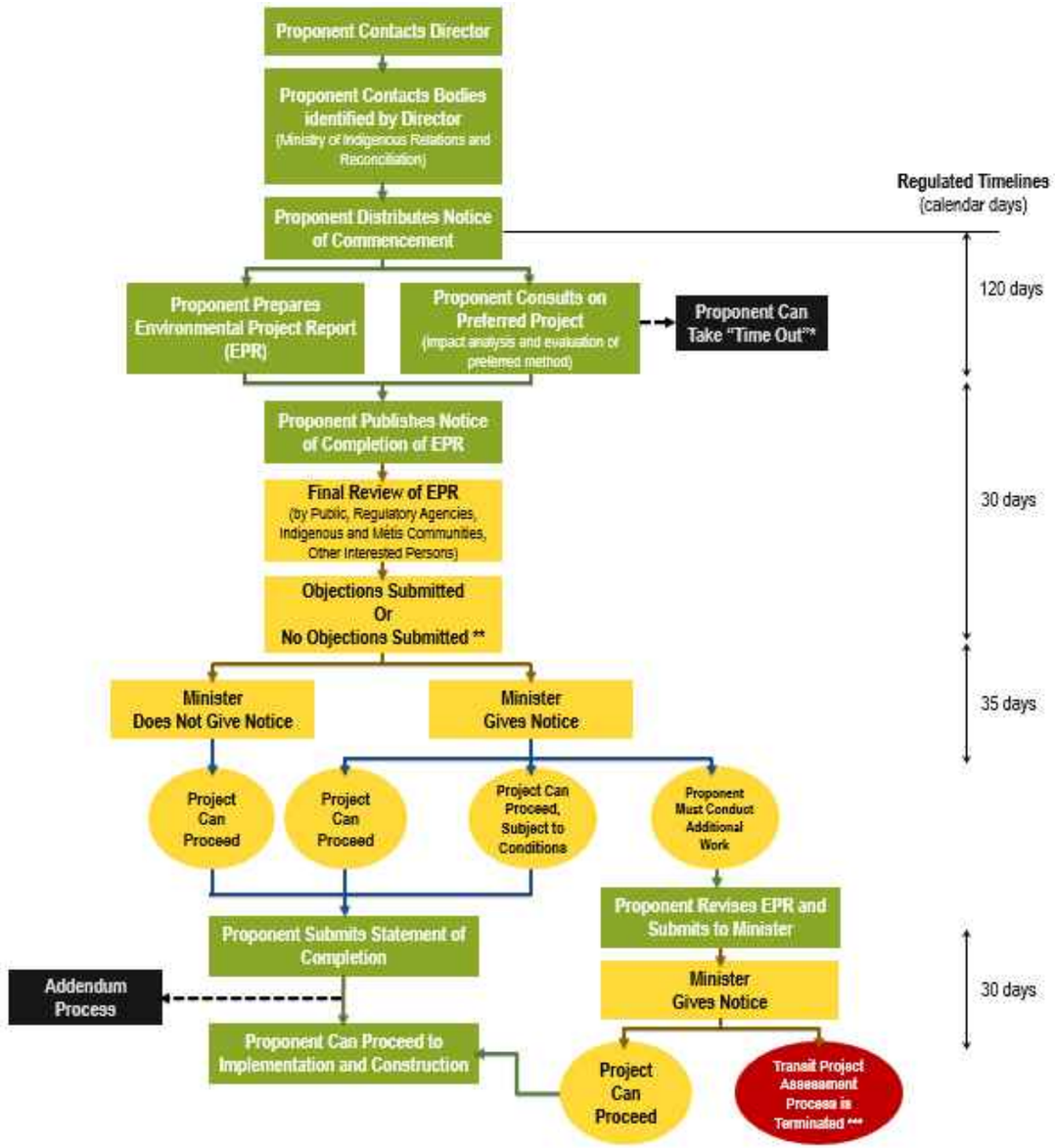


FIGURE 1.4: TPAP PROCESS



* Proponent can take a "time out" only when there is a potential negative impact on a matter of provincial importance that relates to the natural environment or has cultural heritage value or interest or on a constitutionally protected Aboriginal or treaty right.

** Given the Minister's authority to act, concerns or objections should be on the basis that a proposed transit project may have a potential negative impact on a matter of provincial importance that relates to the natural environment or has a cultrual heritage value or interest or on a consitutionally protected Aboriginal or treaty right.

*** Proponent must follow an approved class environmental assessment process (refer to Part (I.1) or the process under Part II of the *Environmental Assessment Act*.

1.5. Background and Context

1.5.1. Statutory Requirements

1.5.1.1. Provincial Legislation - Environmental Assessment Act of Ontario

As noted in **Section 1.4** above, this study followed the Transit Project Assessment Process as per the *Transit Projects and Metrolinx Undertakings, Ontario Regulation 231/*08. This 120-day consultation period started concurrently with the publication of the "Notice of Commencement of the TPAP".

1.5.1.2. Other Provincial Legislation

The 407 Transitway is subject to, and will be carried out in accordance with, all applicable Provincial legislation including the *Planning Act*, the *Public Transportation and Highway Improvement Act*, the *Freedom of Information Act and Protection of Privacy Act*, the *Ontario Heritage Act*, the *Endangered Species Act*, the *Clean Water Act,* and the *Environmental Protection Act,* among others.

1.5.1.3. Federal Legislation –Impact Assessment Act

Federal environmental assessment requirements for this project were investigated early in the study process to identify and address the federal *Impact Assessment Act* requirements. A review of the new legislation and its regulation, the "Physical Activities Regulations" (SOR/2019-285), determined that this project is not identified as a "designated project" that requires an environmental assessment by the Impact Assessment Agency of Canada. Therefore, a Federal environmental assessment process is not required. Nevertheless, Federal agencies and their interests including Fisheries and Oceans Canada, Environment Canada, Transport Canada and others were consulted throughout the study.

1.5.2. Policy Context

Outlined below are the most relevant transportation policies documented in plans and publications by the various levels of government with influence on the planning of the 407 Transitway.

1.5.2.1. Provincial Policy Statement 2020

The Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing, 2020) is issued under Section 3 of the *Planning Act* and provides policy direction on matters of provincial interest related to land use planning and development. The PPS (2020) replaces the previous PPS issued on April 30, 2014. The policy statement includes a range of policies related to three main themes: building strong communities; wise use and management of resources; and, protecting public health and safety.

One of the visions in the PPS, 2014 is the development of land use patterns that promote a mix of housing, employment, parks and open spaces, and transportation choices that facilitate pedestrian mobility and other modes of travel as well as connectivity among transportation modes. Land use

Appendix B – Traffic Reports

407 TRANSITWAY – WEST OF BRANT STREET TO WEST OF HURONTARIO STREET

MINISTRY OF TRANSPORTATION - CENTRAL REGION

Ontario

Final Report

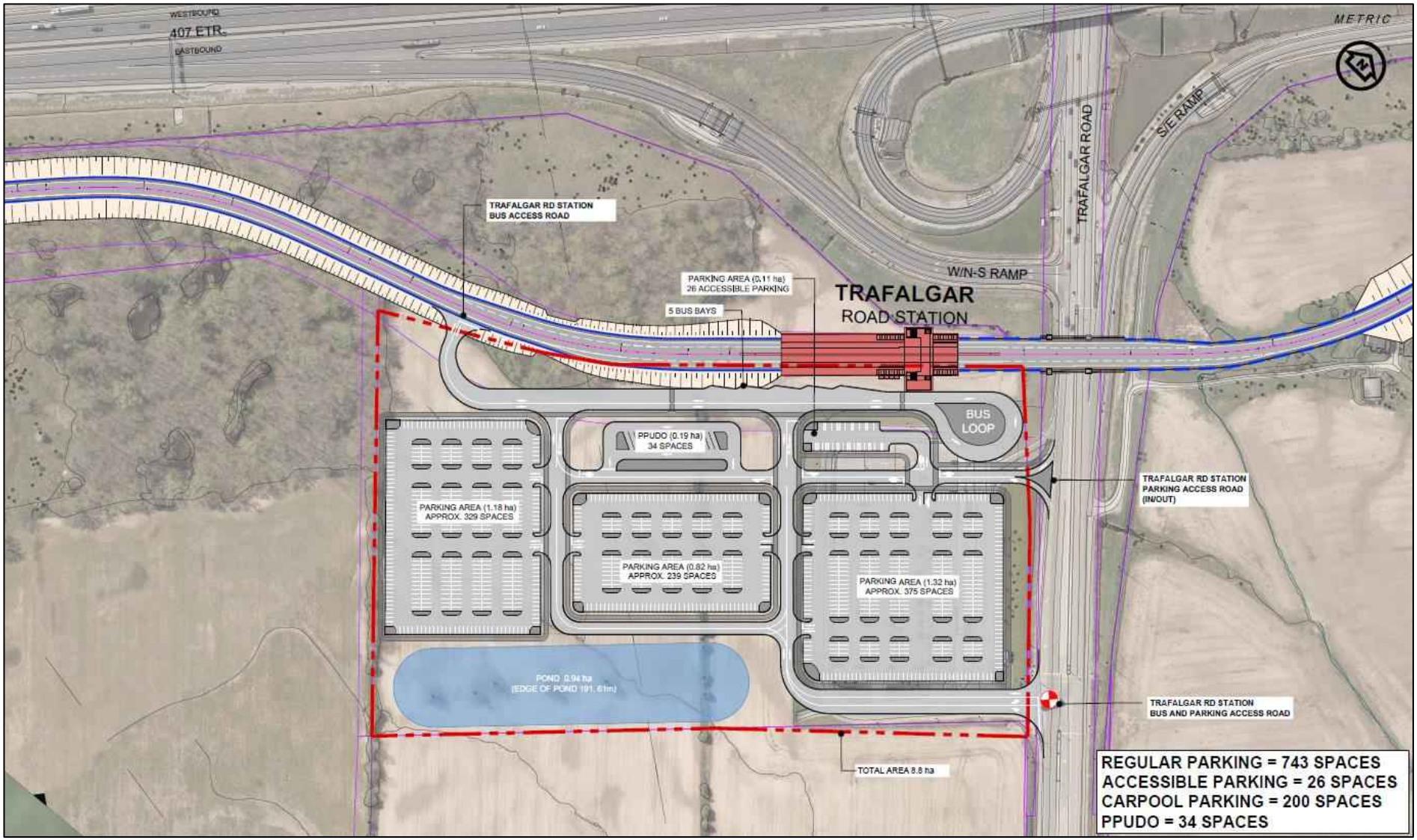
Trafalgar Station Traffic Impact Study

Highway 407 Transitway-4

IBI

Prepared for Ministry of Transportation, Ontario
by IBI Group
November 15, 2019

Exhibit 1-2: Proposed Station Layout



3.2 Transit

Trafalgar road has been identified in Halton Region's Transportation Master Plan as a 'Bus Rapid Transit' (BRT) corridor and it is expected that significant improvements will be conducted to accommodate the BRT.

3.3 Active Transportation

The City of Oakville Active Transportation Master Plan has identified Trafalgar Road as a future in boulevard multi-purpose trail. This would connect to the Transitway station to active transportation network in Oakville. There also is a proposed off road trail that would serve as an alternate connection between the Transitway station and William Halton Parkway west of Trafalgar Road.

3.4 Station Traffic

3.4.1 Station Trip Generation

Ridership forecasts were provided by MTO and sourced from MTO's Greater Golden Horseshoe Travel Demand Model V4. The model is an advanced state-of-practice multi-modal travel demand model that estimates future travel demands within the Greater Golden Horseshoe. The GGHM was developed to forecast peak period demand in support of the Growth Plan policies and has the capability of predicting mode shifts resulting from new public transit infrastructure. It can also be used to test network response to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

The GGH model accounts for planned and committed road and transit projects sourced from Metrolinx Regional Transportation Plan and local transportation plans. While it is possible that additional projects will be funded over the upcoming years, this model represents a conservative approach.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. As MTO's GGH model is to a 2041 horizon, ridership projections for 2031 were not available. Therefore the 2041 demands were carried forward on the basis that entry and exit volumes would be conservative (the resulting turning lanes and queue storage would accommodate 2031 demand) as provided in Exhibit 3-2.

Exhibit 3-2: 2041 AM Peak (2-hour) Boardings

STATION	TOTAL 2-HR BOARDINGS	2-HR PARK-AND-RIDE	2-HR WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Dundas	923	510	413	55%	45%
Appleby	227	207	20	91%	9%
Bronte	306	90	216	29%	71%
Trafalgar	**3,095**	**436**	**2,659**	**14%**	**86%**
Britannia	523	136	387	26%	74%
Derry	911	334	577	37%	63%
Mississauga	982	82	900	8%	92%
Total:	6,967	1,795	5,172	26%	74%

Ontario

Final Report

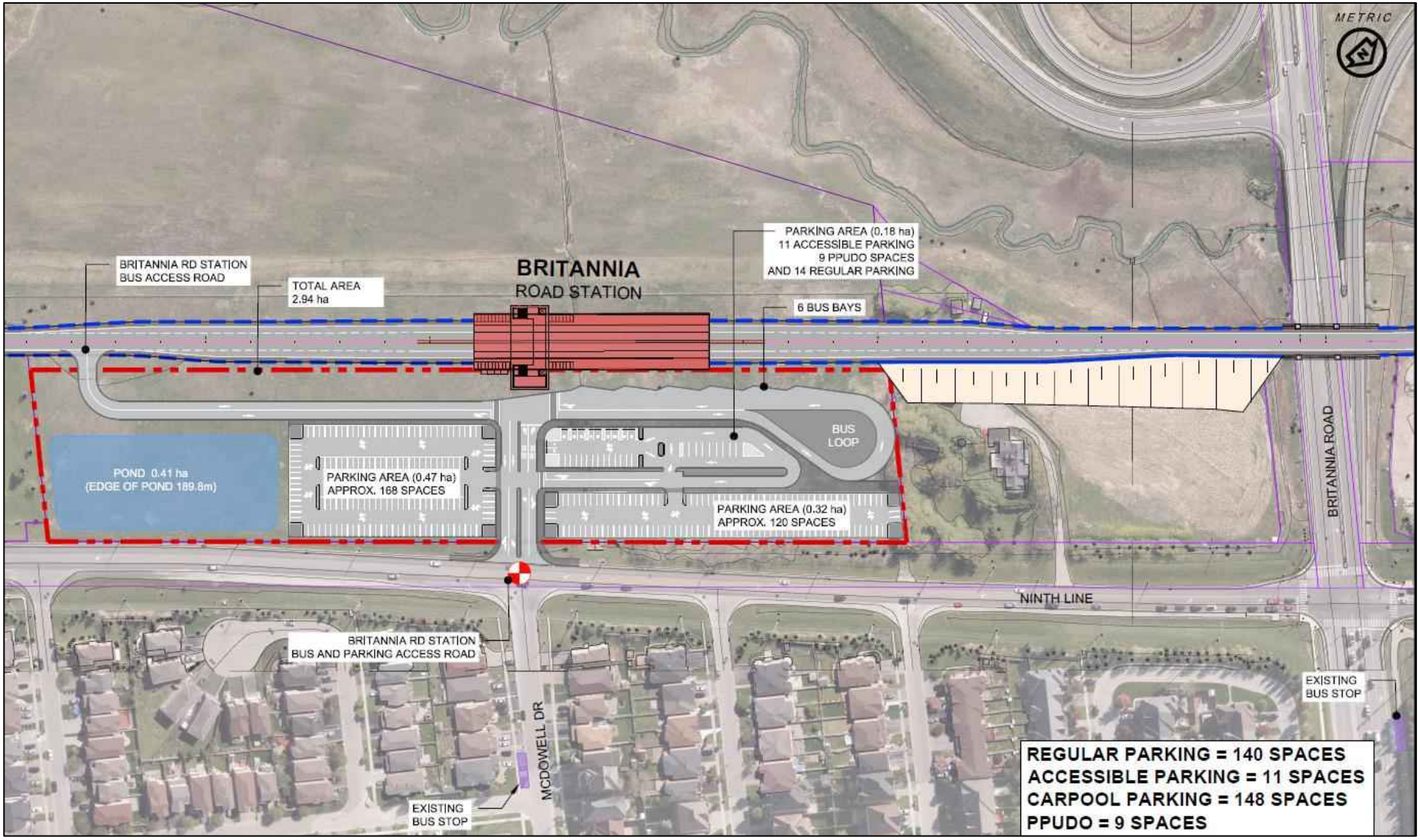
Britannia Station Traffic Impact Study

Highway 407 Transitway-4

IBI

Prepared for Ministry of Transportation, Ontario
by IBI Group
November 15, 2019

Exhibit 1-2: Proposed Station Layout



can also be used to test network response to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

The GGH model accounts for planned and committed road and transit projects sourced from Metrolinx Regional Transportation Plan and local transportation plans. While it is possible that additional projects will be funded over the upcoming years, this model presents a conservative approach.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. As MTO's GGH model is to a 2041 horizon, ridership projections for 2031 were not available. Therefore the 2041 demands were carried forward on the basis that entry and exit volumes would be conservative (the resulting turning lanes and queue storage would accommodate 2031 demand) as provided in Exhibit 3-1.

Exhibit 3-1: 2041 AM Peak (2-hour) Boardings

STATION	TOTAL 2-HR BOARDINGS	2-HR PARK-AND-RIDE	2-HR WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Dundas	923	510	413	55%	45%
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Bronte	306	90	216	29%	71%
Trafalgar	3,095	436	2,659	14%	86%
Britannia	**523**	**136**	**387**	**26%**	**74%**
Derry	911	334	577	37%	63%
Mississauga	982	82	900	8%	92%
Total:	6,967	1,795	5,172	26%	74%

From the above exhibit, two hour park-and-ride boardings were equated to two hour inbound vehicle trips at an assumed factor of 10:11, or 1.1 riders per park-and-ride vehicle. To convert to a.m. inbound peak hour volumes, a factor of 0.56 was applied. This factor was developed through a review of existing travel patterns using Transportation Tomorrow Survey (TTS 2016) data. The resulting a.m. peak hour inbound vehicle flow is 69 vph and rounded to 70 vph.

Further processing of forecasts was required to estimate a.m. outbound traffic, associated with kiss-n-ride drop off trips, and p.m. peak hour traffic. The ITE Trip Generation Manual (9th edition) provided ratios of inbound to outbound and a.m. to p.m. traffic for typical park-and-ride bus stations. Average trip generation rates for bus stations with park-and-ride lots are indicated in Exhibit 3-2. Using the ratios provided, Exhibit 3-3 lists the estimated station traffic generated give the above assumptions.

ENVIRONMENTAL PROJECT REPORT

407 TRANSITWAY – WEST OF BRANT STREET TO WEST OF HURONTARIO STREET

MINISTRY OF TRANSPORTATION - CENTRAL REGION

ASSIGNMENT # 2016-E-0038 G.W.P. 16-20003

AUGUST 13, 2020

APPENDIX F.4

5080 Ninth Line TIS Excerpts

TRAFFIC IMPACT STUDY

5080, 5054, 5034 NINTH LINE
RESIDENTIAL DEVELOPMENT
CITY OF MISSISSAUGA,
REGIONAL MUNICIPALITY OF PEEL

PREPARED FOR:
YOUR HOME DEVELOPMENTS

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.
211 YONGE STREET, SUITE 301
TORONTO, ON
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OCTOBER 2021

CFCA FILE NO. 1740-5259

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CROZIER
CONSULTING ENGINEERS

2.0 Introduction

2.1 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Your Home Developments to prepare a Traffic Impact Study in support of the development application for the proposed residential development located at 5080, 5054 and 5034 Ninth Line in the City of Mississauga, Regional Municipality of Peel. The site is bound by an animal hospital to the north, an existing residential dwelling to the south, Ninth Line to the east and Highway 407 to the west.

The subject property is located within the Ministry of Transportation of Ontario (MTO)'s permit control area, which includes the area within 395 metres of the centre point of a controlled-access highway and within 45 metres of the right-of-way. The subject property is bound by Highway 407 to the west and is thus within the MTO's permit control area.

2.2 Development Proposal

Per the Site Plan prepared by Krikor Architects and Planners (dated September 20, 2021), the development scope consists of a total of 1270 residential dwelling units and 7000 square feet of retail. A total of 1605 parking spaces are proposed, including 35 surface parking spaces dedicated to retail and the remaining spaces being located in two underground parking garages. The site additionally proposes 872 long-term and 100 short-term (including retail) bicycle parking spaces. Further, the site is expected to be serviced by two site accesses. First, the Mahoney Gate, herein referred to as "Street B", is expected to serve as the main site access, connecting with Ninth Line at Skyview Street. Second, a separate site access is provided through Viola Desmond Drive, herein referred to as "Street A", which serves as the main throughfare of the future 5150 Ninth Line development. Street A connects to Ninth Line just north of Candlelight Drive. **Table 1** summarizes the proposed development statistics by building. The Site Plan is provided within **Appendix B.1**. The composite plan of the proposed development along with proposed developments at 5150, and 5160-70 Ninth Line are shown within **Appendix B.2.** The second site access connection to the proposed development via Street A is shown on the composite plan.

Table 1: Development Proposal

Building	Total Units	Total Retail GFA	Number of Stories
Building A	340	None	12
Building B	185		12
Building C	263		12
Building D	149		10
Building E	141	7000 (sq. ft)	6
Building F	168	None	8
Townhouse Building 1	12		3
Townhouse Building 2	12		3
Total	**1270**	7000 (sq. ft)	

The proposed development makes allowance for the future bus-rapid transit (BRT) 407 Transitway planned by the MTO which will span through the subject property running parallel to Highway 407. The 407 Transitway is discussed in more detail in **Section 4.4.2.**

The forecasted future background operations herein at the study intersections are consistent with the findings of the MMM Study and the Ninth Line EA Study. Further, the boundary road network is projected to operate effectively under the 2035 future background conditions with implementation of the roadway improvements outlined in this section, supported by the Ninth Line EA and the MMM study. As highlighted in the tables, the study intersections are forecast to operate similarly or better under the 2025 and 2030 horizons compared to the ultimate 2035 horizon.

5.0 Site Generated Traffic

The proposed development will result in additional vehicles on the boundary road network that would otherwise not exist. The proposed development will also result in additional turning movements at the study intersections.

5.1 Trip Generation

Trip generation for the proposed development was forecasted using published data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The ITE Trip Generation Manual is a compendium of industry collected trip generation data across North America for a variety of land uses and is used industry-wide as a source for trip generation forecasts.

Under a previous site plan, the proposed development included a total of 1300 residential units instead of the now proposed 1270. The trip generation forecast assumes a total of 1300 residential units, meaning the estimates for site trips can be said to be conservative. Multiple Land Use Categories were applied to the proposed development as outlined in **Table 25** below. The greater trip generation estimate of the fitted curve equation and the rate equation is used for all land use categories.

Table 25: Site Trip Generation

Buildings	Units or GFA[1]	Land Use	Peak Hour	Trips Generated		
				Inbound	Outbound	Total
Buildings A,B,C (High-Rise)	795 Units	LUC 222 "Multifamily Housing (High-Rise)"	A.M.	59	187	246
			P.M.	175	112	287
Buildings D,E,F Mid-Rise Residential	481 Units	LUC 221 "Multifamily Housing (Mid-Rise)"	A.M.	47	135	182
Back-to-back Townhouses	24 Units		P.M.	136	87	223
Building F Retail	7000 Sq. ft	LUC 820 "Shopping Centre"	A.M.	4	3	7
			P.M.	36	39	75
Total			**A.M.**	**110**	**325**	**435**
			P.M.	**347**	**238**	**585**

The full build-out of the proposed development is expected to generate a total of 435 and 585 total two-way trips during the weekday a.m. and p.m. peak hours, respectively.

5.2 Access Configuration

The development proposes one public roadway access connection on the west side of Ninth Line located at the current Ninth Line and Skyview Street intersection. Under earlier iterations of the site plan, the site access was proposed to connect at the Stardust Drive intersection with Ninth Line, as was identified in the MMM report. However, the Ninth Line and Skyview Street intersection was identified as the preferred access connection alternative for the proposed development within the Ninth Line EA Transportation report. The overall intersection operations were most preferrable under this scenario, with limited queuing issues and good intersection performance. Therefore, the analysis herein assumes a site access at Ninth Line and Skyview Street. Ninth Line EA Analysis excerpts are provided in **Appendix F**.

5.3 Boundary Road Network Trip Distribution

The trips generated by the proposed development were distributed to the boundary road network using a similar methodology employed in the 5150 Ninth Line TIS. Excerpts from the report have been provided in **Appendix K**.

The trip distribution was determined based on 2016 Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive survey of transportation characteristics of households in the Greater Toronto Area (GTA) and surrounding areas.

For the proposed development, TTS results were filtered to auto trips exiting 2006 GTA Zones 3615, 3616, 3809, 3810 and 3811 during the weekday a.m. peak period. These zones consist of the residential zones along the Ninth Line corridor, and thus were considered to be appropriate for trip distribution analysis. The row variable was set to "Planning District of Destination" and the column variable was set to "Use of 407" to quantify the number of trips travelling to each destination that use Highway 407 ETR.

From this query, trip destinations were determined, and percentage of trips assigned to each destination was accounted for. Trips were assumed to travel to and from their destination points based on the most convenient route, considering trips using Highway 407 ETR and trips not using Highway 407 ETR.

It was determined that approximately 65% of the total outbound trips exiting the study area during the weekday a.m. peak period are internal to Mississauga. Accordingly, trip distribution internal to Mississauga was determined using a combination of existing travel patterns, expected destinations, and TTS results for trips travelling within Planning District "Mississauga."

The resultant boundary road network trip distribution is outlined in **Table 26.**

Table 26: Boundary Road Network Trip Distribution

Arriving From / Departing To	Greater Toronto Area (GTA) Trip Locations	Total Percentage
Ninth Line (north)		**30%**
Ninth Line (north)	Northern Mississauga, Brampton, Vaughan, Markham, Milton, etc.	*30%*
Ninth Line (south)		**20%**
QEW Niagara via Ford Drive	*N/A*	*0%*
QEW Toronto via Ford Drive	*Downtown Toronto, Etobicoke, etc.*	*10%*
Ninth Line (south) only Ie. No QEW	*Hamilton, Oakville, Burlington etc.*	*10%*
Eglinton Avenue West (east)		**40%**
Highway 403 (East) via Winston Churchill Boulevard	*Midtown Toronto, Eastern Mississauga*	*30%*
Winston Churchill Boulevard (south) via Eglinton Avenue West (east)	*Southern Mississauga*	*5%*
Eglinton Avenue West (east) only (no 403 or Winston Churchill Boulevard))	*Local Destinations*	*5%*
Local Trips (east)		**5%**
Erin Centre Boulevard	*Local Destinations*	*3%*
Skyview Street	*Local Destinations*	*2%*
East Lower Base Line (west)		**5%**
East Lower Base Line (west)	Brantford, Niagara, etc.	*5%*
Total		**100%**

Note 1: All other trip locations within the City of Mississauga not described for the other boundary road network entry/exit locations (ie. Ninth Line (north), Ninth Line (south), East Lower Base Line (west), and Highway 403 (East) via Winston Churchill Boulevard not used) use the Highway 403 (East) via Winston Churchill Boulevard entry/exit location.

