



January 8, 2019

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Antrix Architects Inc.  
1109 Britannia Road East  
Mississauga, ON L4W 3X1

**Re: Proposed Site Expansion  
900 Eglinton Avenue East  
Transportation Study**

CGE Transportation