Trips arriving from and departing to the north via Ninth Line include trips using Highway 407 ETR (east) and trips to and from areas internal to Mississauga (e.g., Meadowvale Town Centre). Trips arriving from and departing to the south via Ninth Line include trips using Highway 403 (west), the Queen Elizabeth Way (QEW), and trips to and from areas internal to Mississauga (e.g., Port Credit).

Trips arriving from and departing to the east via Eglinton Avenue West include trips using Highway 403 (east) via Winston Churchill Boulevard, and trips to and from areas internal to Mississauga along Eglinton Avenue West and Winston Churchill Boulevard. Trips arriving from and departing to the west via East Lower Base Line include trips using Highway 407 ETR (west) via Trafalgar Road. **Appendix M** contains the TTS data.

5.4 Access Trip Distribution

Due to the subject site sharing an internal private roadway with the adjacent 5150 Ninth Line residential development, it is expected that some trips will enter and exit the site via the Street A access connection in addition to the Street B access connection. Therefore, an access trip distribution was determined for the proposed development and is described in this section. A similar circumstance occurs for the 5150 and 5160/5170 Ninth Line background developments, where the

previous trip distribution will be altered due to the addition of the Street B site access. The trip distribution for these background developments is outlined within **Section 4.4.4** and **Section 4.4.5**, and provided as **Figure 11**.

The access trip distribution (for traffic both entering or exiting the site) allocates 33% and 65% of the total traffic onto Ninth Line to the locations just north of the Street A access and the location just south of the Street B site access, respectively (herein called the "north approach" and "south approach", respectively). This is consistent with the Boundary Road Network Trip Distribution outlined in **Section 5.3**. As an example, the boundary road network trip distribution entering or leaving the subject site at the north approach consists of trips via Erin Centre Boulevard (3%) and trips on Ninth Line north (30%). This adds to 33%, hence the choice for the 33% access trip distribution amount allocated to traffic entering or leaving to the north.

The access trip distribution for movements at the Street A and Street B access connections with Ninth Line were determined based on a review of the methodologies employed within the Ninth Line EA, MMM report, and 5150 Ninth Line TIS. Additionally, expected travel patterns based on shortest distance and expected travel time distances for turns at a signalized and non-signalized intersection were factored into the access trip distribution determination.

Furthermore, it should be noted that the outbound trip distribution at Street A for trip originated from the proposed development has been assigned a value of 0%. This was considered reasonable after preliminary traffic analysis suggested that capacity is very limited at the Street A access, primarily due to the unsignalized traffic control and a lack of sufficient gaps in traffic on Ninth Line for left-turning vehicles. The relatively short delays expected at the Street B access and signalized intersection control, make this access the preferred access for all outbound movements during the peak hours. The resultant access trip distribution is presented in **Table 27**.

Table 27: Access Trip Distribution

Ninth Line Access	Roadway Arriving from / Leaving to	Inbound Trip Distribution	Outbound Trip Distribution
Street A	Ninth Line (north)	**5%**	**0%**
Street A	Ninth Line (south)	**0%**	**0%**
Street B	Ninth Line (north)	**28%**	**33%**
Street B	Skyview Street (east)	**2%**	**2%**
Street B	Ninth Line (south)	**65%**	**65%**

Figure 17 outlines the trip distribution for the proposed development.

5.5 Trip Assignment

The trip distribution outlined in **Section 5.3** and **Section 5.4** was applied to the site trip generation to calculate the trip assignment for the proposed development. Trips were assumed to travel to and from their destination points based on the most convenient route. **Figure 18** outlines the trip assignment for the proposed development.

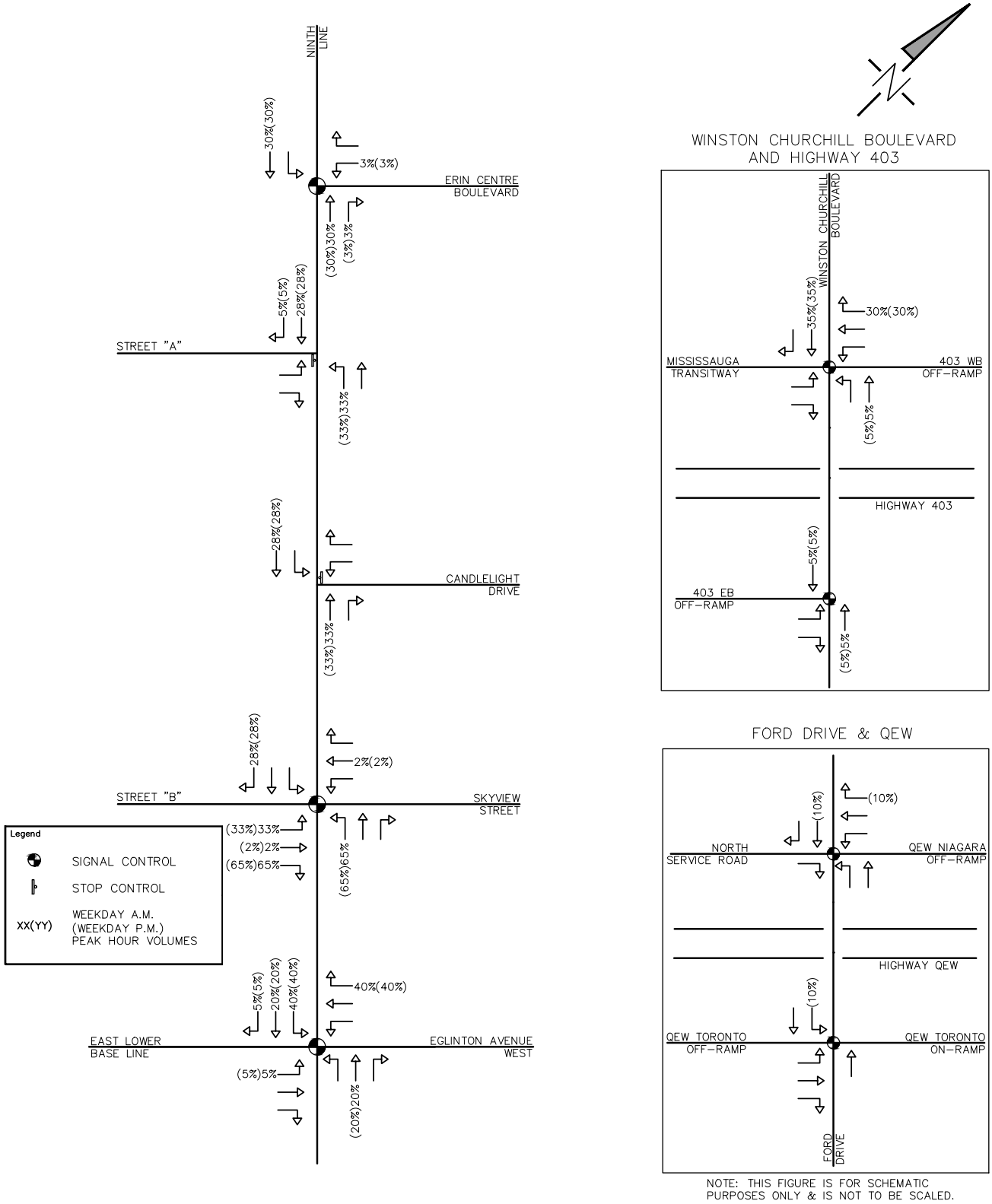


Figure 17: Site Trip Distribution

6.0 Future Total Conditions

6.1 Signal Warrant Analysis

A signal warrant analysis was conducted for the following cases:

- Ninth Line and Street B – 2025 Future Total; and
- Ninth Line and Street A – 2035 Future Total

The analysis followed the procedures specified in Chapter 4 of the "Ontario Traffic Manual – Book 12", March 2012. Justifications 1 (Minimum Vehicular Volume), 2 (Delay to Cross Traffic), 3 (Combination of Justifications 1 and 2), and 4 (4-Hour Volume) were selected as the most appropriate warrants with which to assess the site connections.

The average hour volume was determined using the following formula from OTM Book 12:

AHV = (amPHV + pmPHV) / 4

Where;
AHV = average hour volume
PHV = peak hour volume

Despite the existing speed limit of 70 km/h on Ninth Line being considered "free flow" in the signal warrant analysis, an "urban" operating environment was applied to the signal warrant analysis to reflect the urbanization of the Ninth Line corridor. **Table 28** outlines the results of the signal warrant analysis.

Table 28: Signal Warrant Analysis Results

Location	Operating Environment	Horizon Year	Number of lanes on major road	Traffic Signals Warranted?
Ninth Line and Street A	Urban	2035 Future Total	Two	No
Ninth line and Street B	Urban	2025 Future Total	Two	Yes

The results of the signal warrant analysis indicate that traffic signals are warranted, at the intersection of Ninth Line and Street B / Skyview Street. This conclusion reflects the assessment within Section 4.2 of the Traffic Analysis undertaken by HDR in support of the Ninth Line EA (excerpts provided in **Appendix F**), which recommends signalization of the Ninth Line and Street B / Skyview Street intersection.

It is noted that the conclusion of warranted signalization at the intersection of Ninth Line and Skyview Street / Street B in the 2025 Future Total scenario conveys that, during the subsequent horizon years in 2030 and 2035, signals are additionally warranted at the intersection. Similarly, for the intersection of Ninth Line and Street A, the conclusion that signalization is not warranted conveys that, during the previous horizon year in 2025 and 2030 for both Future Background and Future Total and the 2035 Future Background scenario, signals are not warranted. **Appendix N** contains the signal warrant sheets.

6.2 Left-Turn Lane Analysis

A left-turn warrant analysis was conducted for the northbound left movement at Ninth Line and Street A under 2035 Future Total conditions. This was performed in order to compare the results with the 5150 Ninth Line TIS and recommend improvements as needed.

The analysis was conducted using the Ministry of Transportation (MTO)'s "Design Supplement for TAC Geometric Design Guide for Canadian Roads – June 2017." (TAC-GDGCR). The analysis was conducted using the warrant for "Left Turn Storage Lanes for Four-Lane Undivided Highways Unsignalized." As Street A will be located on the west side Ninth Line, the northbound left-turn movement was analyzed for left-turn lane requirements. **Table 29** outlines the results of the left-turn lane warrant analysis.

Table 29: Left-Turn Lane Warrant Analysis Results

Location	Movement	Horizon Year	Number of lanes on major road	Left-Turn Lane Storage Requirement?
Ninth Line and Street A	NBL	2035 Future Total	Four	Yes – 25m storage length

The results of the left-turn lane analysis indicate that an auxiliary northbound left-turn lane is warranted at the intersection under 2035 future total conditions, with a storage length of 25m. This is the same conclusion to what was identified in the 5150 Ninth Line TIS under 2024 Future Total conditions. For Synchro modelling purposes, a 30m storage length for the northbound left movement was used to maintain consistency with the 5150 Ninth Line TIS. Given the proposed southbound left-turn lane storage lane for the Ninth Line and Candlelight Drive intersection per the Ninth Line EA design drawings (provided within **Appendix F**), it is recommended the approximately 100m distance between the two intersections be distributed at 25m per left turn and the remaining length be a shared two-way taper; alternatively, as is expected for most of the Ninth Line corridor, a two-way left turn lane median marking may be implemented along the segment from Street A to Street B to provide left turning storage opportunities in both directions at the intersections involved.

A northbound left turn is also recommended for the signalized intersection of Ninth Line and Skyview Street / Street B. Based on the traffic analysis as presented in **Section 6.5**, a 25m storage is forecast to be adequate**. Appendix O** contains the left-turn warrant analysis worksheets.

6.3 Right-Turn Lane Warrant Analysis

Auxiliary right-turn lane warrant analysis was conducted at the proposed Street A and Street B connections to Ninth Line under the 2035 future total conditions. As the proposed site accesses will be located on the west side Ninth Line, the southbound right-turn movement was analyzed for right-turn lane requirements.

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GFGCR), June 2017, a right-turn auxiliary lane on an urban or rural road should be implemented at unsignalized intersections when the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard. Similarly, consideration for a right turn storage is typically expected for a signalized intersection when there are operational issues and where repurposing a shared lane is expected to greatly improve operations at the intersection.

It is a common convention in traffic engineering that an auxiliary right-turn lane should be provided where right-turn volumes exceed 60 vehicles per hour. The forecasted southbound right-turn volumes at Street A under 2035 future total conditions are below 60 vehicles per hour. The southbound right trips at Street B is expected to occasionally exceed 60 trips in the p.m. peak hour, however, no operational issues are forecast; therefore, similar to the EA recommendation for adjacent Ninth Line intersections such as Erin Centre Boulevard and Candlelight Drive. Therefore, a shared outer lane for both through and right turn into Street A and Street B is recommended.

6.4 Site Access Turning Lane Configurations

Based on the 2035 future total traffic operations outlined in **Section 6.5**, a cross-section at Street B connection to Ninth Line which includes one outbound left-turn lane, one outbound shared through and right-turn lane and one receiving inbound lane would be sufficient to accommodate site generated traffic. Accordingly, Street B was modelled in Synchro with a left-turn lane with a 15m storage length, a shared through and right-turn lane, and an inbound lane. The actual recommended left-turn lane storage length for the intersection approach is determined based on the queuing results of the traffic modelling.

The Street A approach to Ninth Line was modelled with a single lane for left and right-turn movements. This approach is consistent with the 5150 Ninth Line TIS under the sensitivity analysis, which included trips from the proposed development (excerpts provided in **Appendix K**). The proposed configuration is also consistent with the Transportation Report of the Ninth Line EA (excerpts provided in **Appendix F**).

As discussed in **Section 6.2**, the northbound left turn storage lanes are required at the intersection of Ninth Line with Street A and Street B. Based on the analysis presented in **Section 6.5**, northbound left turn storage lengths of approximately 25m and 50m are forecast to be adequate for the Street A and Street B, respectively. It is however, recognized that a two-way left turn median lane is planned along the Ninth Line corridor which will provide additional storage than required. **Figure 19** outlines the boundary road network lane configurations used for the future total scenarios.

6.5 Intersection Operations

The future total intersection operations at the study intersections were analyzed using the 2025, 2030 and 2035 future total traffic volumes illustrated in **Figures 20, 21 and 22,** respectively, and revised signal timings as outlined in **Section 3.8.2**. Detailed capacity analysis worksheets are included in **Appendix G**. **Tables 30, 31 and 32** outline the 2025, 2030, and 2035 future total traffic operations for MTO intersections. **Tables 33, 34 and 35** outline the 2025, 2030, and 2035 future total traffic operations for City of Mississauga intersections.

APPENDIX F.5

5150 Ninth Line TIS Excerpts

TRAFFIC IMPACT STUDY & OPERATIONS AND SAFETY ASSESSMENT

5150 NINTH LINE
RESIDENTIAL DEVELOPMENT
CITY OF MISSISSAUGA,
REGIONAL MUNICIPALITY OF PEEL

PREPARED FOR:
MATTAMY HOMES

PREPARED BY:

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ORIGINAL - OCTOBER 2019
UPDATE – JUNE 2022

CFCA FILE NO. 780-5251

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CROZIER
CONSULTING ENGINEERS

2.0 Introduction

2.1 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Mattamy Homes to prepare a Traffic Impact Study in support of the development application for the proposed residential development located at 5150 Ninth Line in the City of Mississauga, Regional Municipality of Peel.

A Traffic Impact Study was originally submitted in October 2019 in support of the proposed development with three subsequent submissions made to address City comments pertaining to each of the Phases 1 and Phases 2 of the proposed development. This Traffic Impact Study addresses the City of Mississauga comments received in February 2022 regarding Phase 2 of the proposed development.

2.2 Development Proposal

Per the Concept Plan prepared by Korsiak Urban Planning (dated June 9, 2022), the development will consist of a total of 173 residential townhouse dwelling units constructed over two phases. **Table 1** outlines the proposed development statistics for both phases of the development.

Table 1: Development Proposal

Phase	Unit Type	Total Units	Original Anticipated Build-Out	Proposed Access Connections
1	Dual Frontage Townhouse	17	2021	Public Road connection to Ninth Line (approximately 120 metres north of Candlelight Drive)
	Street Townhouse	67		
	Freehold Townhouse	17		
	Back-To-Back Townhouse	26		
	Total	**127**		
2	Street Townhouse	4	2022	
	Back-To-Back Townhouse	42		
	Total	**46**		
Full Build-Out (Total)		**173**		

Though the development timelines is expected to shift from originally anticipated in 2019, the study horizons were maintained for consistency with the previous submissions. Further, moving the horizons is not expected to materially change the Study findings. The proposed public road within the site will also connect to the adjacent 5080 Ninth Line property to the south upon build-out of the adjacent property. This adjacent 5080 Ninth Line development has been accounted for as a sensitivity analysis within this TIS Update (see Section 7.0).

As part of the latest update to the site plan, the official street names for the roadway are identified on the site plan. Below is a list of the name designations:

- Street "A" – Viola Desmond Drive
- CEC Roads "A" & "B" – Lebold Lane
- CEC Road "C" – Raybria Way
- CEC Road "D" – Bench Row

Table 14: Trip Generation

Phase 1 (2021)					
ITE Land Use Category	**Units**	**Peak Hour**	**Trips Generated**		
			Inbound	**Outbound**	**Total**
LUC 220 "Multifamily Housing (Low-Rise)"	128	A.M.	14	46	60
		P.M.	46	28	74
Full Build-Out (2024)					
ITE Land Use Category	**Units**	**Peak Hour**	**Trips Generated**		
			Inbound	**Outbound**	**Total**
LUC 220 "Multifamily Housing (Low-Rise)"	175	A.M.	18	63	81
		P.M.	61	36	97

The full build-out of the proposed development is expected to generate a total of 81 and 97 two-way trips during the weekday a.m. and p.m. peak hours, respectively. Given the sole residential land use, no internal synergy trips or pass-by trips are expected for the proposed development.

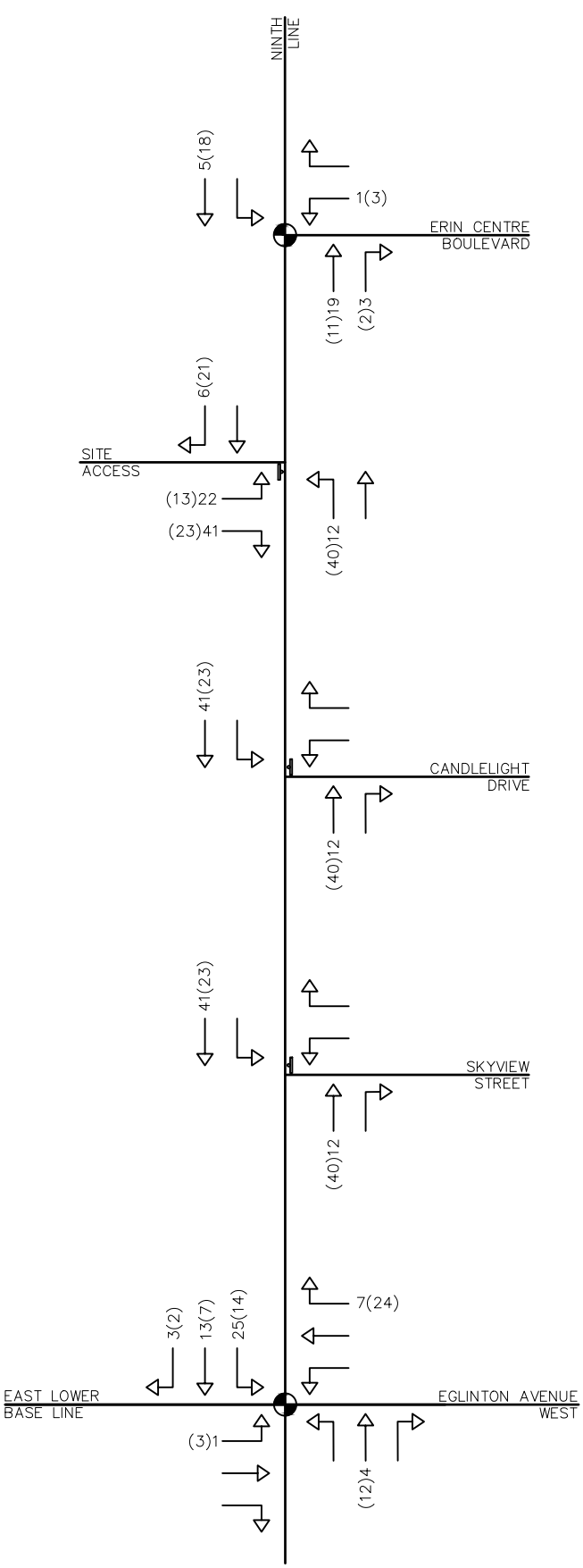
5.2 Trip Distribution

The trips generated by the proposed development were distributed to the boundary road network based on 2016 Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive survey of transportation characteristics of households in the Greater Toronto Area (GTA) and surrounding areas.

For the proposed development, TTS results were filtered to auto trips exiting 2006 GTA Zones 3615, 3616, 3809, 3810 and 3811 during the weekday a.m. peak period. These zones consist of the residential zones along the Ninth Line corridor, and thus were considered to be appropriate for trip distribution analysis. The row variable was set to "Planning District of Destination" and the column variable was set to "Use of 407" to quantify the number of trips travelling to each destination that use Highway 407 ETR.

From this query, trip destinations were determined, and percentage of trips assigned to each destination was accounted for. Trips were assumed to travel to and from their destination points based on the most convenient route, taking into account trips using Highway 407 ETR and trips not using Highway 407 ETR.

It was determined that approximately 65% of the total outbound trips exiting the study area during the weekday a.m. peak period are internal to Mississauga. Accordingly, trip distribution internal to Mississauga was determined using a combination of existing travel patterns, expected destinations, and TTS results for trips travelling within Planning District "Mississauga." The resultant trip distribution is outlined in **Table 15.**



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

Legend

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

Project: 5150 NINTH LINE MATTAMY HOMES

Drawing: TRIP ASSIGNMENT (FULL BUILD-OUT)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
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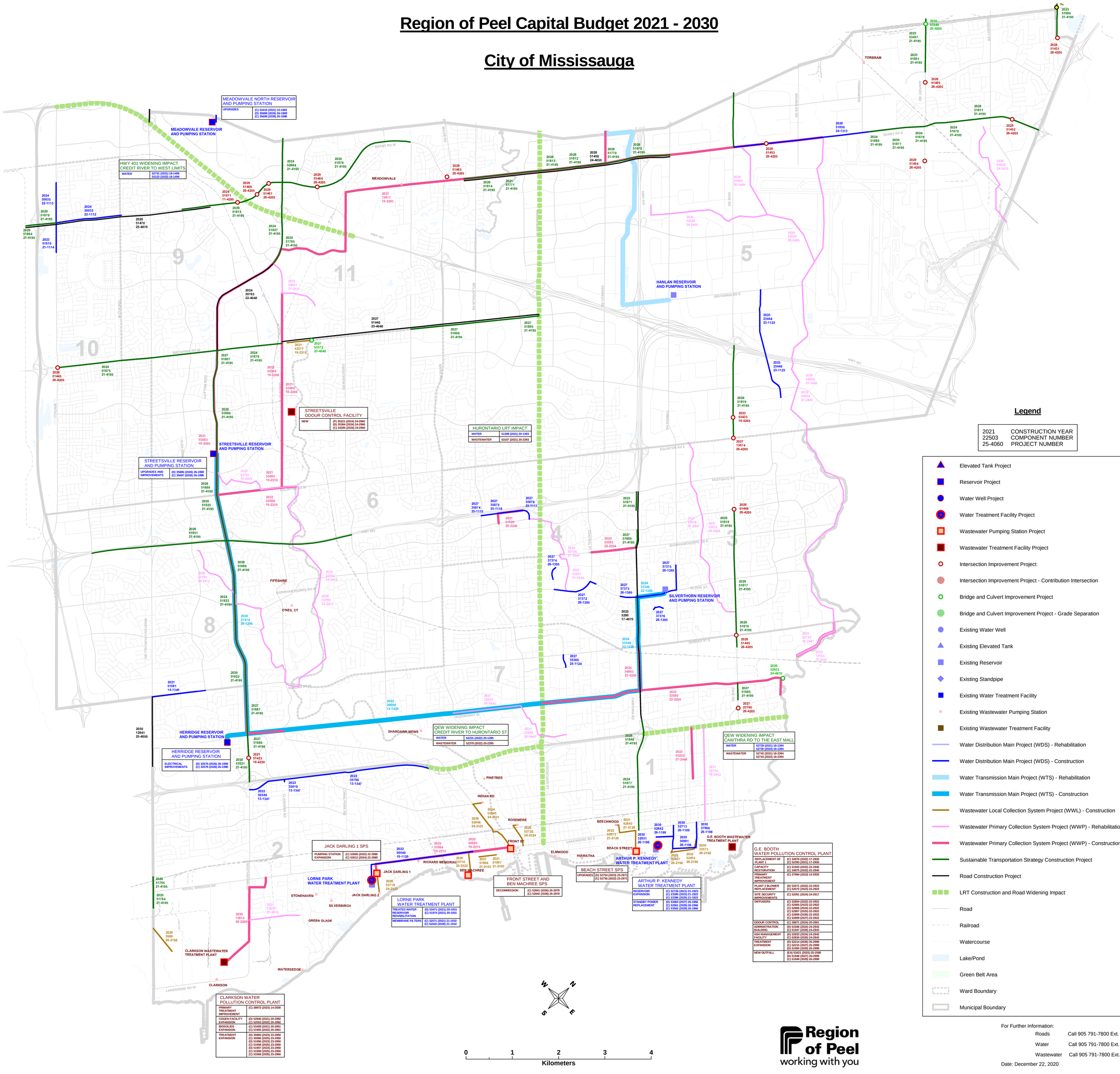
Drawn By	Design By	Project	Scale	Date	Check By	Drawing
D.L.	D.L.	780-5251	N.T.S.	AUG 26, 2020	A.F.	FIG. 12

APPENDIX F.6

Region of Peel - Mississauga Capital Projects Map

Region of Peel Capital Budget 2021 - 2030

City of Mississauga



APPENDIX G

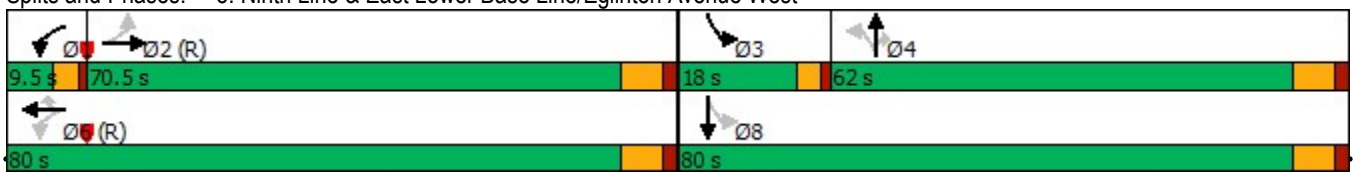
Detailed Capacity Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	630	118	66	275	128	21	340	82	279	810	66
Future Volume (vph)	28	630	118	66	275	128	21	340	82	279	810	66
Ideal Flow (vphpl)	1900	1900	1900	1860	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	65.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98			0.98			
Frt		0.976				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1761	0	1620	1783	1348	1353	1789	1348	1642	1824	0
Flt Permitted	0.580			0.059			0.070			0.364		
Satd. Flow (perm)	970	1761	0	101	1783	1327	100	1789	1324	629	1824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				129			82		3	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	29%	5%	0%	4%	2%	0%
Adj. Flow (vph)	28	636	119	67	278	129	21	343	83	282	818	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	755	0	67	278	129	21	343	83	282	885	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane											Yes	
Headway Factor	1.08	1.04	1.04	1.11	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		1	6	6	4	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.5	32.5		9.5	32.5	32.5	25.0	25.0	25.0	11.0	25.0	
Total Split (s)	70.5	70.5		9.5	80.0	80.0	62.0	62.0	62.0	18.0	80.0	
Total Split (%)	44.1%	44.1%		5.9%	50.0%	50.0%	38.8%	38.8%	38.8%	11.3%	50.0%	
Maximum Green (s)	63.5	63.5		5.5	73.0	73.0	55.0	55.0	55.0	14.0	73.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-2.0	
Total Lost Time (s)	5.0	5.0		1.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	4.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0			10.0	10.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0			15.0	15.0	10.0	10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2			2	2	2	2	2		2	
Act Effct Green (s)	65.5	65.5		79.0	75.0	75.0	57.0	57.0	57.0	79.0	75.0	
Actuated g/C Ratio	0.41	0.41		0.49	0.47	0.47	0.36	0.36	0.36	0.49	0.47	
v/c Ratio	0.07	1.04		0.52	0.33	0.19	0.60	0.54	0.16	0.67	1.03	
Control Delay	29.6	89.6		38.0	28.2	4.2	106.8	44.9	7.4	34.3	80.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.6	89.6		38.0	28.2	4.2	106.8	44.9	7.4	34.3	80.8	
LOS	C	F		D	C	A	F	D	A	C	F	
Approach Delay		87.4			23.0			40.8			69.6	
Approach LOS		F			C			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 101 (63%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 62.3		Intersection LOS: E	
Intersection Capacity Utilization 113.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	98	51	547	20	34	1066
Future Volume (vph)	98	51	547	20	34	1066
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98	1.00		1.00	
Frt		0.850	0.995			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1688	1525	1781	0	1708	1842
Flt Permitted	0.950				0.381	
Satd. Flow (perm)	1688	1491	1781	0	685	1842
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		52	3			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		281.4			174.6
Travel Time (s)	8.2		14.5			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	0%	4%	30%	0%	2%
Adj. Flow (vph)	100	52	558	20	35	1088
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	52	578	0	35	1088
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	25.0	25.0	50.0		10.0	60.0
Total Split (%)	29.4%	29.4%	58.8%		11.8%	70.6%
Maximum Green (s)	18.5	18.5	44.0		7.0	54.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		0.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-2.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	12.6	12.6	61.5		69.3	66.3
Actuated g/C Ratio	0.15	0.15	0.72		0.82	0.78
v/c Ratio	0.40	0.20	0.45		0.05	0.76
Control Delay	36.7	10.7	8.9		2.9	12.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	36.7	10.7	8.9		2.9	12.6
LOS	D	B	A		A	B
Approach Delay	27.8		8.9			12.3
Approach LOS	C		A			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	34	524	4	8	1162
Future Volume (vph)	10	34	524	4	8	1162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	1772	0	1745	1842
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	1772	0	1745	1842
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			120.0
Travel Time (s)	9.4		4.5			6.2
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	6%	0%	0%	2%
Adj. Flow (vph)	10	35	540	4	8	1198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	35	544	0	8	1198
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	34	524	4	8	1162
Future Volume (Veh/h)	10	34	524	4	8	1162
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	35	540	4	8	1198
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			360			401
pX, platoon unblocked	0.38	0.85			0.85	
vC, conflicting volume	1757	543			545	
vC1, stage 1 conf vol	543					
vC2, stage 2 conf vol	1214					
vCu, unblocked vol	1287	373			376	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	94			99	
cM capacity (veh/h)	166	575			1013	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	10	35	544	8	1198
Volume Left	10	0	0	8	0
Volume Right	0	35	4	0	0
cSH	166	575	1700	1013	1700
Volume to Capacity	0.06	0.06	0.32	0.01	0.70
Queue Length 95th (m)	1.4	1.5	0.0	0.2	0.0
Control Delay (s)	28.0	11.7	0.0	8.6	0.0
Lane LOS	D	B		A	
Approach Delay (s)	15.3		0.0	0.1	
Approach LOS	C				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	12	516	2	2	1175
Future Volume (vph)	5	12	516	2	2	1175
Ideal Flow (vphpl)	1900	1900	1900	1640	1900	1900
Lane Width (m)	3.7	3.7	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	15.0	
Storage Lanes	1	0		1	1	
Taper Length (m)	7.6				15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.905			0.850		
Flt Protected	0.986				0.950	
Satd. Flow (prot)	1714	0	1789	1379	1745	1842
Flt Permitted	0.986				0.950	
Satd. Flow (perm)	1714	0	1789	1379	1745	1842
Link Speed (k/h)	50		70			70
Link Distance (m)	154.4		271.6			88.4
Travel Time (s)	11.1		14.0			4.5
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	5%	0%	0%	2%
Adj. Flow (vph)	5	12	521	2	2	1187
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	521	2	2	1187
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.99	0.99	1.01	1.22	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.8%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	12	516	2	2	1175
Future Volume (Veh/h)	5	12	516	2	2	1175
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	5	12	521	2	2	1187
Pedestrians	1					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			272			
pX, platoon unblocked	0.85	0.85			0.85	
vC, conflicting volume	1713	522			524	
vC1, stage 1 conf vol	522					
vC2, stage 2 conf vol	1191					
vCu, unblocked vol	1751	347			350	
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 %	98	98			100	
cM capacity (veh/h)	263	594			1034	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	17	521	2	2	1187
Volume Left	5	0	0	2	0
Volume Right	12	0	2	0	0
cSH	433	1700	1700	1034	1700
Volume to Capacity	0.04	0.31	0.00	0.00	0.70
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0
Control Delay (s)	13.6	0.0	0.0	8.5	0.0
Lane LOS	B			A	
Approach Delay (s)	13.6	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	44.7	90.1	48.8	103.2	24.7	77.7	138.5	50.0	79.9	249.3
Average Queue (m)	5.6	85.7	15.8	43.1	10.3	17.3	76.0	20.2	59.8	247.2
95th Queue (m)	25.5	87.6	35.5	75.5	19.5	49.2	126.9	54.2	101.3	249.2
Link Distance (m)		80.9		136.5	136.5		142.3			245.3
Upstream Blk Time (%)		63		0			1			30
Queuing Penalty (veh)		0		0			0			351
Storage Bay Dist (m)	15.0		30.0			65.0		30.0	65.0	
Storage Blk Time (%)	1	59	1	18		1	36		4	50
Queuing Penalty (veh)	8	16	4	12		4	38		34	139

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	44.5	20.2	84.7	34.9	180.4
Average Queue (m)	21.1	6.9	27.5	10.8	170.7
95th Queue (m)	37.3	15.5	63.8	35.3	176.5
Link Distance (m)		102.5	265.2		164.3
Upstream Blk Time (%)					70
Queuing Penalty (veh)					0
Storage Bay Dist (m)	40.0			15.0	
Storage Blk Time (%)	2	0		0	59
Queuing Penalty (veh)	1	0		3	20

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	44.0	15.4	5.2	40.7	108.5
Average Queue (m)	22.7	6.5	0.2	2.1	105.7
95th Queue (m)	47.3	13.3	2.7	15.5	107.6
Link Distance (m)	118.8	118.8	70.7		104.5
Upstream Blk Time (%)					29
Queuing Penalty (veh)					338
Storage Bay Dist (m)				30.0	
Storage Blk Time (%)					47
Queuing Penalty (veh)					4

Intersection: 8: Ninth Line & Skyview Street

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (m)	47.0	13.8	74.0
Average Queue (m)	16.4	0.6	72.4
95th Queue (m)	43.0	6.6	74.2
Link Distance (m)	141.4		70.7
Upstream Blk Time (%)			28
Queuing Penalty (veh)			329
Storage Bay Dist (m)		15.0	
Storage Blk Time (%)		0	47
Queuing Penalty (veh)		0	1

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	SB
Directions Served	T
Maximum Queue (m)	270.2
Average Queue (m)	265.5
95th Queue (m)	278.5
Link Distance (m)	265.2
Upstream Blk Time (%)	14
Queuing Penalty (veh)	158
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

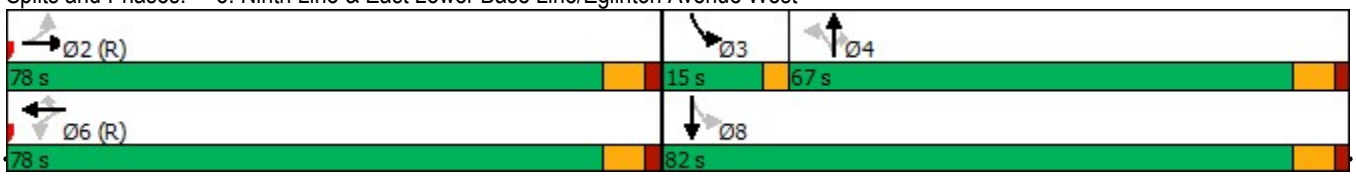
Network wide Queuing Penalty: 1757

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	537	45	63	715	368	82	694	84	192	443	48
Future Volume (vph)	55	537	45	63	715	368	82	694	84	192	443	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	65.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98			0.98			
Frt		0.988				0.850			0.850		0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1705	1776	0	1671	1818	1427	1745	1860	1334	1691	1834	0
Flt Permitted	0.087			0.202			0.376			0.063		
Satd. Flow (perm)	156	1776	0	355	1818	1405	691	1860	1311	112	1834	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				234			48		5	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	4%	2%	1%	2%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	57	559	47	66	745	383	85	723	88	200	461	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	606	0	66	745	383	85	723	88	200	511	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane											Yes	
Headway Factor	1.08	1.04	1.04	1.08	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		6	6	6	4	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0	32.0	25.0	25.0	25.0	11.0	25.0	
Total Split (s)	78.0	78.0		78.0	78.0	78.0	67.0	67.0	67.0	15.0	82.0	
Total Split (%)	48.8%	48.8%		48.8%	48.8%	48.8%	41.9%	41.9%	41.9%	9.4%	51.3%	
Maximum Green (s)	71.0	71.0		71.0	71.0	71.0	60.0	60.0	60.0	12.0	75.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0	10.0	10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2		2	2	2	2	2	2		2	
Act Effct Green (s)	73.0	73.0		73.0	73.0	73.0	62.0	62.0	62.0	81.0	77.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46	0.46	0.39	0.39	0.39	0.51	0.48	
v/c Ratio	0.80	0.75		0.41	0.90	0.50	0.32	1.00	0.16	1.03	0.58	
Control Delay	103.1	42.7		38.7	55.2	13.4	38.5	82.6	16.3	114.4	32.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	103.1	42.7		38.7	55.2	13.4	38.5	82.6	16.3	114.4	32.7	
LOS	F	D		D	E	B	D	F	B	F	C	
Approach Delay		47.9			40.9			71.9			55.7	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 101 (63%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 53.3		Intersection LOS: D	
Intersection Capacity Utilization 107.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	51	1059	58	74	690
Future Volume (vph)	32	51	1059	58	74	690
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98	1.00			
Frt		0.850	0.993			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1705	1525	1836	0	1691	1860
Flt Permitted	0.950				0.067	
Satd. Flow (perm)	1705	1491	1836	0	119	1860
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		53	5			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		281.4			174.6
Travel Time (s)	8.2		14.5			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	11%	1%	1%
Adj. Flow (vph)	33	53	1103	60	77	719
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	53	1163	0	77	719
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	25.0	25.0	50.0		10.0	60.0
Total Split (%)	29.4%	29.4%	58.8%		11.8%	70.6%
Maximum Green (s)	18.5	18.5	44.0		7.0	54.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		0.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-2.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	11.1	11.1	61.2		70.8	67.8
Actuated g/C Ratio	0.13	0.13	0.72		0.83	0.80
v/c Ratio	0.15	0.22	0.88		0.33	0.49
Control Delay	32.9	11.5	23.6		8.8	5.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	32.9	11.5	23.6		8.8	5.7
LOS	C	B	C		A	A
Approach Delay	19.7		23.6			6.0
Approach LOS	B		C			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 16.6		Intersection LOS: B	
Intersection Capacity Utilization 78.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	19	1094	14	22	701
Future Volume (vph)	6	19	1094	14	22	701
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	1857	0	1745	1860
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	1857	0	1745	1860
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			119.9
Travel Time (s)	9.4		4.5			6.2
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Adj. Flow (vph)	6	20	1164	15	23	746
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	20	1179	0	23	746
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	19	1094	14	22	701
Future Volume (Veh/h)	6	19	1094	14	22	701
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	20	1164	15	23	746
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			360			401
pX, platoon unblocked	0.70	0.62			0.62	
vC, conflicting volume	1964	1172			1180	
vC1, stage 1 conf vol	1172					
vC2, stage 2 conf vol	792					
vCu, unblocked vol	1672	970			983	
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 %	97	90			95	
cM capacity (veh/h)	204	191			439	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	6	20	1179	23	746
Volume Left	6	0	0	23	0
Volume Right	0	20	15	0	0
cSH	204	191	1700	439	1700
Volume to Capacity	0.03	0.10	0.69	0.05	0.44
Queue Length 95th (m)	0.7	2.6	0.0	1.3	0.0
Control Delay (s)	23.2	26.0	0.0	13.6	0.0
Lane LOS	C	D		B	
Approach Delay (s)	25.4		0.0	0.4	
Approach LOS	D				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	4	1106	5	14	688
Future Volume (vph)	4	4	1106	5	14	688
Ideal Flow (vphpl)	1900	1900	1900	1640	1900	1900
Lane Width (m)	3.7	3.7	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	15.0	
Storage Lanes	1	0		1	1	
Taper Length (m)	7.6				15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932			0.850		
Flt Protected	0.976				0.950	
Satd. Flow (prot)	1553	0	1860	1379	1745	1860
Flt Permitted	0.976				0.950	
Satd. Flow (perm)	1553	0	1860	1379	1745	1860
Link Speed (k/h)	50		70			70
Link Distance (m)	154.4		271.6			88.4
Travel Time (s)	11.1		14.0			4.5
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	25%	0%	1%	0%	0%	1%
Adj. Flow (vph)	4	4	1152	5	15	717
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	1152	5	15	717
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.99	0.99	1.01	1.22	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	4	1106	5	14	688
Future Volume (Veh/h)	4	4	1106	5	14	688
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	4	4	1152	5	15	717
Pedestrians	1					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			272			
pX, platoon unblocked	0.62	0.62			0.62	
vC, conflicting volume	1900	1153			1158	
vC1, stage 1 conf vol	1153					
vC2, stage 2 conf vol	747					
vCu, unblocked vol	2148	938			946	
tC, single (s)	6.6	6.2			4.1	
tC, 2 stage (s)	5.6					
tF (s)	3.7	3.3			2.2	
p0 queue free %	98	98			97	
cM capacity (veh/h)	184	199			452	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	1152	5	15	717
Volume Left	4	0	0	15	0
Volume Right	4	0	5	0	0
cSH	191	1700	1700	452	1700
Volume to Capacity	0.04	0.68	0.00	0.03	0.42
Queue Length 95th (m)	1.0	0.0	0.0	0.8	0.0
Control Delay (s)	24.6	0.0	0.0	13.2	0.0
Lane LOS	C			B	
Approach Delay (s)	24.6	0.0		0.3	
Approach LOS	C				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	44.8	91.5	74.8	142.5	142.3	79.9	150.4	50.0	79.9	215.6
Average Queue (m)	26.3	83.1	32.8	136.2	68.7	30.6	147.1	18.3	71.3	158.1
95th Queue (m)	49.7	97.5	77.8	159.0	157.0	81.9	148.8	54.1	96.4	288.0
Link Distance (m)		80.9		136.5	136.5		142.3			245.3
Upstream Blk Time (%)		39		36	4		65			14
Queuing Penalty (veh)		0		0	0		0			97
Storage Bay Dist (m)	15.0		30.0			65.0		30.0	65.0	
Storage Blk Time (%)	64	51	17	50			65	0	57	13
Queuing Penalty (veh)	375	28	123	31			108	0	278	25

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	26.0	21.7	83.8	32.2	119.2
Average Queue (m)	7.1	8.8	32.5	12.6	30.3
95th Queue (m)	18.4	17.7	78.5	26.8	94.8
Link Distance (m)		102.5	265.3		164.3
Upstream Blk Time (%)					3
Queuing Penalty (veh)					0
Storage Bay Dist (m)	40.0			15.0	
Storage Blk Time (%)	0			11	12
Queuing Penalty (veh)	0			73	9

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	12.1	13.8	1.3	34.6	65.1
Average Queue (m)	2.2	3.8	0.0	6.4	29.0
95th Queue (m)	10.7	11.3	0.9	25.8	104.9
Link Distance (m)	118.8	118.8	70.7		103.9
Upstream Blk Time (%)					11
Queuing Penalty (veh)					76
Storage Bay Dist (m)				30.0	
Storage Blk Time (%)					20
Queuing Penalty (veh)					4

Intersection: 8: Ninth Line & Skyview Street

Movement	WB	NB	SB	SB
Directions Served	LR	T	L	T
Maximum Queue (m)	26.3	50.4	18.6	44.9
Average Queue (m)	5.7	1.7	2.7	23.4
95th Queue (m)	21.7	35.5	11.0	78.1
Link Distance (m)	141.4	245.3		70.7
Upstream Blk Time (%)		0		12
Queuing Penalty (veh)		0		82
Storage Bay Dist (m)			15.0	
Storage Blk Time (%)			0	23
Queuing Penalty (veh)			2	3

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	SB
Directions Served	T
Maximum Queue (m)	161.2
Average Queue (m)	49.9
95th Queue (m)	204.8
Link Distance (m)	265.3
Upstream Blk Time (%)	2
Queuing Penalty (veh)	15
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

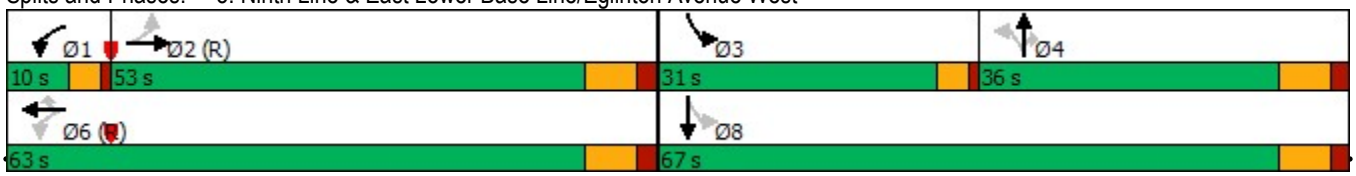
Network wide Queuing Penalty: 2232

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	684	121	69	302	156	21	394	84	366	1076	76
Future Volume (vph)	33	684	121	69	302	156	21	394	84	366	1076	76
Ideal Flow (vphpl)	1900	1900	1900	1860	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	125.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			70.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.98			0.98	1.00		
Frt		0.977				0.850			0.850		0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	3351	0	1620	1783	1348	1353	3400	1348	1642	3469	0
Flt Permitted	0.574			0.224			0.203			0.351		
Satd. Flow (perm)	961	3351	0	382	1783	1328	289	3400	1326	606	3469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				158			101		8	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	29%	5%	0%	4%	2%	0%
Adj. Flow (vph)	33	691	122	70	305	158	21	398	85	370	1087	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	813	0	70	305	158	21	398	85	370	1164	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.08	1.04	1.04	1.11	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		1	6	6	4	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.5	32.5		9.5	32.5	32.5	25.0	25.0	25.0	11.0	25.0	
Total Split (s)	53.0	53.0		10.0	63.0	63.0	36.0	36.0	36.0	31.0	67.0	
Total Split (%)	40.8%	40.8%		7.7%	48.5%	48.5%	27.7%	27.7%	27.7%	23.8%	51.5%	
Maximum Green (s)	46.0	46.0		6.0	56.0	56.0	29.0	29.0	29.0	27.0	60.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-2.0	
Total Lost Time (s)	5.0	5.0		1.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	4.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0			10.0	10.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0			15.0	15.0	10.0	10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2			2	2	2	2	2		2	
Act Effct Green (s)	55.0	55.0		68.0	64.0	64.0	27.5	27.5	27.5	60.0	56.0	
Actuated g/C Ratio	0.42	0.42		0.52	0.49	0.49	0.21	0.21	0.21	0.46	0.43	
v/c Ratio	0.08	0.57		0.24	0.35	0.22	0.35	0.55	0.24	0.74	0.78	
Control Delay	26.9	31.4		19.1	22.8	3.9	60.0	48.7	6.6	34.2	33.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.9	31.4		19.1	22.8	3.9	60.0	48.7	6.6	34.2	33.2	
LOS	C	C		B	C	A	E	D	A	C	C	
Approach Delay		31.2			16.7			42.0			33.4	
Approach LOS		C			B			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 31.6		Intersection LOS: C	
Intersection Capacity Utilization 83.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	55	657	27	42	1367
Future Volume (vph)	105	55	657	27	42	1367
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99	1.00		1.00	
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1688	1525	3375	0	1708	3500
Flt Permitted	0.950				0.357	
Satd. Flow (perm)	1688	1505	3375	0	641	3500
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		56	8			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		276.4			174.6
Travel Time (s)	8.2		14.2			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	0%	4%	30%	0%	2%
Adj. Flow (vph)	107	56	670	28	43	1395
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	56	698	0	43	1395
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	23.0	23.0	32.5		9.5	42.0
Total Split (%)	35.4%	35.4%	50.0%		14.6%	64.6%
Maximum Green (s)	16.5	16.5	26.5		5.5	36.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		1.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-3.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	12.1	12.1	41.4		49.8	46.8
Actuated g/C Ratio	0.19	0.19	0.64		0.77	0.72
v/c Ratio	0.34	0.17	0.32		0.07	0.55
Control Delay	25.1	7.7	7.4		3.6	7.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.1	7.7	7.4		3.6	7.3
LOS	C	A	A		A	A
Approach Delay	19.1		7.4			7.2
Approach LOS	B		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 12 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	35	634	4	8	1495
Future Volume (vph)	10	35	634	4	8	1495
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				50.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	3366	0	1745	3500
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	3366	0	1745	3500
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			124.9
Travel Time (s)	9.4		4.5			6.4
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	6%	0%	0%	2%
Adj. Flow (vph)	10	36	654	4	8	1541
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	36	658	0	8	1541
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

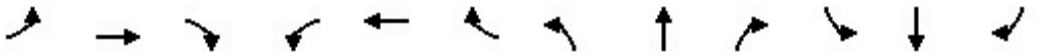
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	35	634	4	8	1495
Future Volume (Veh/h)	10	35	634	4	8	1495
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	36	654	4	8	1541
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			88			401
pX, platoon unblocked	0.82	0.95			0.95	
vC, conflicting volume	1444	330			659	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	835	193			538	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	95			99	
cM capacity (veh/h)	252	782			988	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	10	36	436	222	8	770	770
Volume Left	10	0	0	0	8	0	0
Volume Right	0	36	0	4	0	0	0
cSH	252	782	1700	1700	988	1700	1700
Volume to Capacity	0.04	0.05	0.26	0.13	0.01	0.45	0.45
Queue Length 95th (m)	0.9	1.1	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	19.9	9.8	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	A			A		
Approach Delay (s)	12.0		0.0		0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

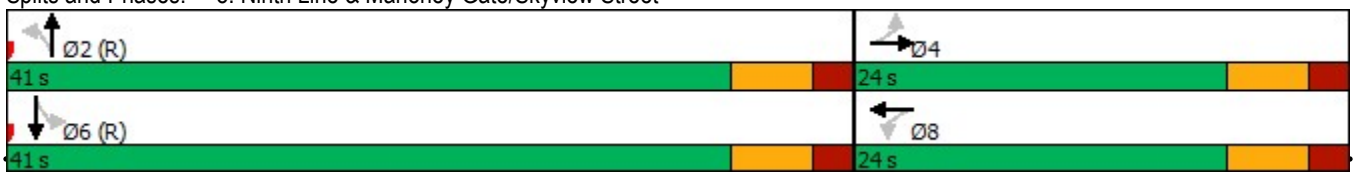


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	3	69	5	2	12	35	583	2	2	1498	11
Future Volume (vph)	43	3	69	5	2	12	35	583	2	2	1498	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1860	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.3	3.5	3.7
Storage Length (m)	15.0		0.0	0.0		0.0	36.0		0.0	60.0		0.0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (m)	2.5			7.6			50.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor								1.00		1.00		
Frt		0.856			0.915			0.999			0.999	
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1789	1612	0	0	1731	0	1752	3397	0	1745	3496	0
Flt Permitted	0.745				0.893		0.136			0.429		
Satd. Flow (perm)	1403	1612	0	0	1566	0	251	3397	0	787	3496	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			12			1			2	
Link Speed (k/h)		40			50			70			70	
Link Distance (m)		48.4			154.4			271.6			88.4	
Travel Time (s)		4.4			11.1			14.0			4.5	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.99	0.92	0.99	0.99	0.99	0.99	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	2%	0%	2%	5%	0%	0%	2%	2%
Adj. Flow (vph)	47	3	75	5	2	12	38	589	2	2	1513	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	78	0	0	19	0	38	591	0	2	1525	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.04	1.01	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		41.0	41.0		41.0	41.0	
Total Split (%)	36.9%	36.9%		36.9%	36.9%		63.1%	63.1%		63.1%	63.1%	
Maximum Green (s)	18.0	18.0		18.0	18.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	8.8	8.8			8.8		49.5	49.5		49.5	49.5	
Actuated g/C Ratio	0.14	0.14			0.14		0.76	0.76		0.76	0.76	
v/c Ratio	0.25	0.32			0.09		0.20	0.23		0.00	0.57	
Control Delay	27.6	21.3			16.4		5.1	1.6		6.0	7.4	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	27.6	21.3			16.4		5.1	1.6		6.0	7.4	
LOS	C	C			B		A	A		A	A	
Approach Delay		23.7			16.4			1.8			7.4	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 6.8		Intersection LOS: A	
Intersection Capacity Utilization 57.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: Ninth Line & Mahoney Gate/Skyview Street





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	25	2	677	1476	8
Future Volume (vph)	5	25	2	677	1476	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	2.5		50.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.886				0.999	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1655	0	1789	3579	3575	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1655	0	1789	3579	3575	0
Link Speed (k/h)	40			70	70	
Link Distance (m)	96.6			124.9	276.4	
Travel Time (s)	8.7			6.4	14.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	27	2	736	1604	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	2	736	1613	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	25	2	677	1476	8
Future Volume (Veh/h)	5	25	2	677	1476	8
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)	5	27	2	736	1604	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				213	276	
pX, platoon unblocked	0.78	0.77	0.77			
vC, conflicting volume	1980	806	1613			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1576	150	1198			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	96	100			
cM capacity (veh/h)	78	669	445			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	32	2	368	368	1069	544
Volume Left	5	2	0	0	0	0
Volume Right	27	0	0	0	0	9
cSH	306	445	1700	1700	1700	1700
Volume to Capacity	0.10	0.00	0.22	0.22	0.63	0.32
Queue Length 95th (m)	2.6	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	18.1	13.1	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	18.1	0.0			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (m)	44.8	84.0	81.6	41.0	93.5	25.3	34.0	80.9	69.7	42.6	115.1	124.3
Average Queue (m)	10.7	70.4	57.2	13.0	43.0	12.2	8.3	49.7	36.0	7.3	69.8	80.3
95th Queue (m)	36.2	89.7	86.6	27.6	74.3	22.5	24.1	72.8	64.8	24.1	110.6	121.1
Link Distance (m)		76.2	76.2		136.5	136.5		137.9	137.9			242.6
Upstream Blk Time (%)		8	3		0							
Queuing Penalty (veh)		0	0		0							
Storage Bay Dist (m)	15.0			30.0			65.0			30.0	125.0	
Storage Blk Time (%)	2	50		0	16		0	2	8		0	1
Queuing Penalty (veh)	5	16		1	11		0	0	7		1	2

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	SB
Directions Served	TR
Maximum Queue (m)	129.1
Average Queue (m)	85.4
95th Queue (m)	123.0
Link Distance (m)	242.6
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (m)	38.2	18.7	48.9	59.3	30.9	71.2	55.4
Average Queue (m)	17.9	7.6	19.9	25.1	6.4	33.8	18.9
95th Queue (m)	31.3	15.4	40.5	49.1	18.8	59.6	42.1
Link Distance (m)		98.7	260.9	260.9		164.0	164.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	40.0				15.0		
Storage Blk Time (%)	0				1	15	
Queuing Penalty (veh)	0				9	6	

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	SB	SB
Directions Served	L	R	L	T
Maximum Queue (m)	12.0	15.6	6.8	1.8
Average Queue (m)	3.1	6.8	0.9	0.1
95th Queue (m)	9.7	13.6	5.0	1.3
Link Distance (m)	115.0	115.0		108.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)			30.0	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Ninth Line & Mahoney Gate/Skyview Street

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	18.7	32.6	11.8	19.4	11.9	17.8	6.5	52.8	55.9
Average Queue (m)	8.3	12.4	4.0	5.7	1.3	3.6	0.6	26.4	24.0
95th Queue (m)	18.0	24.8	11.2	14.3	6.5	12.4	4.0	50.9	48.7
Link Distance (m)		36.8	139.9		242.6	242.6		67.3	67.3
Upstream Blk Time (%)		0							0
Queuing Penalty (veh)		0							0
Storage Bay Dist (m)	15.0			36.0			60.0		
Storage Blk Time (%)	5	6						0	
Queuing Penalty (veh)	4	2						0	

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	18.4	6.2
Average Queue (m)	6.9	0.2
95th Queue (m)	15.5	2.4
Link Distance (m)	85.5	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		30.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

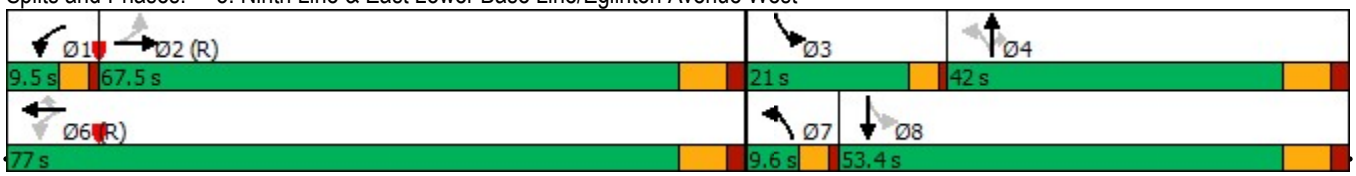
Network wide Queuing Penalty: 66

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	581	46	64	774	439	85	798	88	241	604	56
Future Volume (vph)	66	581	46	64	774	439	85	798	88	241	604	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	125.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			70.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.98			0.98			
Frt		0.989				0.850			0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1705	3379	0	1671	1818	1427	1745	3535	1334	1691	3492	0
Flt Permitted	0.131			0.320			0.314			0.103		
Satd. Flow (perm)	235	3379	0	563	1818	1406	577	3535	1312	183	3492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				306			125		7	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	4%	2%	1%	2%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	69	605	48	67	806	457	89	831	92	251	629	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	653	0	67	806	457	89	831	92	251	687	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.08	1.04	1.04	1.08	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		1	6	6	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.0	32.0		9.5	32.0	32.0	9.5	25.0	25.0	11.0	25.0	
Total Split (s)	67.5	67.5		9.5	77.0	77.0	9.6	42.0	42.0	21.0	53.4	
Total Split (%)	48.2%	48.2%		6.8%	55.0%	55.0%	6.9%	30.0%	30.0%	15.0%	38.1%	
Maximum Green (s)	60.5	60.5		5.5	70.0	70.0	5.6	35.0	35.0	17.0	46.4	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-3.0	-2.0	-2.0	-3.0	-2.0	
Total Lost Time (s)	5.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	4.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0			10.0	10.0		8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0			15.0	15.0		10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2			2	2		2	2		2	
Act Effct Green (s)	65.2	65.2		76.8	72.8	72.8	49.4	36.8	36.8	61.2	47.6	
Actuated g/C Ratio	0.47	0.47		0.55	0.52	0.52	0.35	0.26	0.26	0.44	0.34	
v/c Ratio	0.63	0.41		0.18	0.85	0.52	0.32	0.90	0.21	0.87	0.58	
Control Delay	59.6	26.1		16.4	39.7	9.0	27.1	62.9	3.5	66.0	48.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	59.6	26.1		16.4	39.7	9.0	27.1	62.9	3.5	66.0	48.7	
LOS	E	C		B	D	A	C	E	A	E	D	
Approach Delay		29.3			28.0			54.4			53.4	
Approach LOS		C			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 20 (14%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 40.8		Intersection LOS: D	
Intersection Capacity Utilization 98.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	57	1225	66	79	907
Future Volume (vph)	39	57	1225	66	79	907
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99	1.00			
Frt		0.850	0.992			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1705	1525	3485	0	1691	3535
Flt Permitted	0.950				0.141	
Satd. Flow (perm)	1705	1505	3485	0	251	3535
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		59	10			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		276.5			174.6
Travel Time (s)	8.2		14.2			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	11%	1%	1%
Adj. Flow (vph)	41	59	1276	69	82	945
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	59	1345	0	82	945
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	22.6	22.6	37.8		9.6	47.4
Total Split (%)	32.3%	32.3%	54.0%		13.7%	67.7%
Maximum Green (s)	16.1	16.1	31.8		5.6	41.4
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		1.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-3.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	11.1	11.1	45.4		55.8	52.8
Actuated g/C Ratio	0.16	0.16	0.65		0.80	0.75
v/c Ratio	0.15	0.20	0.59		0.22	0.35
Control Delay	25.3	8.9	12.4		4.3	4.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.3	8.9	12.4		4.3	4.8
LOS	C	A	B		A	A
Approach Delay	15.6		12.4			4.7
Approach LOS	B		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 65 (93%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 9.3		Intersection LOS: A	
Intersection Capacity Utilization 59.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	19	1248	14	22	916
Future Volume (vph)	6	19	1248	14	22	916
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				50.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	3528	0	1745	3535
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	3528	0	1745	3535
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			124.9
Travel Time (s)	9.4		4.5			6.4
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Adj. Flow (vph)	6	20	1328	15	23	974
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	20	1343	0	23	974
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	19	1248	14	22	916
Future Volume (Veh/h)	6	19	1248	14	22	916
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	20	1328	15	23	974
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			88			401
pX, platoon unblocked	0.89	0.86			0.86	
vC, conflicting volume	1870	672			1344	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1498	303			1081	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			96	
cM capacity (veh/h)	98	603			563	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	6	20	885	458	23	487	487
Volume Left	6	0	0	0	23	0	0
Volume Right	0	20	0	15	0	0	0
cSH	98	603	1700	1700	563	1700	1700
Volume to Capacity	0.06	0.03	0.52	0.27	0.04	0.29	0.29
Queue Length 95th (m)	1.5	0.8	0.0	0.0	1.0	0.0	0.0
Control Delay (s)	44.2	11.2	0.0	0.0	11.7	0.0	0.0
Lane LOS	E	B			B		
Approach Delay (s)	18.8		0.0		0.3		
Approach LOS	C						

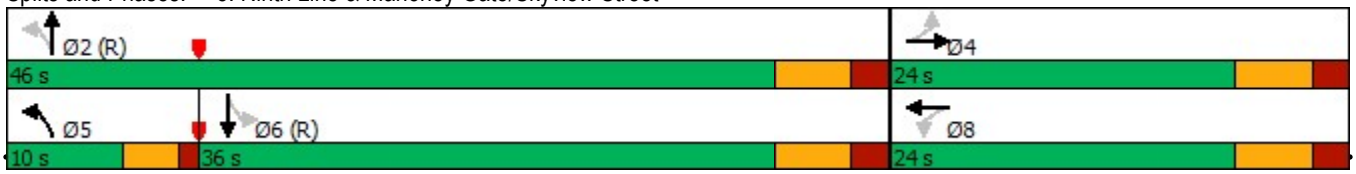
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	49	4	3	4	88	1231	5	14	878	23
Future Volume (vph)	30	2	49	4	3	4	88	1231	5	14	878	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1860	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.3	3.5	3.7
Storage Length (m)	15.0		0.0	0.0		0.0	36.0		0.0	60.0		0.0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (m)	2.5			7.6			50.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor								1.00		1.00		
Frt		0.855			0.951			0.999			0.996	
Flt Protected	0.950				0.982		0.950			0.950		
Satd. Flow (prot)	1789	1610	0	0	1636	0	1752	3531	0	1745	3519	0
Flt Permitted	0.750				0.857		0.269			0.215		
Satd. Flow (perm)	1413	1610	0	0	1428	0	496	3531	0	395	3519	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			4			1			5	
Link Speed (k/h)		40			50			70			70	
Link Distance (m)		48.3			154.4			271.6			88.4	
Travel Time (s)		4.3			11.1			14.0			4.5	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.96	0.96	0.96	0.92
Heavy Vehicles (%)	2%	2%	2%	25%	2%	0%	2%	1%	0%	0%	1%	2%
Adj. Flow (vph)	33	2	53	4	3	4	96	1282	5	15	915	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	55	0	0	11	0	96	1287	0	15	940	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.04	1.01	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		9.5	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		10.0	46.0		36.0	36.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		14.3%	65.7%		51.4%	51.4%	
Maximum Green (s)	18.0	18.0		18.0	18.0		6.0	40.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-3.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0			5.0		1.0	5.0		5.0	5.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	8.2	8.2			8.1		60.5	58.5		49.1	49.1	
Actuated g/C Ratio	0.12	0.12			0.12		0.86	0.84		0.70	0.70	
v/c Ratio	0.20	0.23			0.07		0.16	0.44		0.05	0.38	
Control Delay	30.0	11.7			22.9		1.1	2.0		6.9	5.7	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	30.0	11.7			22.9		1.1	2.0		6.9	5.7	
LOS	C	B			C		A	A		A	A	
Approach Delay		18.6			22.9			2.0			5.7	
Approach LOS		B			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 4.1		Intersection LOS: A	
Intersection Capacity Utilization 55.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: Ninth Line & Mahoney Gate/Skyview Street





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	14	6	1259	926	24
Future Volume (vph)	3	14	6	1259	926	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	2.5		50.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.887				0.996	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1657	0	1789	3579	3564	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1657	0	1789	3579	3564	0
Link Speed (k/h)	40			70	70	
Link Distance (m)	96.6			124.9	276.5	
Travel Time (s)	8.7			6.4	14.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	15	7	1368	1007	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	7	1368	1033	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	14	6	1259	926	24
Future Volume (Veh/h)	3	14	6	1259	926	24
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)	3	15	7	1368	1007	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				213	276	
pX, platoon unblocked	0.91	0.91	0.91			
vC, conflicting volume	1718	516	1033			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1149	275	842			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	98	99			
cM capacity (veh/h)	172	658	720			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	18	7	684	684	671	362
Volume Left	3	7	0	0	0	0
Volume Right	15	0	0	0	0	26
cSH	448	720	1700	1700	1700	1700
Volume to Capacity	0.04	0.01	0.40	0.40	0.39	0.21
Queue Length 95th (m)	1.0	0.2	0.0	0.0	0.0	0.0
Control Delay (s)	13.4	10.1	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	13.4	0.1			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (m)	44.9	86.3	77.8	74.9	143.7	143.4	79.9	146.0	147.0	50.0	99.1	83.8
Average Queue (m)	34.0	66.3	53.6	24.1	127.4	72.8	38.9	127.1	116.5	21.8	54.0	48.6
95th Queue (m)	56.9	91.8	86.2	68.7	164.5	144.9	90.7	165.5	165.6	58.0	91.4	73.5
Link Distance (m)		76.2	76.2		136.5	136.5		137.9	137.9			242.2
Upstream Blk Time (%)		29	8		22	3		24	15			
Queuing Penalty (veh)		0	0		0	0		0	0			
Storage Bay Dist (m)	15.0			30.0			65.0			30.0	125.0	
Storage Blk Time (%)	70	34		1	42			55	61	0	0	
Queuing Penalty (veh)	203	22		6	27			46	54	0	0	

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	SB
Directions Served	TR
Maximum Queue (m)	87.6
Average Queue (m)	53.6
95th Queue (m)	77.7
Link Distance (m)	242.2
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (m)	21.0	18.2	76.6	82.8	26.9	47.4	32.4
Average Queue (m)	7.8	8.6	24.6	29.2	11.2	16.5	7.8
95th Queue (m)	17.1	16.0	60.1	66.2	22.1	37.6	21.4
Link Distance (m)		98.7	261.2	261.2		164.0	164.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	40.0				15.0		
Storage Blk Time (%)					8	5	
Queuing Penalty (veh)					35	4	

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (m)	9.4	11.6	15.4
Average Queue (m)	1.2	4.3	3.6
95th Queue (m)	6.0	11.7	10.9
Link Distance (m)	114.9	114.9	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			30.0
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Ninth Line & Mahoney Gate/Skyview Street

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	17.2	27.6	15.7	26.1	26.4	32.4	11.0	36.9	33.3
Average Queue (m)	6.9	8.7	3.8	9.1	6.6	10.8	2.4	14.1	10.8
95th Queue (m)	15.5	19.7	12.6	19.2	19.2	25.9	8.6	31.6	26.2
Link Distance (m)		36.5	139.9		242.2	242.2		67.3	67.3
Upstream Blk Time (%)		0							
Queuing Penalty (veh)		0							
Storage Bay Dist (m)	15.0			36.0			60.0		
Storage Blk Time (%)	4	2		0	0				
Queuing Penalty (veh)	2	1		0	0				

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	10.2	9.6
Average Queue (m)	3.6	0.9
95th Queue (m)	10.8	5.2
Link Distance (m)	85.2	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		30.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

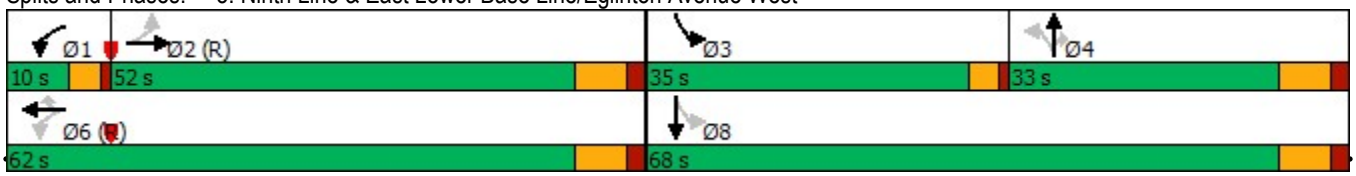
Network wide Queuing Penalty: 402

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	684	121	69	302	163	21	397	84	388	1087	79
Future Volume (vph)	34	684	121	69	302	163	21	397	84	388	1087	79
Ideal Flow (vphpl)	1900	1900	1900	1860	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	125.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			70.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.98			0.98	1.00		
Frt		0.977				0.850			0.850		0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	3351	0	1620	1783	1348	1353	3400	1348	1642	3470	0
Flt Permitted	0.574			0.220			0.216			0.338		
Satd. Flow (perm)	961	3351	0	375	1783	1328	308	3400	1326	583	3470	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				165			101		8	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	29%	5%	0%	4%	2%	0%
Adj. Flow (vph)	34	691	122	70	305	165	21	401	85	392	1098	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	813	0	70	305	165	21	401	85	392	1178	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.08	1.04	1.04	1.11	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		1	6	6	4	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.5	32.5		9.5	32.5	32.5	25.0	25.0	25.0	11.0	25.0	
Total Split (s)	52.0	52.0		10.0	62.0	62.0	33.0	33.0	33.0	35.0	68.0	
Total Split (%)	40.0%	40.0%		7.7%	47.7%	47.7%	25.4%	25.4%	25.4%	26.9%	52.3%	
Maximum Green (s)	45.0	45.0		6.0	55.0	55.0	26.0	26.0	26.0	31.0	61.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-2.0	
Total Lost Time (s)	5.0	5.0		1.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	4.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0			10.0	10.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0			15.0	15.0	10.0	10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2			2	2	2	2	2		2	
Act Effct Green (s)	54.0	54.0		67.1	63.1	63.1	26.3	26.3	26.3	60.9	56.9	
Actuated g/C Ratio	0.42	0.42		0.52	0.49	0.49	0.20	0.20	0.20	0.47	0.44	
v/c Ratio	0.09	0.58		0.24	0.35	0.23	0.34	0.58	0.24	0.76	0.77	
Control Delay	27.6	32.3		19.6	23.4	3.9	60.6	50.6	7.0	36.1	33.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	27.6	32.3		19.6	23.4	3.9	60.6	50.6	7.0	36.1	33.7	
LOS	C	C		B	C	A	E	D	A	D	C	
Approach Delay		32.1			16.9			43.7			34.3	
Approach LOS		C			B			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 32.4		Intersection LOS: C	
Intersection Capacity Utilization 83.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	55	673	29	42	1372
Future Volume (vph)	105	55	673	29	42	1372
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99	1.00		1.00	
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1688	1525	3374	0	1708	3500
Flt Permitted	0.950				0.348	
Satd. Flow (perm)	1688	1505	3374	0	625	3500
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		56	8			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		276.4			174.6
Travel Time (s)	8.2		14.2			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	0%	4%	30%	0%	2%
Adj. Flow (vph)	107	56	687	30	43	1400
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	56	717	0	43	1400
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	23.0	23.0	32.5		9.5	42.0
Total Split (%)	35.4%	35.4%	50.0%		14.6%	64.6%
Maximum Green (s)	16.5	16.5	26.5		5.5	36.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		1.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-3.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	12.1	12.1	41.4		49.8	46.8
Actuated g/C Ratio	0.19	0.19	0.64		0.77	0.72
v/c Ratio	0.34	0.17	0.33		0.07	0.56
Control Delay	25.1	7.7	8.5		3.6	7.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.1	7.7	8.5		3.6	7.3
LOS	C	A	A		A	A
Approach Delay	19.1		8.5			7.2
Approach LOS	B		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 12 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	35	650	4	8	1517
Future Volume (vph)	10	35	650	4	8	1517
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				50.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	3366	0	1745	3500
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	3366	0	1745	3500
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			124.9
Travel Time (s)	9.4		4.5			6.4
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	6%	0%	0%	2%
Adj. Flow (vph)	10	36	670	4	8	1564
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	36	674	0	8	1564
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	35	650	4	8	1517
Future Volume (Veh/h)	10	35	650	4	8	1517
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	36	670	4	8	1564
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			88			401
pX, platoon unblocked	0.82	0.95			0.95	
vC, conflicting volume	1471	338			675	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	857	194			549	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	95			99	
cM capacity (veh/h)	245	779			977	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	10	36	447	227	8	782	782
Volume Left	10	0	0	0	8	0	0
Volume Right	0	36	0	4	0	0	0
cSH	245	779	1700	1700	977	1700	1700
Volume to Capacity	0.04	0.05	0.26	0.13	0.01	0.46	0.46
Queue Length 95th (m)	1.0	1.1	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	20.3	9.8	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	A			A		
Approach Delay (s)	12.1		0.0		0.0		
Approach LOS	B						

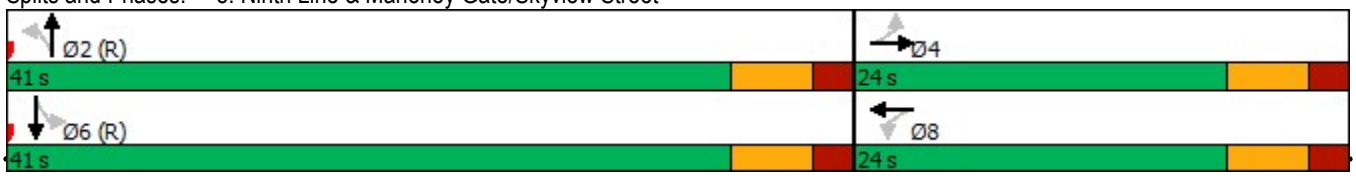
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	4	83	5	2	12	44	585	2	2	1520	11
Future Volume (vph)	57	4	83	5	2	12	44	585	2	2	1520	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1860	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.3	3.5	3.7
Storage Length (m)	15.0		0.0	0.0		0.0	36.0		0.0	60.0		0.0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (m)	2.5			7.6			50.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor								1.00		1.00		
Frt		0.856			0.915			0.999			0.999	
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1789	1612	0	0	1731	0	1752	3397	0	1745	3496	0
Flt Permitted	0.745				0.895		0.129			0.428		
Satd. Flow (perm)	1403	1612	0	0	1570	0	238	3397	0	785	3496	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			12			1			2	
Link Speed (k/h)		40			50			70			70	
Link Distance (m)		48.4			154.4			271.6			88.4	
Travel Time (s)		4.4			11.1			14.0			4.5	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.99	0.92	0.99	0.99	0.99	0.99	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	2%	0%	2%	5%	0%	0%	2%	2%
Adj. Flow (vph)	62	4	90	5	2	12	48	591	2	2	1535	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	94	0	0	19	0	48	593	0	2	1547	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.04	1.01	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		41.0	41.0		41.0	41.0	
Total Split (%)	36.9%	36.9%		36.9%	36.9%		63.1%	63.1%		63.1%	63.1%	
Maximum Green (s)	18.0	18.0		18.0	18.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.4	9.4			9.4		48.9	48.9		48.9	48.9	
Actuated g/C Ratio	0.14	0.14			0.14		0.75	0.75		0.75	0.75	
v/c Ratio	0.31	0.37			0.08		0.27	0.23		0.00	0.59	
Control Delay	27.9	23.0			15.7		9.4	1.8		6.5	7.9	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	27.9	23.0			15.7		9.4	1.8		6.5	7.9	
LOS	C	C			B		A	A		A	A	
Approach Delay		25.0			15.7			2.3			7.9	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 60.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: Ninth Line & Mahoney Gate/Skyview Street





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	47	4	691	1476	13
Future Volume (vph)	9	47	4	691	1476	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	2.5		50.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.887				0.999	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1657	0	1789	3579	3575	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1657	0	1789	3579	3575	0
Link Speed (k/h)	40			70	70	
Link Distance (m)	96.6			124.9	276.4	
Travel Time (s)	8.7			6.4	14.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	51	4	751	1604	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	4	751	1618	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	47	4	691	1476	13
Future Volume (Veh/h)	9	47	4	691	1476	13
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)	10	51	4	751	1604	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				213	276	
pX, platoon unblocked	0.78	0.77	0.77			
vC, conflicting volume	1994	809	1618			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1575	147	1200			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	92	99			
cM capacity (veh/h)	78	671	443			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	61	4	376	376	1069	549
Volume Left	10	4	0	0	0	0
Volume Right	51	0	0	0	0	14
cSH	298	443	1700	1700	1700	1700
Volume to Capacity	0.20	0.01	0.22	0.22	0.63	0.32
Queue Length 95th (m)	5.7	0.2	0.0	0.0	0.0	0.0
Control Delay (s)	20.2	13.2	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	20.2	0.1			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (m)	44.8	83.0	84.3	54.6	95.4	34.9	36.3	82.5	66.4	30.3	145.0	136.2
Average Queue (m)	12.7	73.9	64.4	15.6	43.2	14.3	9.4	54.1	40.3	7.3	75.5	80.1
95th Queue (m)	39.2	91.7	90.4	39.7	77.1	27.4	29.3	78.1	66.6	21.7	130.4	122.1
Link Distance (m)		76.2	76.2		136.5	136.5		137.9	137.9			242.6
Upstream Blk Time (%)		12	6									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (m)	15.0			30.0			65.0			30.0	125.0	
Storage Blk Time (%)	2	52		0	17		0	3	10	0	3	1
Queuing Penalty (veh)	7	18		1	12		0	1	8	0	16	2

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	SB
Directions Served	TR
Maximum Queue (m)	132.4
Average Queue (m)	84.9
95th Queue (m)	123.3
Link Distance (m)	242.6
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (m)	36.6	19.2	42.2	52.2	31.2	78.1	66.2
Average Queue (m)	17.7	7.7	19.5	23.9	7.2	36.6	23.1
95th Queue (m)	30.3	15.8	41.7	47.6	21.5	64.7	50.6
Link Distance (m)		98.7	260.9	260.9		164.0	164.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	40.0				15.0		
Storage Blk Time (%)	0				1	16	
Queuing Penalty (veh)	0				7	7	

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	SB	SB	SB
Directions Served	L	R	L	T	T
Maximum Queue (m)	9.6	10.4	10.1	15.7	5.0
Average Queue (m)	2.1	5.9	1.5	1.0	0.3
95th Queue (m)	7.8	12.2	6.9	7.2	3.5
Link Distance (m)	115.0	115.0		108.6	108.6
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)			30.0		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: Ninth Line & Mahoney Gate/Skyview Street

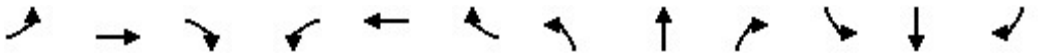
Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	17.8	38.6	12.8	22.6	16.9	25.7	3.2	67.4	63.6
Average Queue (m)	11.1	14.4	3.9	7.5	3.0	6.3	0.2	33.5	30.4
95th Queue (m)	20.0	28.7	11.4	17.2	10.7	17.8	2.3	59.7	55.9
Link Distance (m)		36.8	139.9		242.6	242.6		67.3	67.3
Upstream Blk Time (%)		1						0	0
Queuing Penalty (veh)		0						1	1
Storage Bay Dist (m)	15.0			36.0			60.0		
Storage Blk Time (%)	11	7						1	
Queuing Penalty (veh)	9	4						0	

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	19.6	6.6
Average Queue (m)	9.4	0.8
95th Queue (m)	16.4	4.8
Link Distance (m)	85.5	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		30.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 94

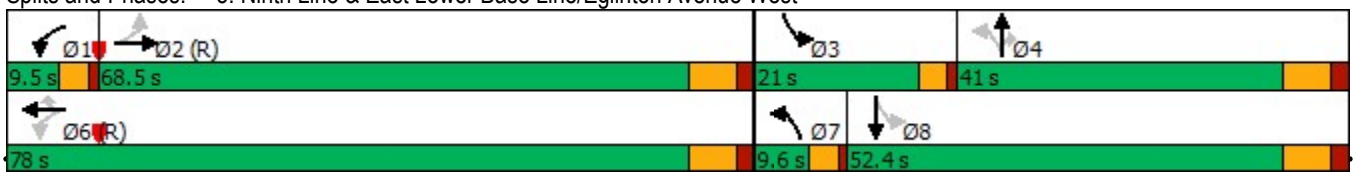


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	581	46	64	774	456	85	807	88	253	610	57
Future Volume (vph)	68	581	46	64	774	456	85	807	88	253	610	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	125.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			70.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.98			0.98			
Frt		0.989				0.850			0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1705	3379	0	1671	1818	1427	1745	3535	1334	1691	3492	0
Flt Permitted	0.134			0.321			0.308			0.105		
Satd. Flow (perm)	240	3379	0	565	1818	1406	566	3535	1312	187	3492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				310			125		7	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	4%	2%	1%	2%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	71	605	48	67	806	475	89	841	92	264	635	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	653	0	67	806	475	89	841	92	264	694	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.08	1.04	1.04	1.08	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		1	6	6	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.0	32.0		9.5	32.0	32.0	9.5	25.0	25.0	11.0	25.0	
Total Split (s)	68.5	68.5		9.5	78.0	78.0	9.6	41.0	41.0	21.0	52.4	
Total Split (%)	48.9%	48.9%		6.8%	55.7%	55.7%	6.9%	29.3%	29.3%	15.0%	37.4%	
Maximum Green (s)	61.5	61.5		5.5	71.0	71.0	5.6	34.0	34.0	17.0	45.4	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-3.0	-2.0	-2.0	-3.0	-2.0	
Total Lost Time (s)	5.0	5.0		1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	4.0	4.0		3.0	4.0	4.0	3.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0			10.0	10.0		8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0			15.0	15.0		10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2			2	2		2	2		2	
Act Effct Green (s)	65.6	65.6		77.2	73.2	73.2	48.8	36.2	36.2	60.8	47.2	
Actuated g/C Ratio	0.47	0.47		0.55	0.52	0.52	0.35	0.26	0.26	0.43	0.34	
v/c Ratio	0.63	0.41		0.18	0.85	0.54	0.33	0.92	0.21	0.90	0.59	
Control Delay	58.4	25.6		16.0	39.0	9.4	27.8	66.5	3.6	72.4	51.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	58.4	25.6		16.0	39.0	9.4	27.8	66.5	3.6	72.4	51.1	
LOS	E	C		B	D	A	C	E	A	E	D	
Approach Delay		28.8			27.4			57.5			56.9	
Approach LOS		C			C			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 20 (14%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 42.2		Intersection LOS: D	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	57	1233	67	79	921
Future Volume (vph)	40	57	1233	67	79	921
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99	1.00			
Frt		0.850	0.992			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1705	1525	3484	0	1691	3535
Flt Permitted	0.950				0.139	
Satd. Flow (perm)	1705	1505	3484	0	247	3535
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		59	11			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		276.5			174.6
Travel Time (s)	8.2		14.2			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	11%	1%	1%
Adj. Flow (vph)	42	59	1284	70	82	959
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	59	1354	0	82	959
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	22.6	22.6	37.8		9.6	47.4
Total Split (%)	32.3%	32.3%	54.0%		13.7%	67.7%
Maximum Green (s)	16.1	16.1	31.8		5.6	41.4
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		1.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-3.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	11.1	11.1	45.4		55.8	52.8
Actuated g/C Ratio	0.16	0.16	0.65		0.80	0.75
v/c Ratio	0.15	0.20	0.60		0.23	0.36
Control Delay	25.4	8.9	12.6		4.3	4.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.4	8.9	12.6		4.3	4.8
LOS	C	A	B		A	A
Approach Delay	15.7		12.6			4.8
Approach LOS	B		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 65 (93%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 9.5		Intersection LOS: A	
Intersection Capacity Utilization 59.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	19	1259	14	22	928
Future Volume (vph)	6	19	1259	14	22	928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				50.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	3528	0	1745	3535
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	3528	0	1745	3535
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			124.9
Travel Time (s)	9.4		4.5			6.4
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Adj. Flow (vph)	6	20	1339	15	23	987
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	20	1354	0	23	987
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

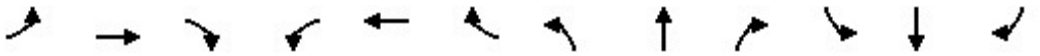
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	19	1259	14	22	928
Future Volume (Veh/h)	6	19	1259	14	22	928
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	20	1339	15	23	987
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			88			401
pX, platoon unblocked	0.87	0.85			0.85	
vC, conflicting volume	1887	678			1355	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1498	268			1065	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			96	
cM capacity (veh/h)	96	625			562	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	6	20	893	461	23	494	494
Volume Left	6	0	0	0	23	0	0
Volume Right	0	20	0	15	0	0	0
cSH	96	625	1700	1700	562	1700	1700
Volume to Capacity	0.06	0.03	0.53	0.27	0.04	0.29	0.29
Queue Length 95th (m)	1.5	0.8	0.0	0.0	1.0	0.0	0.0
Control Delay (s)	44.8	10.9	0.0	0.0	11.7	0.0	0.0
Lane LOS	E	B			B		
Approach Delay (s)	18.8		0.0		0.3		
Approach LOS	C						

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

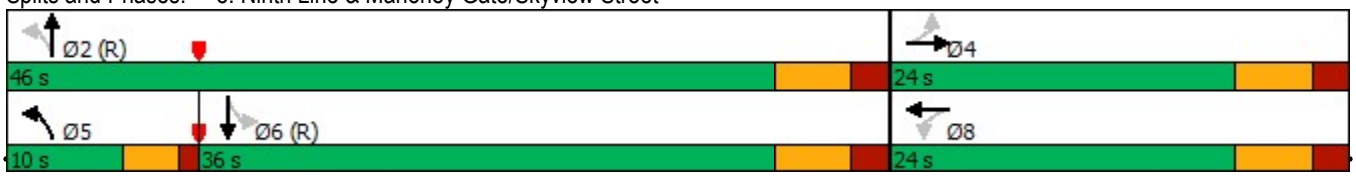


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	3	56	4	4	4	112	1235	5	14	890	23
Future Volume (vph)	37	3	56	4	4	4	112	1235	5	14	890	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1860	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.3	3.5	3.7
Storage Length (m)	15.0		0.0	0.0		0.0	36.0		0.0	60.0		0.0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (m)	2.5			7.6			50.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor								1.00		1.00		
Frt		0.857			0.955			0.999			0.996	
Flt Protected	0.950				0.984		0.950			0.950		
Satd. Flow (prot)	1789	1614	0	0	1656	0	1752	3531	0	1745	3519	0
Flt Permitted	0.750				0.871		0.259			0.214		
Satd. Flow (perm)	1413	1614	0	0	1466	0	478	3531	0	393	3519	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			4			1			5	
Link Speed (k/h)		40			50			70			70	
Link Distance (m)		48.3			154.4			271.6			88.4	
Travel Time (s)		4.3			11.1			14.0			4.5	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.96	0.96	0.96	0.92
Heavy Vehicles (%)	2%	2%	2%	25%	2%	0%	2%	1%	0%	0%	1%	2%
Adj. Flow (vph)	40	3	61	4	4	4	122	1286	5	15	927	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	64	0	0	12	0	122	1291	0	15	952	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.04	1.01	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		9.5	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		10.0	46.0		36.0	36.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		14.3%	65.7%		51.4%	51.4%	
Maximum Green (s)	18.0	18.0		18.0	18.0		6.0	40.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-3.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0			5.0		1.0	5.0		5.0	5.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	8.5	8.5			8.5		57.8	54.8		46.0	46.0	
Actuated g/C Ratio	0.12	0.12			0.12		0.83	0.78		0.66	0.66	
v/c Ratio	0.23	0.26			0.07		0.21	0.47		0.06	0.41	
Control Delay	30.3	11.5			22.8		1.4	2.2		7.4	6.7	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	30.3	11.5			22.8		1.4	2.2		7.4	6.7	
LOS	C	B			C		A	A		A	A	
Approach Delay		18.7			22.8			2.2			6.7	
Approach LOS		B			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: Ninth Line & Mahoney Gate/Skyview Street





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	26	10	1266	926	39
Future Volume (vph)	5	26	10	1266	926	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	2.5		50.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.885				0.994	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1654	0	1789	3579	3557	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1654	0	1789	3579	3557	0
Link Speed (k/h)	40			70	70	
Link Distance (m)	96.6			124.9	276.5	
Travel Time (s)	8.7			6.4	14.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	28	11	1376	1007	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	11	1376	1049	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	26	10	1266	926	39
Future Volume (Veh/h)	5	26	10	1266	926	39
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)	5	28	11	1376	1007	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				213	276	
pX, platoon unblocked	0.90	0.91	0.91			
vC, conflicting volume	1738	524	1049			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1131	275	852			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	96	98			
cM capacity (veh/h)	174	657	711			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	33	11	688	688	671	378
Volume Left	5	11	0	0	0	0
Volume Right	28	0	0	0	0	42
cSH	462	711	1700	1700	1700	1700
Volume to Capacity	0.07	0.02	0.40	0.40	0.39	0.22
Queue Length 95th (m)	1.7	0.4	0.0	0.0	0.0	0.0
Control Delay (s)	13.4	10.1	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	13.4	0.1			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	T	R	L	T
Maximum Queue (m)	44.9	85.2	83.7	74.9	144.1	142.4	79.8	146.1	148.4	50.0	120.6	118.5
Average Queue (m)	34.6	67.8	54.0	26.4	127.1	76.8	43.9	142.1	140.1	27.3	86.4	74.6
95th Queue (m)	55.8	92.7	89.1	73.6	170.0	149.7	98.4	147.2	155.5	64.7	175.9	176.8
Link Distance (m)		76.2	76.2		136.5	136.5		137.9	137.9			242.2
Upstream Blk Time (%)		26	6		19	2		63	52			1
Queuing Penalty (veh)		0	0		0	0		0	0			5
Storage Bay Dist (m)	15.0			30.0			65.0			30.0	125.0	
Storage Blk Time (%)	71	34		0	41			74	76	0	18	
Queuing Penalty (veh)	205	23		0	26			63	67	1	56	

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	SB
Directions Served	TR
Maximum Queue (m)	118.7
Average Queue (m)	72.6
95th Queue (m)	160.0
Link Distance (m)	242.2
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (m)	23.3	20.4	68.2	80.4	25.7	46.7	33.5
Average Queue (m)	7.9	8.3	25.3	29.9	10.3	17.4	8.1
95th Queue (m)	18.0	16.5	57.0	65.6	20.1	39.2	23.0
Link Distance (m)		98.7	261.2	261.2		164.0	164.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	40.0				15.0		
Storage Blk Time (%)					6	6	
Queuing Penalty (veh)					26	5	

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	L
Maximum Queue (m)	8.3	12.7	2.7	15.4
Average Queue (m)	1.7	4.6	0.1	3.4
95th Queue (m)	6.8	12.1	1.4	11.2
Link Distance (m)	114.9	114.9	67.3	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				30.0
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Ninth Line & Mahoney Gate/Skyview Street

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	17.3	23.4	15.9	24.0	22.2	25.7	12.1	49.8	45.2
Average Queue (m)	7.6	8.9	3.4	10.1	5.9	9.7	2.5	18.1	13.7
95th Queue (m)	16.2	17.7	11.6	19.2	16.8	22.9	9.1	40.0	33.7
Link Distance (m)		36.5	139.9		242.2	242.2		67.3	67.3
Upstream Blk Time (%)		0							
Queuing Penalty (veh)		0							
Storage Bay Dist (m)	15.0			36.0			60.0		
Storage Blk Time (%)	6	1							
Queuing Penalty (veh)	4	1							

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	15.8	9.9
Average Queue (m)	6.1	1.7
95th Queue (m)	14.1	7.1
Link Distance (m)	85.2	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		30.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 481

5: Ninth Line & East Lower Base Line/Eglinton Avenue West

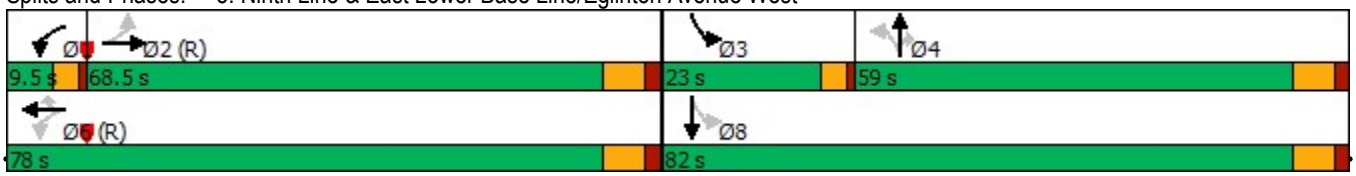
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	688	122	70	311	156	22	385	84	367	1033	77
Future Volume (vph)	33	688	122	70	311	156	22	385	84	367	1033	77
Ideal Flow (vphpl)	1900	1900	1900	1860	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	65.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98			0.98			
Frt		0.977				0.850			0.850		0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1764	0	1620	1783	1348	1353	1789	1348	1642	1826	0
Flt Permitted	0.535			0.061			0.074			0.292		
Satd. Flow (perm)	895	1764	0	104	1783	1327	105	1789	1324	505	1826	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				158			82		3	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	29%	5%	0%	4%	2%	0%
Adj. Flow (vph)	33	695	123	71	314	158	22	389	85	371	1043	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	818	0	71	314	158	22	389	85	371	1121	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane											Yes	
Headway Factor	1.08	1.04	1.04	1.11	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		1	6	6	4	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.5	32.5		9.5	32.5	32.5	25.0	25.0	25.0	11.0	25.0	
Total Split (s)	68.5	68.5		9.5	78.0	78.0	59.0	59.0	59.0	23.0	82.0	
Total Split (%)	42.8%	42.8%		5.9%	48.8%	48.8%	36.9%	36.9%	36.9%	14.4%	51.3%	
Maximum Green (s)	61.5	61.5		5.5	71.0	71.0	52.0	52.0	52.0	19.0	75.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-2.0	
Total Lost Time (s)	5.0	5.0		1.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	4.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0			10.0	10.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0			15.0	15.0	10.0	10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2			2	2	2	2	2		2	
Act Effct Green (s)	63.5	63.5		77.0	73.0	73.0	54.0	54.0	54.0	81.0	77.0	
Actuated g/C Ratio	0.40	0.40		0.48	0.46	0.46	0.34	0.34	0.34	0.51	0.48	
v/c Ratio	0.09	1.16		0.55	0.39	0.23	0.63	0.65	0.17	0.90	1.27	
Control Delay	31.3	130.4		40.9	30.5	4.2	113.9	50.8	8.3	53.3	167.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.3	130.4		40.9	30.5	4.2	113.9	50.8	8.3	53.3	167.7	
LOS	C	F		D	C	A	F	D	A	D	F	
Approach Delay		126.6			24.2			46.3			139.3	
Approach LOS		F			C			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 101 (63%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 104.0		Intersection LOS: F	
Intersection Capacity Utilization 129.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West



6: Ninth Line & Erin Centre Boulevard



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	55	642	28	42	1310
Future Volume (vph)	105	55	642	28	42	1310
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98	1.00			
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1688	1525	1775	0	1708	1842
Flt Permitted	0.950				0.319	
Satd. Flow (perm)	1688	1491	1775	0	574	1842
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		56	4			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		281.4			174.6
Travel Time (s)	8.2		14.5			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	0%	4%	30%	0%	2%
Adj. Flow (vph)	107	56	655	29	43	1337
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	56	684	0	43	1337
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

6: Ninth Line & Erin Centre Boulevard

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	22.5	22.5	53.0		9.5	62.5
Total Split (%)	26.5%	26.5%	62.4%		11.2%	73.5%
Maximum Green (s)	16.0	16.0	47.0		6.5	56.5
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		0.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-2.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	12.8	12.8	61.2		69.1	66.1
Actuated g/C Ratio	0.15	0.15	0.72		0.81	0.78
v/c Ratio	0.42	0.21	0.53		0.08	0.93
Control Delay	37.0	10.5	10.4		3.0	25.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	37.0	10.5	10.4		3.0	25.8
LOS	D	B	B		A	C
Approach Delay	27.9		10.4			25.1
Approach LOS	C		B			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 20.8		Intersection LOS: C	
Intersection Capacity Utilization 84.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard



7: Ninth Line & Candlelight Drive



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	35	620	4	8	1433
Future Volume (vph)	10	35	620	4	8	1433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	1771	0	1745	1842
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	1771	0	1745	1842
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			120.0
Travel Time (s)	9.4		4.5			6.2
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	6%	0%	0%	2%
Adj. Flow (vph)	10	36	639	4	8	1477
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	36	643	0	8	1477
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.4%		ICU Level of Service E	
Analysis Period (min) 15			

7: Ninth Line & Candlelight Drive

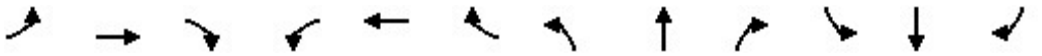


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	35	620	4	8	1433
Future Volume (Veh/h)	10	35	620	4	8	1433
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	36	639	4	8	1477
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			360			401
pX, platoon unblocked	0.37	0.82			0.82	
vC, conflicting volume	2135	642			644	
vC1, stage 1 conf vol	642					
vC2, stage 2 conf vol	1493					
vCu, unblocked vol	2144	458			460	
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 %	82	93			99	
cM capacity (veh/h)	57	499			914	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	10	36	643	8	1477
Volume Left	10	0	0	8	0
Volume Right	0	36	4	0	0
cSH	57	499	1700	914	1700
Volume to Capacity	0.18	0.07	0.38	0.01	0.87
Queue Length 95th (m)	4.4	1.8	0.0	0.2	0.0
Control Delay (s)	81.0	12.8	0.0	9.0	0.0
Lane LOS	F	B		A	
Approach Delay (s)	27.6		0.0	0.0	
Approach LOS	D				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

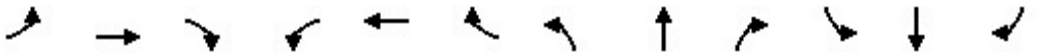
8: Ninth Line & Mahoney Gate/Skyview Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	3	69	5	2	12	35	569	2	2	1436	11
Future Volume (vph)	43	3	69	5	2	12	35	569	2	2	1436	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1640	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.3	3.5	3.7
Storage Length (m)	15.0		0.0	0.0		0.0	36.0		0.0	15.0		0.0
Storage Lanes	1		0	0		0	1		1	1		0
Taper Length (m)	2.5			7.6			7.6			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.856			0.915				0.850		0.999	
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1789	1612	0	0	1731	0	1789	1789	1379	1745	1840	0
Flt Permitted	0.950				0.987		0.950			0.950		
Satd. Flow (perm)	1789	1612	0	0	1731	0	1789	1789	1379	1745	1840	0
Link Speed (k/h)		40			50			70			70	
Link Distance (m)		48.4			154.4			271.6			88.4	
Travel Time (s)		4.4			11.1			14.0			4.5	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.99	0.92	0.99	0.99	0.99	0.99	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	2%	0%	2%	5%	0%	0%	2%	2%
Adj. Flow (vph)	47	3	75	5	2	12	38	575	2	2	1451	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	78	0	0	19	0	38	575	2	2	1463	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.22	1.04	1.01	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 90.1%		ICU Level of Service E	
Analysis Period (min) 15			

8: Ninth Line & Mahoney Gate/Skyview Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	3	69	5	2	12	35	569	2	2	1436	11
Future Volume (Veh/h)	43	3	69	5	2	12	35	569	2	2	1436	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.99	0.92	0.99	0.99	0.99	0.99	0.92
Hourly flow rate (vph)	47	3	75	5	2	12	38	575	2	2	1451	12
Pedestrians					1							
Lane Width (m)					3.7							
Walking Speed (m/s)					1.1							
Percent Blockage					0							
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								272				
pX, platoon unblocked	0.82	0.82		0.82	0.82	0.82				0.82		
vC, conflicting volume	2125	2115	1457	2184	2119	576	1463			578		
vC1, stage 1 conf vol	1461	1461		652	652							
vC2, stage 2 conf vol	664	654		1532	1467							
vCu, unblocked vol	2261	2249	1457	2332	2254	375	1463			377		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	68	98	53	87	99	98	92			100		
cM capacity (veh/h)	145	171	159	38	142	555	462			978		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	47	78	19	38	575	2	2	1463
Volume Left	47	0	5	38	0	0	2	0
Volume Right	0	75	12	0	0	2	0	12
cSH	145	160	113	462	1700	1700	978	1700
Volume to Capacity	0.32	0.49	0.17	0.08	0.34	0.00	0.00	0.86
Queue Length 95th (m)	9.9	17.8	4.4	2.0	0.0	0.0	0.0	0.0
Control Delay (s)	41.4	47.5	43.3	13.5	0.0	0.0	8.7	0.0
Lane LOS	E	E	E	B			A	
Approach Delay (s)	45.2		43.3	0.8			0.0	
Approach LOS	E		E					

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	90.1%	ICU Level of Service		E
Analysis Period (min)	15			

9: Ninth Line & Viola Desmond Drive



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	25	2	662	1415	8
Future Volume (vph)	5	25	2	662	1415	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.886				0.999	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1655	0	1789	1883	1882	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1655	0	1789	1883	1882	0
Link Speed (k/h)	40			70	70	
Link Distance (m)	89.1			63.8	72.8	
Travel Time (s)	8.0			3.3	3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	27	2	720	1538	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	2	720	1547	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

9: Ninth Line & Viola Desmond Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	25	2	662	1415	8
Future Volume (Veh/h)	5	25	2	662	1415	8
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)	5	27	2	720	1538	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	2266	1542	1547			
vC1, stage 1 conf vol	1542					
vC2, stage 2 conf vol	724					
vCu, unblocked vol	2266	1542	1547			
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 %	97	81	100			
cM capacity (veh/h)	178	141	429			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	32	2	720	1547
Volume Left	5	2	0	0
Volume Right	27	0	0	9
cSH	146	429	1700	1700
Volume to Capacity	0.22	0.00	0.42	0.91
Queue Length 95th (m)	6.1	0.1	0.0	0.0
Control Delay (s)	36.4	13.4	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	36.4	0.0		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	44.1	95.3	69.6	92.1	37.1	79.6	147.6	50.0	79.9	247.6
Average Queue (m)	5.6	86.0	17.8	47.0	11.3	13.9	89.4	22.6	65.9	244.8
95th Queue (m)	23.7	90.2	45.1	80.7	23.5	44.4	144.8	56.5	99.9	248.6
Link Distance (m)		80.7		136.3	136.3		142.2			242.9
Upstream Blk Time (%)		64					1			26
Queuing Penalty (veh)		0					0			389
Storage Bay Dist (m)	15.0		30.0			65.0		30.0	65.0	
Storage Blk Time (%)	4	60	2	21			40		10	46
Queuing Penalty (veh)	35	20	6	15			42		107	169

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	58.3	44.8	105.3	34.9	178.6
Average Queue (m)	25.4	10.6	32.1	11.6	170.5
95th Queue (m)	50.6	27.4	77.4	35.7	175.4
Link Distance (m)		102.5	266.6		164.3
Upstream Blk Time (%)					71
Queuing Penalty (veh)					0
Storage Bay Dist (m)	40.0			15.0	
Storage Blk Time (%)	6	0		1	59
Queuing Penalty (veh)	3	0		7	25

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	SB	SB	B29
Directions Served	L	R	L	T	T
Maximum Queue (m)	36.2	10.2	31.7	131.0	271.1
Average Queue (m)	16.0	5.5	2.2	120.0	267.3
95th Queue (m)	38.4	12.2	17.1	124.9	271.2
Link Distance (m)	119.0	119.0		103.7	266.6
Upstream Blk Time (%)				49	10
Queuing Penalty (veh)				686	145
Storage Bay Dist (m)			30.0		
Storage Blk Time (%)				46	
Queuing Penalty (veh)				4	

Intersection: 8: Ninth Line & Mahoney Gate/Skyview Street

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	L	L	TR
Maximum Queue (m)	17.4	44.9	59.4	28.3	9.4	71.3
Average Queue (m)	2.3	41.4	24.7	8.6	0.5	68.4
95th Queue (m)	11.7	48.2	58.6	20.6	5.4	71.5
Link Distance (m)		40.3	141.3			67.3
Upstream Blk Time (%)		99				26
Queuing Penalty (veh)		0				369
Storage Bay Dist (m)	15.0			36.0	15.0	
Storage Blk Time (%)	3	98		1		45
Queuing Penalty (veh)	2	42		4		1

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	24.3	7.3
Average Queue (m)	8.4	0.5
95th Queue (m)	19.8	4.0
Link Distance (m)	81.7	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		30.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2070

5: Ninth Line & East Lower Base Line/Eglinton Avenue West

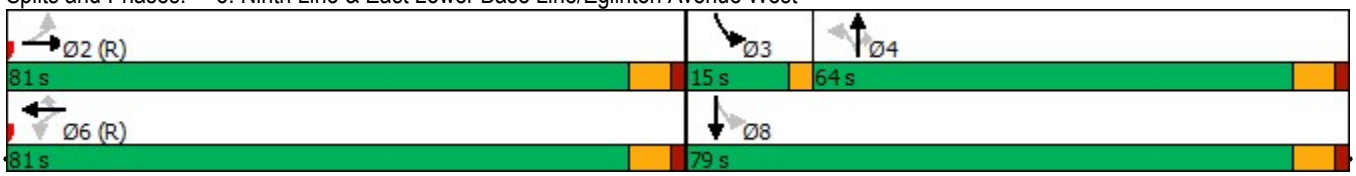
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	584	46	65	777	441	85	776	88	242	569	56
Future Volume (vph)	66	584	46	65	777	441	85	776	88	242	569	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	65.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98			0.98			
Frt		0.989				0.850			0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1705	1778	0	1671	1818	1427	1745	1860	1334	1691	1838	0
Flt Permitted	0.059			0.180			0.214			0.067		
Satd. Flow (perm)	106	1778	0	317	1818	1405	393	1860	1311	119	1838	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				237			48		4	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	4%	2%	1%	2%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	69	608	48	68	809	459	89	808	92	252	593	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	656	0	68	809	459	89	808	92	252	651	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane											Yes	
Headway Factor	1.08	1.04	1.04	1.08	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		6	6	6	4	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0	32.0	25.0	25.0	25.0	11.0	25.0	
Total Split (s)	81.0	81.0		81.0	81.0	81.0	64.0	64.0	64.0	15.0	79.0	
Total Split (%)	50.6%	50.6%		50.6%	50.6%	50.6%	40.0%	40.0%	40.0%	9.4%	49.4%	
Maximum Green (s)	74.0	74.0		74.0	74.0	74.0	57.0	57.0	57.0	12.0	72.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0	10.0	10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2		2	2	2	2	2	2		2	
Act Effct Green (s)	76.0	76.0		76.0	76.0	76.0	59.0	59.0	59.0	78.0	74.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48	0.48	0.37	0.37	0.37	0.49	0.46	
v/c Ratio	1.38	0.78		0.45	0.94	0.58	0.62	1.18	0.18	1.29	0.76	
Control Delay	292.2	42.5		40.2	58.7	16.9	62.5	139.2	18.0	200.3	42.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	292.2	42.5		40.2	58.7	16.9	62.5	139.2	18.0	200.3	42.7	
LOS	F	D		D	E	B	E	F	B	F	D	
Approach Delay		66.2			43.4			121.1			86.7	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 76.9		Intersection LOS: E	
Intersection Capacity Utilization 117.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West



6: Ninth Line & Erin Centre Boulevard



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	57	1197	66	80	852
Future Volume (vph)	39	57	1197	66	80	852
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98	1.00			
Frt		0.850	0.993			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1705	1525	1836	0	1691	1860
Flt Permitted	0.950				0.067	
Satd. Flow (perm)	1705	1491	1836	0	119	1860
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		59	5			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		281.4			174.6
Travel Time (s)	8.2		14.5			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	11%	1%	1%
Adj. Flow (vph)	41	59	1247	69	83	888
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	59	1316	0	83	888
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

6: Ninth Line & Erin Centre Boulevard

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	22.5	22.5	53.0		9.5	62.5
Total Split (%)	26.5%	26.5%	62.4%		11.2%	73.5%
Maximum Green (s)	16.0	16.0	47.0		6.5	56.5
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		0.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-2.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	11.2	11.2	61.0		70.7	67.7
Actuated g/C Ratio	0.13	0.13	0.72		0.83	0.80
v/c Ratio	0.18	0.24	1.00		0.36	0.60
Control Delay	33.4	11.1	42.8		9.7	7.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	33.4	11.1	42.8		9.7	7.4
LOS	C	B	D		A	A
Approach Delay	20.3		42.8			7.6
Approach LOS	C		D			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 27.5		Intersection LOS: C	
Intersection Capacity Utilization 83.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard



7: Ninth Line & Candlelight Drive



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	19	1214	14	23	861
Future Volume (vph)	6	19	1214	14	23	861
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	1857	0	1745	1860
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	1857	0	1745	1860
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			119.9
Travel Time (s)	9.4		4.5			6.2
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Adj. Flow (vph)	6	20	1291	15	24	916
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	20	1306	0	24	916
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.7%		ICU Level of Service D	
Analysis Period (min) 15			

7: Ninth Line & Candlelight Drive

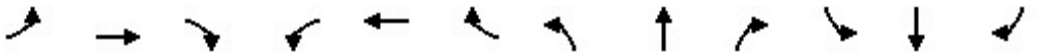


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	19	1214	14	23	861
Future Volume (Veh/h)	6	19	1214	14	23	861
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	20	1291	15	24	916
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			360			401
pX, platoon unblocked	0.77	0.64			0.64	
vC, conflicting volume	2264	1300			1307	
vC1, stage 1 conf vol	1300					
vC2, stage 2 conf vol	964					
vCu, unblocked vol	1734	1185			1197	
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	86			94	
cM capacity (veh/h)	167	148			376	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	6	20	1306	24	916
Volume Left	6	0	0	24	0
Volume Right	0	20	15	0	0
cSH	167	148	1700	376	1700
Volume to Capacity	0.04	0.14	0.77	0.06	0.54
Queue Length 95th (m)	0.8	3.5	0.0	1.5	0.0
Control Delay (s)	27.4	33.1	0.0	15.2	0.0
Lane LOS	D	D		C	
Approach Delay (s)	31.8		0.0	0.4	
Approach LOS	D				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

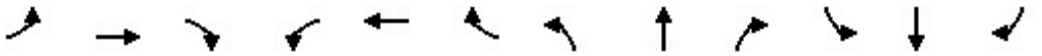
8: Ninth Line & Mahoney Gate/Skyview Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	49	4	3	4	88	1196	5	14	824	23
Future Volume (vph)	30	2	49	4	3	4	88	1196	5	14	824	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1640	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.3	3.5	3.7
Storage Length (m)	15.0		0.0	0.0		0.0	30.0		0.0	15.0		0.0
Storage Lanes	1		0	0		0	1		1	1		0
Taper Length (m)	2.5			7.6			7.6			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.855			0.951				0.850		0.996	
Flt Protected	0.950				0.982		0.950			0.950		
Satd. Flow (prot)	1789	1610	0	0	1636	0	1789	1860	1379	1745	1852	0
Flt Permitted	0.950				0.982		0.950			0.950		
Satd. Flow (perm)	1789	1610	0	0	1636	0	1789	1860	1379	1745	1852	0
Link Speed (k/h)		40			50			70			70	
Link Distance (m)		48.3			154.4			271.6			88.4	
Travel Time (s)		4.3			11.1			14.0			4.5	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.96	0.96	0.96	0.92
Heavy Vehicles (%)	2%	2%	2%	25%	2%	0%	2%	1%	0%	0%	1%	2%
Adj. Flow (vph)	33	2	53	4	3	4	96	1246	5	15	858	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	55	0	0	11	0	96	1246	5	15	883	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.22	1.04	1.01	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.4%		ICU Level of Service D	
Analysis Period (min) 15			

8: Ninth Line & Mahoney Gate/Skyview Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2	49	4	3	4	88	1196	5	14	824	23
Future Volume (Veh/h)	30	2	49	4	3	4	88	1196	5	14	824	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.96	0.96	0.96	0.92
Hourly flow rate (vph)	33	2	53	4	3	4	96	1246	5	15	858	25
Pedestrians					1							
Lane Width (m)					3.7							
Walking Speed (m/s)					1.1							
Percent Blockage					0							
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								272				
pX, platoon unblocked	0.64	0.64		0.64	0.64	0.64				0.64		
vC, conflicting volume	2344	2344	870	2381	2352	1247	883			1252		
vC1, stage 1 conf vol	900	900		1439	1439							
vC2, stage 2 conf vol	1444	1444		942	913							
vCu, unblocked vol	2828	2829	870	2886	2841	1102	883			1110		
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.3	5.5							
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	54	98	85	94	97	98	87			96		
cM capacity (veh/h)	71	91	351	68	99	165	766			404		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	33	55	11	96	1246	5	15	883
Volume Left	33	0	4	96	0	0	15	0
Volume Right	0	53	4	0	0	5	0	25
cSH	71	318	97	766	1700	1700	404	1700
Volume to Capacity	0.46	0.17	0.11	0.13	0.73	0.00	0.04	0.52
Queue Length 95th (m)	14.2	4.7	2.8	3.3	0.0	0.0	0.9	0.0
Control Delay (s)	93.6	18.7	46.6	10.4	0.0	0.0	14.2	0.0
Lane LOS	F	C	E	B			B	
Approach Delay (s)	46.8		46.6	0.7			0.2	
Approach LOS	E		E					

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	80.4%	ICU Level of Service		D
Analysis Period (min)	15			

9: Ninth Line & Viola Desmond Drive



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	14	6	1225	869	24
Future Volume (vph)	3	14	6	1225	869	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.887				0.996	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1657	0	1789	1883	1876	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1657	0	1789	1883	1876	0
Link Speed (k/h)	40			70	70	
Link Distance (m)	84.2			119.9	281.4	
Travel Time (s)	7.6			6.2	14.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	15	7	1332	945	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	7	1332	971	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

9: Ninth Line & Viola Desmond Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	14	6	1225	869	24
Future Volume (Veh/h)	3	14	6	1225	869	24
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)	3	15	7	1332	945	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)					281	
pX, platoon unblocked	0.72	0.72	0.72			
vC, conflicting volume	2304	958	971			
vC1, stage 1 conf vol	958					
vC2, stage 2 conf vol	1346					
vCu, unblocked vol	2623	743	761			
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 %	98	95	99			
cM capacity (veh/h)	186	297	609			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	18	7	1332	971
Volume Left	3	7	0	0
Volume Right	15	0	0	26
cSH	270	609	1700	1700
Volume to Capacity	0.07	0.01	0.78	0.57
Queue Length 95th (m)	1.6	0.3	0.0	0.0
Control Delay (s)	19.3	11.0	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	19.3	0.1		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	44.9	95.0	74.8	146.2	141.1	79.9	155.9	50.0	80.0	247.7
Average Queue (m)	39.4	86.1	32.5	139.7	81.8	33.3	147.4	16.5	79.4	243.6
95th Queue (m)	52.7	90.8	80.2	149.5	165.9	84.3	150.8	52.2	82.6	263.8
Link Distance (m)		80.7		136.3	136.3		142.2			242.7
Upstream Blk Time (%)		73		44	8		67			38
Queuing Penalty (veh)		0		0	0		0			337
Storage Bay Dist (m)	15.0		30.0			65.0		30.0	65.0	
Storage Blk Time (%)	95	49	12	52			66		88	16
Queuing Penalty (veh)	596	33	91	34			114		552	39

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	25.7	21.6	115.9	34.9	179.3
Average Queue (m)	9.6	9.0	42.7	21.2	128.8
95th Queue (m)	21.6	17.4	97.6	43.6	235.4
Link Distance (m)		102.5	265.3		164.3
Upstream Blk Time (%)					52
Queuing Penalty (veh)					0
Storage Bay Dist (m)	40.0			15.0	
Storage Blk Time (%)	0			10	55
Queuing Penalty (veh)	0			85	44

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	SB	SB
Directions Served	L	R	L	T
Maximum Queue (m)	30.1	12.7	49.9	108.3
Average Queue (m)	10.8	4.3	13.0	100.4
95th Queue (m)	28.2	11.6	46.7	135.6
Link Distance (m)	118.8	118.8		103.9
Upstream Blk Time (%)				38
Queuing Penalty (veh)				332
Storage Bay Dist (m)			30.0	
Storage Blk Time (%)				67
Queuing Penalty (veh)				15

Intersection: 8: Ninth Line & Mahoney Gate/Skyview Street

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	L	TR
Maximum Queue (m)	14.0	46.4	48.5	25.7	50.2	29.8	71.5
Average Queue (m)	2.6	37.1	18.6	8.6	1.7	4.2	67.0
95th Queue (m)	11.9	52.5	48.5	20.6	35.4	19.0	84.5
Link Distance (m)		40.0	141.3		242.7		67.3
Upstream Blk Time (%)		88			0		37
Queuing Penalty (veh)		0			0		320
Storage Bay Dist (m)	15.0			30.0		15.0	
Storage Blk Time (%)	2	92		0		0	67
Queuing Penalty (veh)	1	28		1		1	9

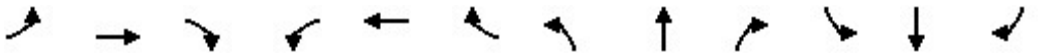
Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (m)	26.7	10.1	270.3
Average Queue (m)	7.8	0.4	228.0
95th Queue (m)	20.5	3.8	363.6
Link Distance (m)	76.3		265.3
Upstream Blk Time (%)			20
Queuing Penalty (veh)			177
Storage Bay Dist (m)		30.0	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2808

5: Ninth Line & East Lower Base Line/Eglinton Avenue West



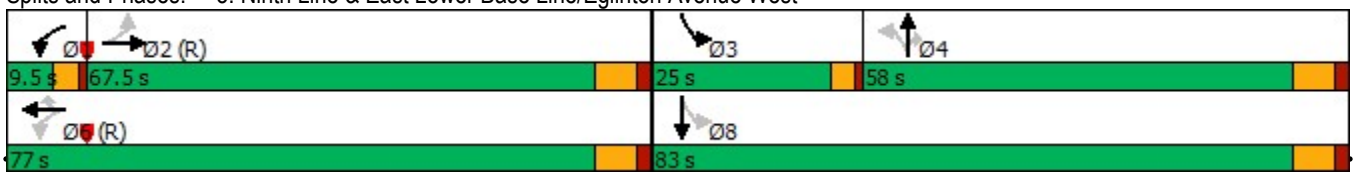
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	688	122	70	311	163	22	388	84	389	1044	80
Future Volume (vph)	34	688	122	70	311	163	22	388	84	389	1044	80
Ideal Flow (vphpl)	1900	1900	1900	1860	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	65.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98			0.98			
Frt		0.977				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1764	0	1620	1783	1348	1353	1789	1348	1642	1824	0
Flt Permitted	0.532			0.062			0.075			0.282		
Satd. Flow (perm)	890	1764	0	106	1783	1327	107	1789	1324	488	1824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				165			82		3	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	7%	1%	6%	3%	3%	8%	29%	5%	0%	4%	2%	0%
Adj. Flow (vph)	34	695	123	71	314	165	22	392	85	393	1055	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	818	0	71	314	165	22	392	85	393	1136	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane											Yes	
Headway Factor	1.08	1.04	1.04	1.11	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		1	6	6	4	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.5	32.5		9.5	32.5	32.5	25.0	25.0	25.0	11.0	25.0	
Total Split (s)	67.5	67.5		9.5	77.0	77.0	58.0	58.0	58.0	25.0	83.0	
Total Split (%)	42.2%	42.2%		5.9%	48.1%	48.1%	36.3%	36.3%	36.3%	15.6%	51.9%	
Maximum Green (s)	60.5	60.5		5.5	70.0	70.0	51.0	51.0	51.0	21.0	76.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-2.0	
Total Lost Time (s)	5.0	5.0		1.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	4.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0			10.0	10.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0			15.0	15.0	10.0	10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2			2	2	2	2	2		2	
Act Effct Green (s)	62.5	62.5		76.0	72.0	72.0	53.0	53.0	53.0	82.0	78.0	
Actuated g/C Ratio	0.39	0.39		0.48	0.45	0.45	0.33	0.33	0.33	0.51	0.49	
v/c Ratio	0.10	1.18		0.55	0.39	0.24	0.63	0.66	0.17	0.93	1.28	
Control Delay	32.1	137.8		41.2	31.2	4.2	114.4	52.3	8.5	56.5	168.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.1	137.8		41.2	31.2	4.2	114.4	52.3	8.5	56.5	168.3	
LOS	C	F		D	C	A	F	D	A	E	F	
Approach Delay		133.6			24.4			47.5			139.6	
Approach LOS		F			C			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 101 (63%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 106.2		Intersection LOS: F	
Intersection Capacity Utilization 130.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West



6: Ninth Line & Erin Centre Boulevard



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	55	658	30	42	1315
Future Volume (vph)	105	55	658	30	42	1315
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98	1.00			
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1688	1525	1774	0	1708	1842
Flt Permitted	0.950				0.309	
Satd. Flow (perm)	1688	1491	1774	0	556	1842
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		56	4			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		281.4			174.6
Travel Time (s)	8.2		14.5			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	0%	4%	30%	0%	2%
Adj. Flow (vph)	107	56	671	31	43	1342
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	56	702	0	43	1342
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

6: Ninth Line & Erin Centre Boulevard

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	22.5	22.5	53.0		9.5	62.5
Total Split (%)	26.5%	26.5%	62.4%		11.2%	73.5%
Maximum Green (s)	16.0	16.0	47.0		6.5	56.5
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		0.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-2.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	12.8	12.8	61.2		69.1	66.1
Actuated g/C Ratio	0.15	0.15	0.72		0.81	0.78
v/c Ratio	0.42	0.21	0.55		0.08	0.94
Control Delay	37.0	10.5	10.7		3.0	26.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	37.0	10.5	10.7		3.0	26.3
LOS	D	B	B		A	C
Approach Delay	27.9		10.7			25.6
Approach LOS	C		B			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 21.1		Intersection LOS: C	
Intersection Capacity Utilization 84.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard



7: Ninth Line & Candlelight Drive



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	35	636	4	8	1455
Future Volume (vph)	10	35	636	4	8	1455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	1771	0	1745	1842
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	1771	0	1745	1842
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			120.0
Travel Time (s)	9.4		4.5			6.2
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	6%	0%	0%	2%
Adj. Flow (vph)	10	36	656	4	8	1500
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	36	660	0	8	1500
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 86.6%		ICU Level of Service E	
Analysis Period (min) 15			

7: Ninth Line & Candlelight Drive

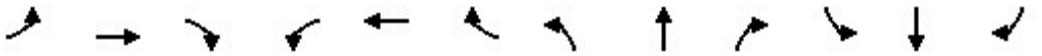


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	35	636	4	8	1455
Future Volume (Veh/h)	10	35	636	4	8	1455
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	36	656	4	8	1500
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			360			401
pX, platoon unblocked	0.37	0.82			0.82	
vC, conflicting volume	2175	659			661	
vC1, stage 1 conf vol	659					
vC2, stage 2 conf vol	1516					
vCu, unblocked vol	2241	476			478	
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 %	81	93			99	
cM capacity (veh/h)	52	487			898	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	10	36	660	8	1500
Volume Left	10	0	0	8	0
Volume Right	0	36	4	0	0
cSH	52	487	1700	898	1700
Volume to Capacity	0.19	0.07	0.39	0.01	0.88
Queue Length 95th (m)	4.9	1.8	0.0	0.2	0.0
Control Delay (s)	90.5	13.0	0.0	9.0	0.0
Lane LOS	F	B		A	
Approach Delay (s)	29.8		0.0	0.0	
Approach LOS	D				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

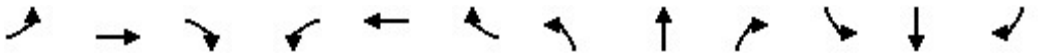
8: Ninth Line & Mahoney Gate/Skyview Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	4	83	5	2	12	44	571	2	2	1458	11
Future Volume (vph)	57	4	83	5	2	12	44	571	2	2	1458	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1640	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.3	3.5	3.7
Storage Length (m)	15.0		0.0	0.0		0.0	36.0		0.0	15.0		0.0
Storage Lanes	1		0	0		0	1		1	1		0
Taper Length (m)	2.5			7.6			7.6			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.856			0.915				0.850		0.999	
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1789	1612	0	0	1731	0	1789	1789	1379	1745	1840	0
Flt Permitted	0.950				0.987		0.950			0.950		
Satd. Flow (perm)	1789	1612	0	0	1731	0	1789	1789	1379	1745	1840	0
Link Speed (k/h)		40			50			70			70	
Link Distance (m)		48.4			154.4			271.6			88.4	
Travel Time (s)		4.4			11.1			14.0			4.5	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.99	0.92	0.99	0.99	0.99	0.99	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	2%	0%	2%	5%	0%	0%	2%	2%
Adj. Flow (vph)	62	4	90	5	2	12	48	577	2	2	1473	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	94	0	0	19	0	48	577	2	2	1485	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.22	1.04	1.01	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 93.6%		ICU Level of Service F	
Analysis Period (min) 15			

8: Ninth Line & Mahoney Gate/Skyview Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	4	83	5	2	12	44	571	2	2	1458	11
Future Volume (Veh/h)	57	4	83	5	2	12	44	571	2	2	1458	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.99	0.92	0.99	0.99	0.99	0.99	0.92
Hourly flow rate (vph)	62	4	90	5	2	12	48	577	2	2	1473	12
Pedestrians					1							
Lane Width (m)					3.7							
Walking Speed (m/s)					1.1							
Percent Blockage					0							
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								272				
pX, platoon unblocked	0.82	0.82		0.82	0.82	0.82				0.82		
vC, conflicting volume	2169	2159	1479	2243	2163	578	1485			580		
vC1, stage 1 conf vol	1483	1483		674	674							
vC2, stage 2 conf vol	686	676		1569	1489							
vCu, unblocked vol	2317	2305	1479	2407	2310	374	1485			377		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	56	98	42	44	98	98	89			100		
cM capacity (veh/h)	140	166	154	9	129	553	453			976		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	62	94	19	48	577	2	2	1485
Volume Left	62	0	5	48	0	0	2	0
Volume Right	0	90	12	0	0	2	0	12
cSH	140	155	32	453	1700	1700	976	1700
Volume to Capacity	0.44	0.61	0.59	0.11	0.34	0.00	0.00	0.87
Queue Length 95th (m)	15.1	24.7	15.0	2.7	0.0	0.0	0.0	0.0
Control Delay (s)	49.8	58.9	222.2	13.9	0.0	0.0	8.7	0.0
Lane LOS	E	F	F	B			A	
Approach Delay (s)	55.3		222.2	1.1			0.0	
Approach LOS	F		F					

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

9: Ninth Line & Viola Desmond Drive



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	47	4	676	1415	13
Future Volume (vph)	9	47	4	676	1415	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.887				0.999	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1657	0	1789	1883	1882	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1657	0	1789	1883	1882	0
Link Speed (k/h)	40			70	70	
Link Distance (m)	89.1			63.8	72.8	
Travel Time (s)	8.0			3.3	3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	51	4	735	1538	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	4	735	1552	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

9: Ninth Line & Viola Desmond Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	47	4	676	1415	13
Future Volume (Veh/h)	9	47	4	676	1415	13
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)	10	51	4	735	1538	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	2288	1545	1552			
vC1, stage 1 conf vol	1545					
vC2, stage 2 conf vol	743					
vCu, unblocked vol	2288	1545	1552			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	64	99			
cM capacity (veh/h)	176	141	427			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	61	4	735	1552
Volume Left	10	4	0	0
Volume Right	51	0	0	14
cSH	146	427	1700	1700
Volume to Capacity	0.42	0.01	0.43	0.91
Queue Length 95th (m)	14.0	0.2	0.0	0.0
Control Delay (s)	46.4	13.5	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	46.4	0.1		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	44.7	97.2	57.2	94.3	28.3	74.1	154.4	50.0	79.9	247.6
Average Queue (m)	7.5	86.1	16.0	49.0	11.8	14.4	100.1	24.8	68.1	244.7
95th Queue (m)	29.5	90.3	39.0	80.6	22.2	41.5	155.2	60.3	100.3	248.4
Link Distance (m)		80.7		136.3	136.3		142.2			242.9
Upstream Blk Time (%)		65					4			24
Queuing Penalty (veh)		0					0			376
Storage Bay Dist (m)	15.0		30.0			65.0		30.0	65.0	
Storage Blk Time (%)	6	61	1	22			46		12	46
Queuing Penalty (veh)	45	21	3	15			48		137	179

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	48.0	25.9	90.6	34.9	179.5
Average Queue (m)	22.6	8.6	31.4	10.4	170.6
95th Queue (m)	39.7	18.4	73.1	34.0	175.9
Link Distance (m)		102.5	266.6		164.3
Upstream Blk Time (%)					71
Queuing Penalty (veh)					0
Storage Bay Dist (m)	40.0			15.0	
Storage Blk Time (%)	2			0	58
Queuing Penalty (veh)	1			5	24

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	SB	SB	B29
Directions Served	L	R	L	T	T
Maximum Queue (m)	30.0	12.9	25.4	128.9	270.9
Average Queue (m)	13.8	5.5	1.2	119.6	265.5
95th Queue (m)	34.4	12.6	12.8	123.3	279.0
Link Distance (m)	119.0	119.0		103.7	266.6
Upstream Blk Time (%)				48	9
Queuing Penalty (veh)				687	128
Storage Bay Dist (m)			30.0		
Storage Blk Time (%)				45	
Queuing Penalty (veh)				4	

Intersection: 8: Ninth Line & Mahoney Gate/Skyview Street

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	L	L	TR
Maximum Queue (m)	17.4	44.9	56.9	27.8	7.6	71.4
Average Queue (m)	2.3	42.7	26.4	9.5	0.5	68.2
95th Queue (m)	11.8	46.5	75.6	21.5	5.0	71.3
Link Distance (m)		40.3	141.3			67.3
Upstream Blk Time (%)		100				24
Queuing Penalty (veh)		0				353
Storage Bay Dist (m)	15.0			36.0	15.0	
Storage Blk Time (%)	4	98		0		44
Queuing Penalty (veh)	4	57		0		1

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	48.6	10.3
Average Queue (m)	18.6	1.2
95th Queue (m)	38.8	6.2
Link Distance (m)	81.7	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		30.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2089

5: Ninth Line & East Lower Base Line/Eglinton Avenue West

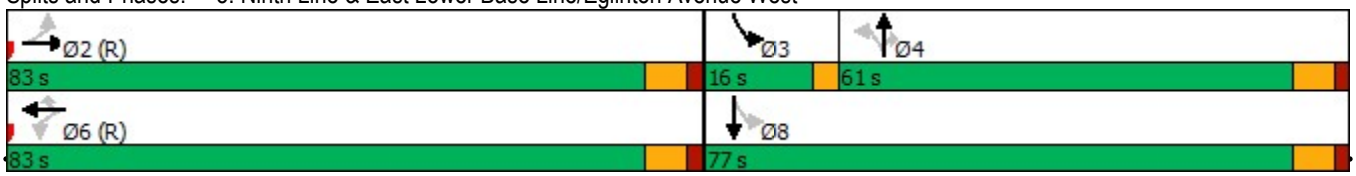
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	584	46	65	777	458	85	785	88	254	575	57
Future Volume (vph)	68	584	46	65	777	458	85	785	88	254	575	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1640	1900	1900	1640	1860	1900	1900
Lane Width (m)	3.1	3.3	3.3	3.1	3.3	4.0	3.3	3.5	3.3	3.3	3.5	3.3
Storage Length (m)	15.0		0.0	30.0		0.0	65.0		30.0	65.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	30.0			45.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98			0.98			
Frt		0.989				0.850			0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1705	1778	0	1671	1818	1427	1745	1860	1334	1691	1838	0
Flt Permitted	0.074			0.192			0.195			0.070		
Satd. Flow (perm)	133	1778	0	338	1818	1405	358	1860	1311	125	1838	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				249			48		4	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		93.8			153.4			154.5			271.6	
Travel Time (s)		5.6			9.2			7.9			14.0	
Confl. Peds. (#/hr)	2					2			2	2		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	4%	2%	1%	2%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	71	608	48	68	809	477	89	818	92	265	599	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	656	0	68	809	477	89	818	92	265	658	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.1			3.1			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane											Yes	
Headway Factor	1.08	1.04	1.04	1.08	1.04	1.14	1.04	1.01	1.26	1.07	1.01	1.04
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template						Right						
Leading Detector (m)	10.0	30.5		10.0	30.5	6.1	7.0	30.5	7.0	10.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	-3.0	-3.0	-3.0	0.0	0.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	6.1	10.0	10.0	10.0	10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2			6		6	4		4	8		
Detector Phase	2	2		6	6	6	4	4	4	3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0	32.0	25.0	25.0	25.0	11.0	25.0	
Total Split (s)	83.0	83.0		83.0	83.0	83.0	61.0	61.0	61.0	16.0	77.0	
Total Split (%)	51.9%	51.9%		51.9%	51.9%	51.9%	38.1%	38.1%	38.1%	10.0%	48.1%	
Maximum Green (s)	76.0	76.0		76.0	76.0	76.0	54.0	54.0	54.0	13.0	70.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0	10.0	10.0	10.0		10.0	
Pedestrian Calls (#/hr)	2	2		2	2	2	2	2	2		2	
Act Effct Green (s)	78.0	78.0		78.0	78.0	78.0	56.0	56.0	56.0	76.0	72.0	
Actuated g/C Ratio	0.49	0.49		0.49	0.49	0.49	0.35	0.35	0.35	0.48	0.45	
v/c Ratio	1.11	0.76		0.41	0.91	0.59	0.71	1.26	0.19	1.29	0.79	
Control Delay	185.1	40.0		36.0	53.7	16.2	76.7	170.3	19.1	197.1	46.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	185.1	40.0		36.0	53.7	16.2	76.7	170.3	19.1	197.1	46.0	
LOS	F	D		D	D	B	E	F	B	F	D	
Approach Delay		54.2			39.6			148.1			89.4	
Approach LOS		D			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.29			
Intersection Signal Delay: 80.8		Intersection LOS: F	
Intersection Capacity Utilization 119.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West



6: Ninth Line & Erin Centre Boulevard



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	57	1205	67	80	866
Future Volume (vph)	40	57	1205	67	80	866
Ideal Flow (vphpl)	1900	1900	1900	1900	1860	1900
Lane Width (m)	3.1	3.1	3.5	3.5	3.3	3.5
Storage Length (m)	40.0	0.0		0.0	15.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	55.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98	1.00			
Frt		0.850	0.993			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1705	1525	1835	0	1691	1860
Flt Permitted	0.950				0.067	
Satd. Flow (perm)	1705	1491	1835	0	119	1860
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		59	5			
Link Speed (k/h)	50		70			70
Link Distance (m)	113.5		281.4			174.6
Travel Time (s)	8.2		14.5			9.0
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	1%	11%	1%	1%
Adj. Flow (vph)	42	59	1255	70	83	902
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	59	1325	0	83	902
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.1		3.3			3.3
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.08	1.08	1.01	1.01	1.07	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template			Thru			Thru
Leading Detector (m)	17.0	17.0	30.5		25.0	30.5
Trailing Detector (m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Position(m)	-3.0	-3.0	0.0		15.0	0.0
Detector 1 Size(m)	20.0	20.0	1.8		10.0	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						

6: Ninth Line & Erin Centre Boulevard

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	8.0
Minimum Split (s)	22.5	22.5	23.5		9.5	23.5
Total Split (s)	22.5	22.5	53.0		9.5	62.5
Total Split (%)	26.5%	26.5%	62.4%		11.2%	73.5%
Maximum Green (s)	16.0	16.0	47.0		6.5	56.5
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.5	2.5	2.0		0.0	2.0
Lost Time Adjust (s)	-1.5	-1.5	-1.0		-2.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0		1.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		2.0	3.0
Recall Mode	None	None	C-Max		None	C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	8.0	8.0	8.0			8.0
Pedestrian Calls (#/hr)	1	1	1			1
Act Effct Green (s)	11.2	11.2	61.0		70.7	67.7
Actuated g/C Ratio	0.13	0.13	0.72		0.83	0.80
v/c Ratio	0.19	0.24	1.01		0.36	0.61
Control Delay	33.5	11.1	44.7		9.7	7.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	33.5	11.1	44.7		9.7	7.6
LOS	C	B	D		A	A
Approach Delay	20.4		44.7			7.8
Approach LOS	C		D			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 28.6		Intersection LOS: C	
Intersection Capacity Utilization 83.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Ninth Line & Erin Centre Boulevard



7: Ninth Line & Candlelight Drive



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	19	1225	14	23	873
Future Volume (vph)	6	19	1225	14	23	873
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.3	3.5	3.5	3.3	3.5
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.6				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	1561	1857	0	1745	1860
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1745	1561	1857	0	1745	1860
Link Speed (k/h)	50		70			70
Link Distance (m)	130.6		88.4			119.9
Travel Time (s)	9.4		4.5			6.2
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Adj. Flow (vph)	6	20	1303	15	24	929
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	20	1318	0	24	929
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.3		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.04	1.04	1.01	1.01	1.04	1.01
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.3%		ICU Level of Service D	
Analysis Period (min) 15			

7: Ninth Line & Candlelight Drive

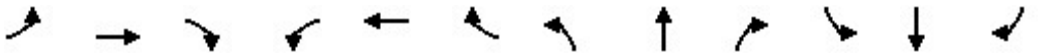


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	19	1225	14	23	873
Future Volume (Veh/h)	6	19	1225	14	23	873
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	20	1303	15	24	929
Pedestrians	1					
Lane Width (m)	3.3					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			360			401
pX, platoon unblocked	0.79	0.66			0.66	
vC, conflicting volume	2288	1312			1319	
vC1, stage 1 conf vol	1312					
vC2, stage 2 conf vol	977					
vCu, unblocked vol	1751	1212			1224	
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	86			94	
cM capacity (veh/h)	166	147			378	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	6	20	1318	24	929
Volume Left	6	0	0	24	0
Volume Right	0	20	15	0	0
cSH	166	147	1700	378	1700
Volume to Capacity	0.04	0.14	0.78	0.06	0.55
Queue Length 95th (m)	0.8	3.5	0.0	1.5	0.0
Control Delay (s)	27.5	33.4	0.0	15.2	0.0
Lane LOS	D	D		C	
Approach Delay (s)	32.0		0.0	0.4	
Approach LOS	D				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

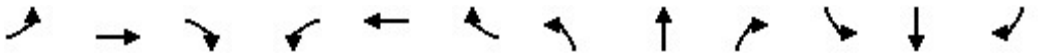
8: Ninth Line & Mahoney Gate/Skyview Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	3	56	4	4	4	112	1200	5	14	836	23
Future Volume (vph)	37	3	56	4	4	4	112	1200	5	14	836	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1640	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.3	3.5	3.7
Storage Length (m)	15.0		0.0	0.0		0.0	30.0		0.0	15.0		0.0
Storage Lanes	1		0	0		0	1		1	1		0
Taper Length (m)	2.5			7.6			7.6			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.857			0.955				0.850		0.996	
Flt Protected	0.950				0.984		0.950			0.950		
Satd. Flow (prot)	1789	1614	0	0	1656	0	1789	1860	1379	1745	1852	0
Flt Permitted	0.950				0.984		0.950			0.950		
Satd. Flow (perm)	1789	1614	0	0	1656	0	1789	1860	1379	1745	1852	0
Link Speed (k/h)		40			50			70			70	
Link Distance (m)		48.3			154.4			271.6			88.4	
Travel Time (s)		4.3			11.1			14.0			4.5	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.96	0.96	0.96	0.92
Heavy Vehicles (%)	2%	2%	2%	25%	2%	0%	2%	1%	0%	0%	1%	2%
Adj. Flow (vph)	40	3	61	4	4	4	122	1250	5	15	871	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	64	0	0	12	0	122	1250	5	15	896	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.22	1.04	1.01	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 81.6%		ICU Level of Service D	
Analysis Period (min) 15			

8: Ninth Line & Mahoney Gate/Skyview Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	3	56	4	4	4	112	1200	5	14	836	23
Future Volume (Veh/h)	37	3	56	4	4	4	112	1200	5	14	836	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.96	0.96	0.96	0.92
Hourly flow rate (vph)	40	3	61	4	4	4	122	1250	5	15	871	25
Pedestrians					1							
Lane Width (m)					3.7							
Walking Speed (m/s)					1.1							
Percent Blockage					0							
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								272				
pX, platoon unblocked	0.65	0.65		0.65	0.65	0.65				0.65		
vC, conflicting volume	2414	2414	884	2458	2421	1251	896			1256		
vC1, stage 1 conf vol	914	914		1495	1495							
vC2, stage 2 conf vol	1500	1500		964	926							
vCu, unblocked vol	2896	2896	884	2965	2908	1119	896			1127		
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.3	5.5							
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	34	96	82	93	95	98	84			96		
cM capacity (veh/h)	60	81	345	56	88	166	757			410		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	40	64	12	122	1250	5	15	896
Volume Left	40	0	4	122	0	0	15	0
Volume Right	0	61	4	0	0	5	0	25
cSH	60	299	85	757	1700	1700	410	1700
Volume to Capacity	0.66	0.21	0.14	0.16	0.74	0.00	0.04	0.53
Queue Length 95th (m)	21.4	6.0	3.6	4.3	0.0	0.0	0.9	0.0
Control Delay (s)	142.7	20.3	54.2	10.7	0.0	0.0	14.1	0.0
Lane LOS	F	C	F	B			B	
Approach Delay (s)	67.4		54.2	0.9			0.2	
Approach LOS	F		F					

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

9: Ninth Line & Viola Desmond Drive



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	26	10	1232	869	39
Future Volume (vph)	5	26	10	1232	869	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.885				0.994	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1654	0	1789	1883	1872	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1654	0	1789	1883	1872	0
Link Speed (k/h)	40			70	70	
Link Distance (m)	84.2			119.9	281.4	
Travel Time (s)	7.6			6.2	14.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	28	11	1339	945	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	11	1339	987	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

9: Ninth Line & Viola Desmond Drive



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	26	10	1232	869	39
Future Volume (Veh/h)	5	26	10	1232	869	39
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)	5	28	11	1339	945	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)					281	
pX, platoon unblocked	0.70	0.70	0.70			
vC, conflicting volume	2327	966	987			
vC1, stage 1 conf vol	966					
vC2, stage 2 conf vol	1361					
vCu, unblocked vol	2677	740	770			
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 %	97	90	98			
cM capacity (veh/h)	182	293	593			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	33	11	1339	987
Volume Left	5	11	0	0
Volume Right	28	0	0	42
cSH	268	593	1700	1700
Volume to Capacity	0.12	0.02	0.79	0.58
Queue Length 95th (m)	3.2	0.4	0.0	0.0
Control Delay (s)	20.3	11.2	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	20.3	0.1		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

Intersection: 5: Ninth Line & East Lower Base Line/Eglinton Avenue West

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	44.9	92.8	74.9	145.6	141.8	79.9	155.3	50.0	79.9	247.5
Average Queue (m)	35.9	85.8	29.7	138.1	77.6	34.7	147.4	19.8	78.0	238.2
95th Queue (m)	53.6	89.6	74.7	158.5	158.2	84.5	150.6	56.4	87.8	285.4
Link Distance (m)		80.7		136.3	136.3		142.2			242.7
Upstream Blk Time (%)		60		38	6		70			36
Queuing Penalty (veh)		0		0	0		0			319
Storage Bay Dist (m)	15.0		30.0			65.0		30.0	65.0	
Storage Blk Time (%)	88	50	13	49		5	68		76	18
Queuing Penalty (veh)	556	34	101	32		42	118		480	46

Intersection: 6: Ninth Line & Erin Centre Boulevard

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	25.0	23.7	107.2	34.9	178.9
Average Queue (m)	10.3	9.1	48.7	20.4	123.9
95th Queue (m)	21.2	18.5	97.0	41.0	233.7
Link Distance (m)		102.5	265.3		164.3
Upstream Blk Time (%)					48
Queuing Penalty (veh)					0
Storage Bay Dist (m)	40.0			15.0	
Storage Blk Time (%)				10	48
Queuing Penalty (veh)				87	39

Intersection: 7: Ninth Line & Candlelight Drive

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (m)	23.5	13.8	1.4	49.8	107.3
Average Queue (m)	9.6	4.6	0.0	11.3	90.3
95th Queue (m)	25.1	12.0	1.0	41.4	147.9
Link Distance (m)	118.8	118.8	67.3		103.9
Upstream Blk Time (%)					33
Queuing Penalty (veh)					299
Storage Bay Dist (m)				30.0	
Storage Blk Time (%)				0	57
Queuing Penalty (veh)				1	13

Intersection: 8: Ninth Line & Mahoney Gate/Skyview Street

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	L	TR
Maximum Queue (m)	17.4	44.9	59.2	30.1	29.4	29.8	71.7
Average Queue (m)	3.5	36.2	24.7	10.9	1.0	3.9	62.6
95th Queue (m)	13.9	55.0	62.4	23.1	16.1	17.9	92.9
Link Distance (m)		40.0	141.3		242.7		67.3
Upstream Blk Time (%)		77					34
Queuing Penalty (veh)		0					299
Storage Bay Dist (m)	15.0			30.0		15.0	
Storage Blk Time (%)	6	85		0			59
Queuing Penalty (veh)	4	32		5			8

Intersection: 9: Ninth Line & Viola Desmond Drive

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (m)	51.4	8.8	269.6
Average Queue (m)	18.3	1.3	203.2
95th Queue (m)	51.7	6.2	378.8
Link Distance (m)	76.3		265.3
Upstream Blk Time (%)	3		17
Queuing Penalty (veh)	0		158
Storage Bay Dist (m)		30.0	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2672

APPENDIX H

Level of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

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

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Level of Service Definitions

Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
B	> 10 and ≤ 20	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
C	> 20 and ≤ 35	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	> 35 and ≤ 55	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	> 55 and ≤ 80	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	> 80	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX I

TTS Data

Fri Mar 29 2019 12:16:44 GMT-0400 (Eastern Daylight Time) - Run Time: 1731ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: Use of Hwy 407 - hwy407

Filters:
2006 GTA zone of origin - gta06_orig In 3615, 3616, 3809, 3810, 3811
and
Start time of trip - start_time In 600-900
and
Primary travel mode of trip - mode_prime In D

Trip 2016
Table:

	Unknown	No	Yes	Sum	% use of 407	% total of trips		Route w/407	Route w/o 407
PD 1 of Toronto	77	342	0	419	0.0%	1.7%		Ninth Line south	Ninth Line south
PD 2 of Toronto	18	76	0	94	0.0%	0.4%		Ninth Line south	Ninth Line south
PD 3 of Toronto	92	124	17	233	12.1%	1.0%		407 (east)	403 (east)
PD 4 of Toronto	169	53	11	233	17.2%	1.0%		407 (east)	403 (east)
PD 5 of Toronto	81	80	18	179	18.4%	0.7%		407 (east)	403 (east)
PD 6 of Toronto	0	25	0	25	0.0%	0.1%		Ninth Line south	Ninth Line south
PD 7 of Toronto	164	82	0	246	0.0%	1.0%		Ninth Line south	Ninth Line south
PD 8 of Toronto	222	225	50	497	18.2%	2.0%		407 (east)	403 (east)
PD 9 of Toronto	229	154	88	471	36.4%	1.9%		407 (east)	403 (east)
PD 10 of Toronto	52	218	0	270	0.0%	1.1%		407 (east)	403 (east)
PD 11 of Toronto	35	88	0	123	0.0%	0.5%		407 (east)	403 (east)
PD 12 of Toronto	21	22	0	43	0.0%	0.2%		407 (east)	403 (east)
PD 13 of Toronto	40	85	0	125	0.0%	0.5%		407 (east)	403 (east)
PD 16 of Toronto	55	75	0	130	0.0%	0.5%		407 (east)	403 (east)
Clarington	18	0	0	18	0.0%	0.1%		407 (east)	403 (east)
Aurora	14	0	0	14	0.0%	0.1%		407 (east)	403 (east)
Richmond Hill	32	10	0	42	0.0%	0.2%		407 (east)	403 (east)
Markham	76	122	10	208	7.6%	0.9%		407 (east)	403 (east)
Vaughan	146	188	181	515	49.1%	2.1%		407 (east)	403 (east)
Caledon	26	20	0	46	0.0%	0.2%		407 (east)	403 (east)
Brampton	425	874	133	1432	13.2%	5.9%		407 (east)	403 (east)
Mississauga	7942	7710	228	15880	2.9%	65.4%		See internal breakdown	
Halton Hills	56	140	0	196	0.0%	0.8%	AVERAGE	Ninth Line north	Ninth Line north
Milton	106	368	0	474	0.0%	2.0%	6.6%	Ninth Line north	Ninth Line north
Oakville	430	770	18	1218	2.3%	5.0%		Ninth Line south	Ninth Line south
Burlington	174	151	10	335	6.2%	1.4%		Eglinton (west)	Ninth Line south
Dundas	0	33	0	33	0.0%	0.1%		Eglinton (west)	Ninth Line south
Ancaster	53	0	0	53	0.0%	0.2%		Eglinton (west)	Ninth Line south
Hamilton	134	156	0	290	0.0%	1.2%		Eglinton (west)	Ninth Line south
St. Catharines	15	0	0	15	0.0%	0.1%		Eglinton (west)	Ninth Line south
Waterloo	60	12	0	72	0.0%	0.3%		Ninth Line north	Ninth Line north
Cambridge	14	111	0	125	0.0%	0.5%		Ninth Line north	Ninth Line north
City of Guelph	106	68	0	174	0.0%	0.7%		Ninth Line north	Ninth Line north
Haliburton	8	0	0	8	0.0%	0.0%			
Brantford	0	19	0	19	0.0%	0.1%	AVERAGE	Eglinton (west)	Ninth Line south
External	29	0	0	29	0.0%	0.1%	1.2%		
Sum	11119	12401	764	24284	5.8%	100.0%			

EXTERNAL TO MISSISSAUGA		
Route		
407 (east)	6.6%	
407 (west)	1.2%	
403 (east)	12.2%	
Ninth Line (south)	10.0%	
Ninth Line (north)	4.3%	
Total	34.4%	

INTERNAL TO MISSISSAUGA	
Route	
Eglinton East	30.0%
Ninth Line (south)	10.0%
Ninth Line (north)	20.0%
Erin Centre East	5.0%
Total	65.0%

TOTAL		
Route		
Ninth Line (north)	30.9%	**30%**
Ninth Line (south)	20.0%	**20%**
Eglinton (East)	42.2%	**40%**
Eglinton (West)	1.2%	**5%**
Erin Centre (East)	5.0%	**5%**
	99.4%	**100.0%**

APPENDIX J

Signal Warrants

Input Data Sheet

Analysis Sheet | Results Sheet | Proposed Collision

GO TO Justification:

What are the intersecting roadways? Ninth Line & Mahoney Gate/Skyview Street

What is the direction of the Main Road street? North-South

When was the data collected? 2026 NW

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 1

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 4

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	39	443	2	24	2	35	4	574	9	2	2	4	0
8:00	39	443	2	24	2	35	4	574	9	2	2	4	0
9:00	39	443	2	24	2	35	4	574	9	2	2	4	0
12:00	39	443	2	24	2	35	4	574	9	2	2	4	0
13:00	39	443	2	24	2	35	4	574	9	2	2	4	0
16:00	39	443	2	24	2	35	4	574	9	2	2	4	0
17:00	39	443	2	24	2	35	4	574	9	2	2	4	0
18:00	39	443	2	24	2	35	4	574	9	2	2	4	0
Total	**312**	**3,544**	**16**	**192**	**16**	**280**	**32**	**4,592**	**72**	**16**	**16**	**32**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume									
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									12

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision

Intersection: Ninth Line & Mahoney Gate/Skyview Street Count Date: 2026 NW

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	100	%	☐	☑
	B	Crossing Volume	41	%		
2. Delay to Cross Traffic	A	Main Road	100	%	☐	☑
	B	Crossing Road	37	%		
3. Combination	A	Justificaton 1	41	%	☐	☑
	B	Justification 2	37	%		
4. 4-Hr Volume			69	%	☐	☑
5. Collision Experience			0	%	☐	☑
6. Pedestrians	A	Volume	Justification not met		☐	☑
	B	Delay	Justification not met			

Input Data Sheet

Analysis Sheet | Results Sheet | Proposed Collision

GO TO Justification:

What are the intersecting roadways? Ninth Line & Viola Desmond Drive

What is the direction of the Main Road street? North-South

When was the data collected? 2026

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 2 or more

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 3

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	4	489	0	4	0	18	0	601	13	0	0	0	0
8:00	4	489	0	4	0	18	0	601	13	0	0	0	0
9:00	4	489	0	4	0	18	0	601	13	0	0	0	0
12:00	4	489	0	4	0	18	0	601	13	0	0	0	0
13:00	4	489	0	4	0	18	0	601	13	0	0	0	0
16:00	4	489	0	4	0	18	0	601	13	0	0	0	0
17:00	4	489	0	4	0	18	0	601	13	0	0	0	0
18:00	4	489	0	4	0	18	0	601	13	0	0	0	0
Total	**32**	**3,912**	**0**	**32**	**0**	**144**	**0**	**4,808**	**104**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume									
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									12

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision

Intersection: Ninth Line & Viola Desmond Drive Count Date: 2026

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	100	%	☐	☑
	B	Crossing Volume	9	%		
2. Delay to Cross Traffic	A	Main Road	100	%	☐	☑
	B	Crossing Road	5	%		
3. Combination	A	Justificaton 1	9	%	☐	☑
	B	Justification 2	5	%		
4. 4-Hr Volume			14	%	☐	☑
5. Collision Experience			0	%	☐	☑
6. Pedestrians	A	Volume	Justification not met		☐	☑
	B	Delay	Justification not met			

Input Data Sheet

Analysis Sheet | Results Sheet | Proposed Collision

GO TO Justification:

What are the intersecting roadways? Ninth Line & Viola Desmond Drive

What is the direction of the Main Road street? North-South

When was the data collected? 2026 NW

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 1

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 3

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	4	477	0	4	0	18	0	571	13	0	0	0	0
8:00	4	477	0	4	0	18	0	571	13	0	0	0	0
9:00	4	477	0	4	0	18	0	571	13	0	0	0	0
12:00	4	477	0	4	0	18	0	571	13	0	0	0	0
13:00	4	477	0	4	0	18	0	571	13	0	0	0	0
16:00	4	477	0	4	0	18	0	571	13	0	0	0	0
17:00	4	477	0	4	0	18	0	571	13	0	0	0	0
18:00	4	477	0	4	0	18	0	571	13	0	0	0	0
Total	**32**	**3,816**	**0**	**32**	**0**	**144**	**0**	**4,568**	**104**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume									
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									12

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision

Intersection: Ninth Line & Viola Desmond Drive Count Date: 2026 NW

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	100	%	☐	☑
	B	Crossing Volume	9	%		
2. Delay to Cross Traffic	A	Main Road	100	%	☐	☑
	B	Crossing Road	5	%		
3. Combination	A	Justificaton 1	9	%	☐	☑
	B	Justification 2	5	%		
4. 4-Hr Volume			24	%	☐	☑
5. Collision Experience			0	%	☐	☑
6. Pedestrians	A	Volume	Justification not met		☐	☑
	B	Delay	Justification not met			

APPENDIX K

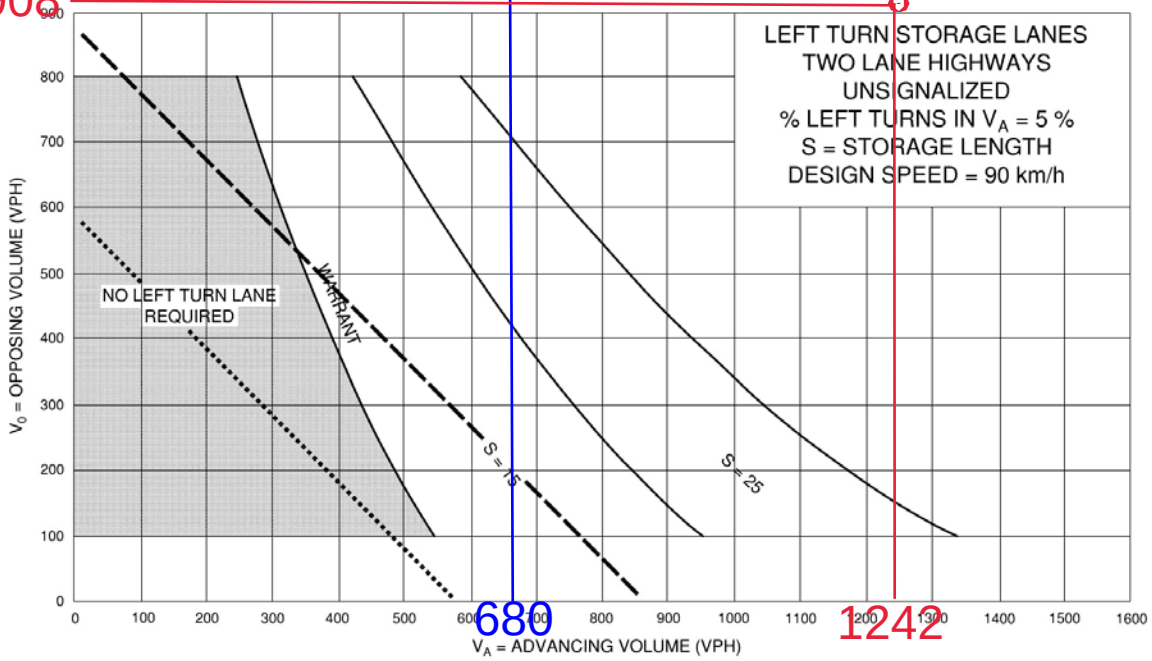
Left-Turn Warrants

1428

908

Exhibit 9A-19

NW Scenario



680

1242

TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

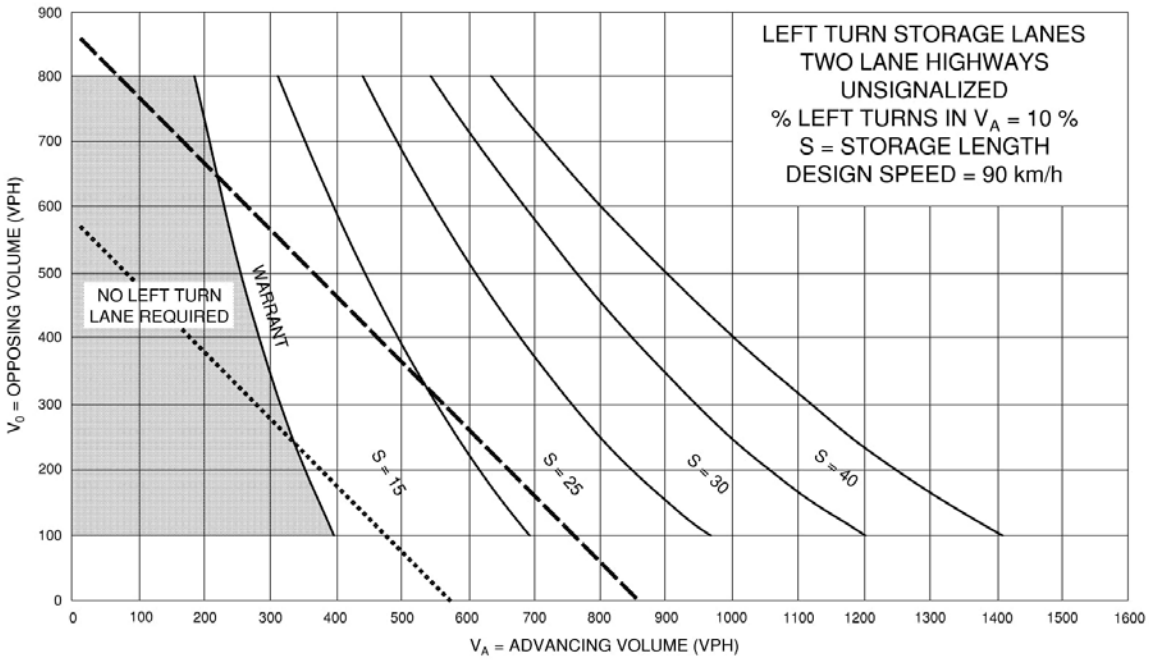
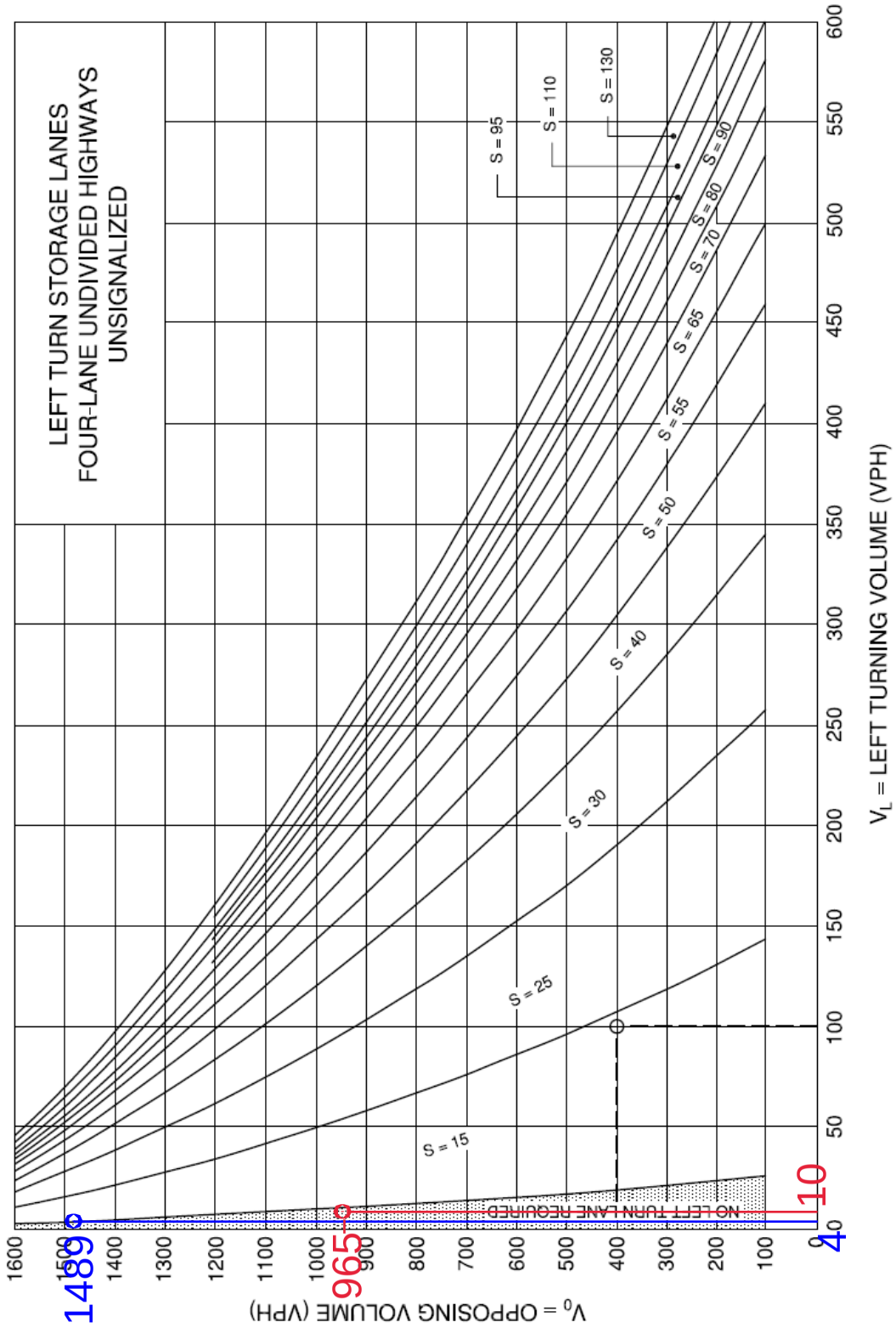
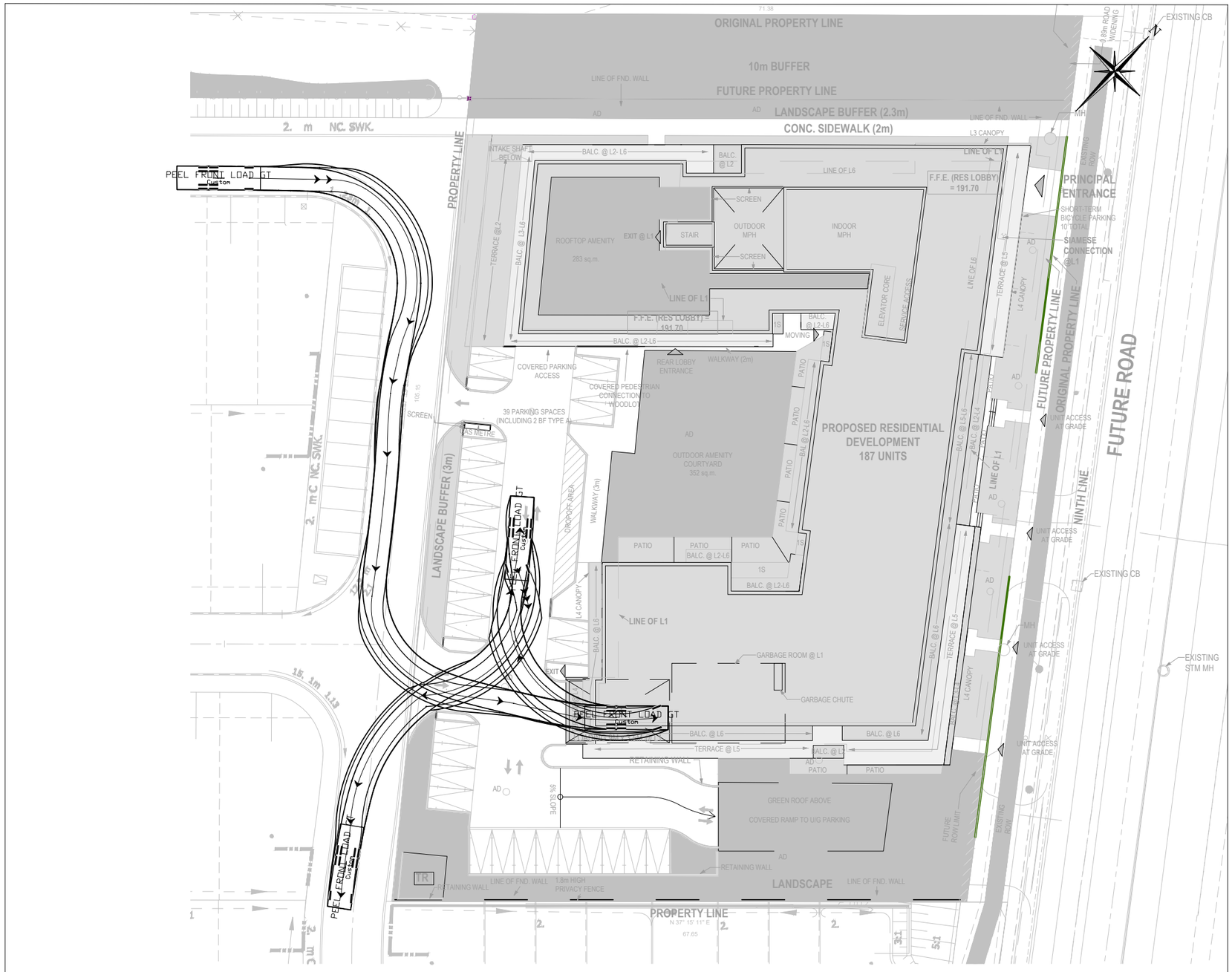


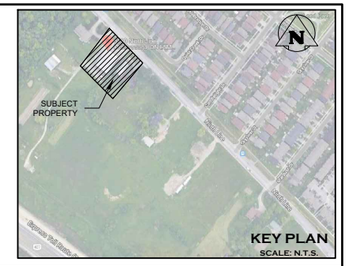
Exhibit 9A-31

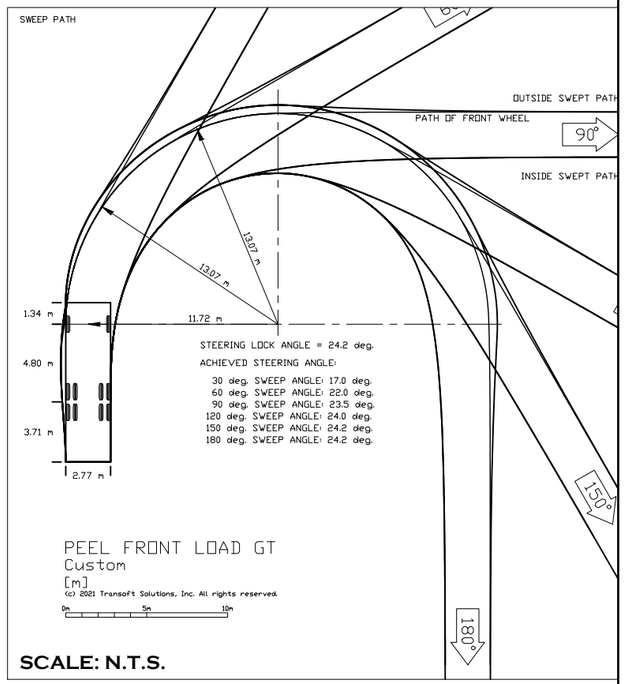


APPENDIX L

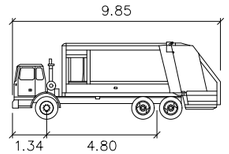
Vehicle Turning Diagrams







VEHICLE PROFILE



PEEL FRONT LOAD GT

meters

Width	: 2.77
Track	: 2.77
Lock to Lock Time	: 6.0
Steering Angle	: 24.2

SCALE: N.T.S.

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Town

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	10/08/2021
1	ISSUED FOR 2nd SUBMISSION	11/04/2021
2	ISSUED FOR 3rd SUBMISSION	29/08/2022

Engineer

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

Engineer

Project

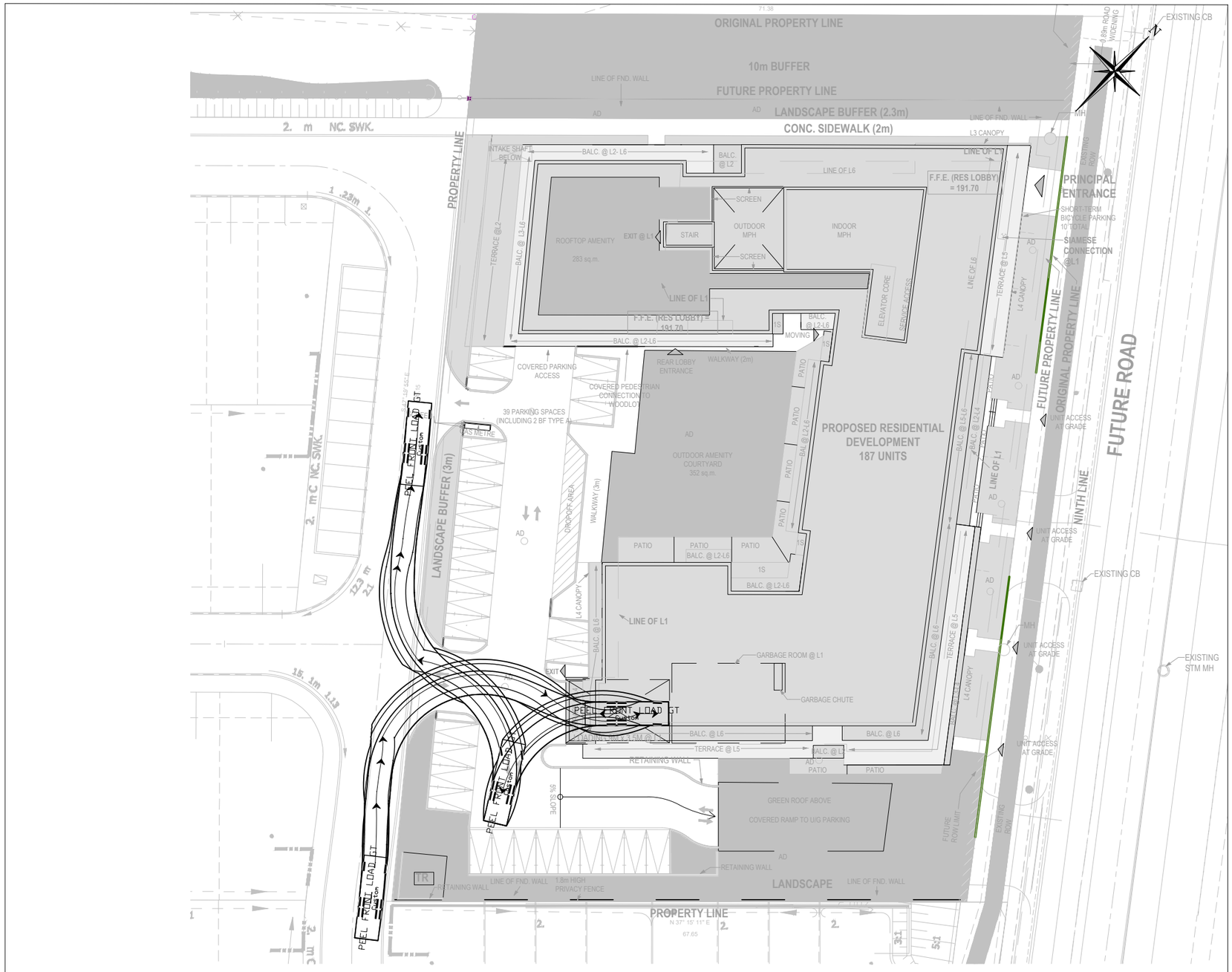
5160 NINTH LINE
CITY OF MISSISSAUGA

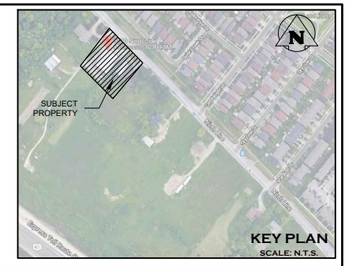
Drawing

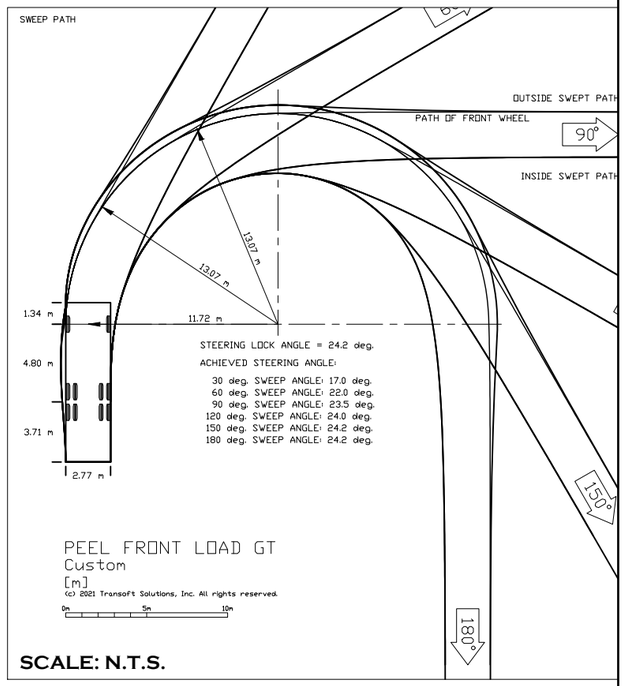
FRONT LOAD GARBAGE
TRUCK TURNING ANALYSIS

CROZIER CONSULTING ENGINEERS
8 Market Street
Suite 600
Toronto, ON M5E 1M6
416-477-3392T
www.cfcrozier.ca

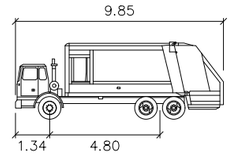
Drawn By	Design By	Project	
R.L.			1871–6159
Check By	Check By	Scale	Drawing
P.A.	A.H.	N.T.S.	T300







VEHICLE PROFILE



PEEL FRONT LOAD GT

meters

Width	: 2.77
Track	: 2.77
Lock to Lock Time	: 6.0
Steering Angle	: 24.2

SCALE: N.T.S.

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Engineer

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

Engineer

Project

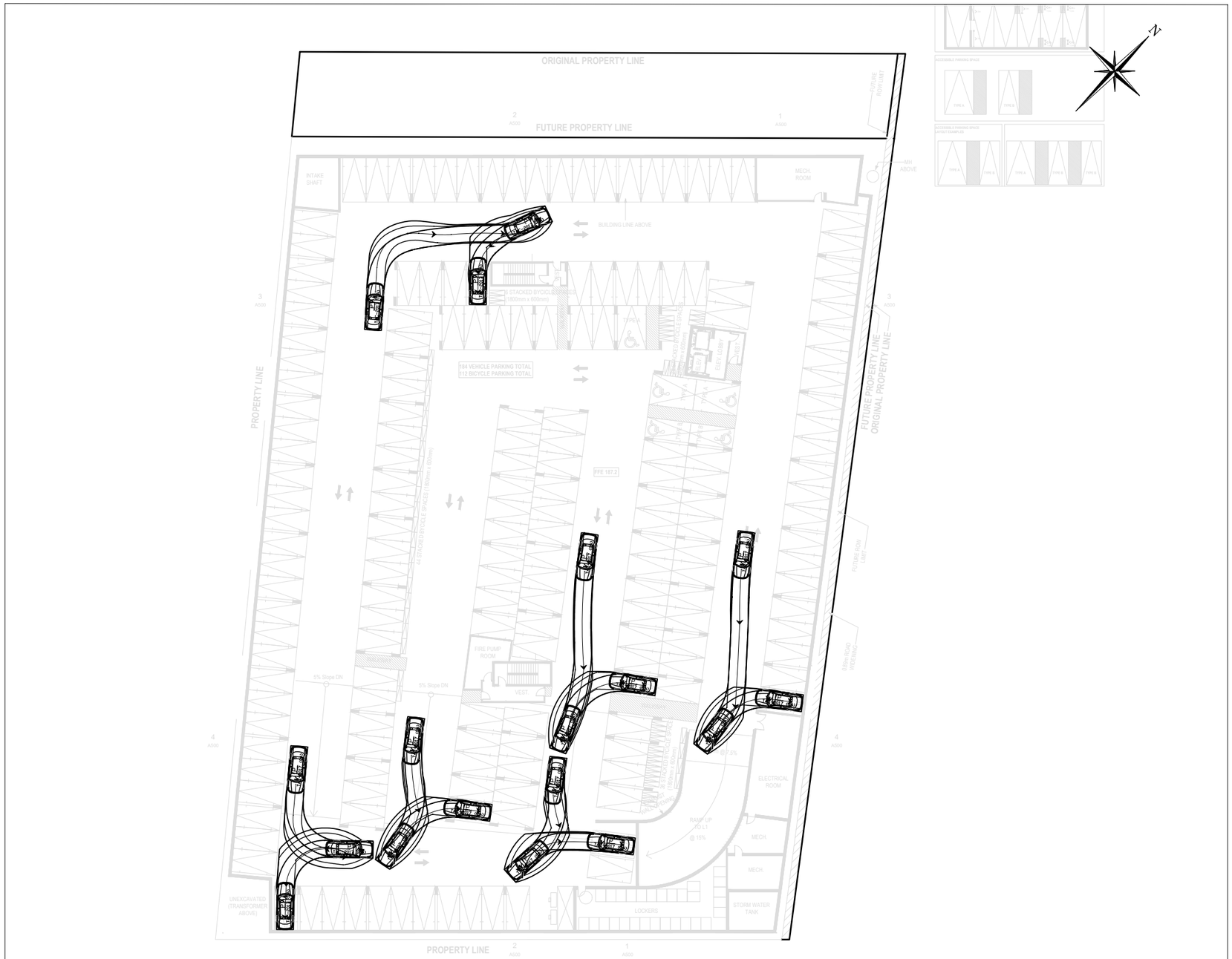
5160 NINTH LINE
CITY OF MISSISSAUGA

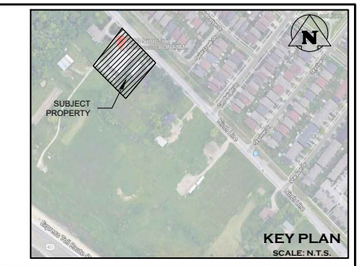
Drawing

FRONT LOAD GARBAGE
TRUCK TURNING ANALYSIS

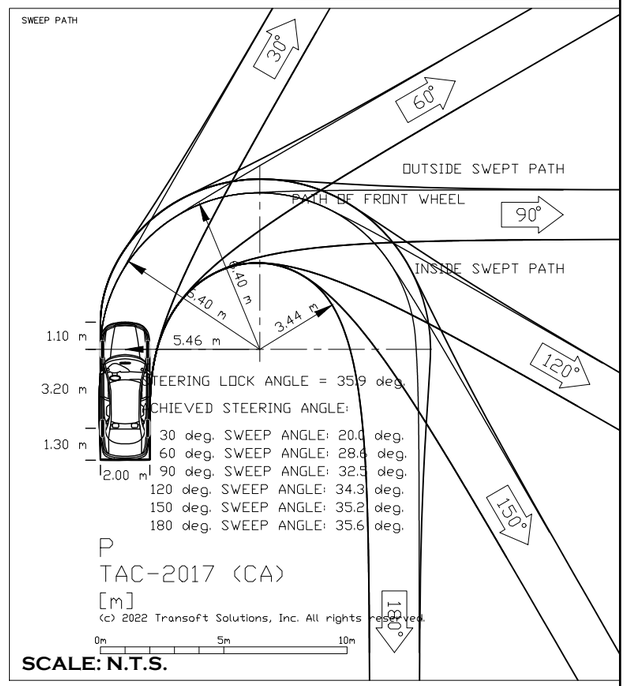
CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
9058750026 T
9058754915 F
www.cfcrozier.ca

Drawn By	Design By	Project	
R.L.			1871-6159
Check By	Check By	Scale	Drawing
P.A.	A.H.	N.T.S.	T301





SWEEP PATH



STEERING LOCK ANGLE = 35.9 deg.

ACHIEVED STEERING ANGLE:

30 deg. SWEEP ANGLE: 20.0 deg.
60 deg. SWEEP ANGLE: 28.6 deg.
90 deg. SWEEP ANGLE: 32.5 deg.
120 deg. SWEEP ANGLE: 34.3 deg.
150 deg. SWEEP ANGLE: 35.2 deg.
180 deg. SWEEP ANGLE: 35.6 deg.

P

TAC-2017 (CA)

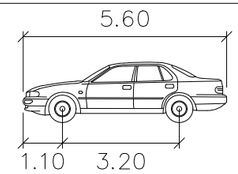
[m]

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0m 5m 10m

SCALE: N.T.S.

VEHICLE PROFILE



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

SCALE: N.T.S.

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Engineer

Engineer

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

Project

5160 NINTH LINE
CITY OF MISSISSAUGA

Drawing

VEHICLE TURNING ANALYSIS

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905 875 0026 T
905 875 4915 F
www.cfcrozier.ca

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R.L.			1871-6159
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APPENDIX M

City of Mississauga Zoning By-Law Excerpts

THE CORPORATION OF THE CITY OF MISSISSAUGA

BY-LAW NUMBER 0117-2022

A by-law to amend By-law Number 0225-2007, as amended.

WHEREAS pursuant to section 34 of the *Planning Act*, R.S.O. 1990, c.P.13, as amended, the council of a local municipality may pass a zoning by-law;

NOW THEREFORE the Council of The Corporation of the City of Mississauga ENACTS as follows:

1. By-law Number 0225-2007, as amended, being a City of Mississauga Zoning By-law is amended by adding the following Definition to Section 1.2:

Electric Vehicle	means a vehicle that uses one or more electric motors for propulsion.

2. By-law Number 0225-2007, as amended, is further amended by adding the following Definition to Section 1.2:

Electric Vehicle Ready Parking Space	means an unobstructed rectangular area, exclusive of any **aisle** or **driveway**, for the temporary parking of a **motor vehicle** and contains an energized outlet to allow for the installation of **electric vehicle** charging infrastructure, for which a letter, signed and sealed by an electrical engineer, confirming the design of the energized outlet meets, at a minimum, Level 2 electric vehicle charging criteria as defined by SAE International's J1772 standard has been received.

3. By-law Number 0225-2007, as amended, is further amended by adding the following Definition to Section 1.2:

Public Authority Dwelling Unit	means a **dwelling unit** that is owned and/or operated by or on behalf of a **public authority**.

11. By-law Number 0225-2007, as amended, is further amended by changing Article 3.1.2.1 contained in Subsection 3.1.2 as follows:

3.1.2.1 **Required Number of Parking Spaces for Residential Uses**

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

12. By-law Number 0225-2007, as amended, is further amended by changing Table 3.1.2.1 contained in Subsection 3.1.2 as follows:

Table 3.1.2.1 - Required Number of Off-Street Parking Spaces for Residential Uses
(0207-2008), (0297-2013), (0174-2017), (0179-2018), (0181-2018/LPAT Order 2019 February 15), (0119-2019/LPAT Order 2021 March 09), (0018-2021)

Column	A	B	C	D	E	F
Line 1.0	TYPE OF USE	UNIT OF MEASUREMENT	PRECINCT 1	PRECINCT 2	PRECINCT 3	PRECINCT 4
2.0	Condominium **Apartment**	resident spaces per unit	0.8	0.9	1.0	1.1
		visitor spaces per unit	0.20	0.20	0.20	0.20
3.0	Rental **Apartment**	resident spaces per unit	0.8	0.8	0.9	1.0
		visitor spaces per unit	0.20	0.20	0.20	0.20
4.0	**Public authority dwelling unit** or **dwelling unit** provided by a not-for profit housing provider in a rental **apartment**	resident spaces per unit	0.4	0.6	0.65	0.7
		visitor spaces per unit	0.20	0.20	0.20	0.20
5.0	**Apartment** (within CC1 to CC4 zones)	0.8 resident space per unit 0.15 visitor spaces per unit (1)				
6.0	**Detached Dwelling, Linked Dwelling, Semi-Detached, Street Townhouse**	spaces per unit	2.0	2.0	2.0	2.0
7.0	Condominium **Detached Dwelling**, Condominium **Semi-Detached**, Condominium **Townhouse**, **Detached Dwelling** on a **CEC - Road**, **Semi-Detached** on a **CEC - Road**, **Townhouse** on a **CEC - Road**	resident spaces per unit	2.0	2.0	2.0	2.0
		visitor spaces per unit	0.25	0.25	0.25	0.25
8.0	**Duplex, Triplex**	spaces per unit	1.25	1.25	1.25	1.25

FORM 309



Parking Precincts

Greenlands Overlay

N

0 100 200

METRES

This is not a Plan of Survey.

CITY OF MISSISSAUGA

THIS IS SCHEDULE "A85" TO

BY-LAW 0117-2022

PASSED BY COUNCIL ON

June 8, 2022

Z-57 A.S.

BL.01-PAR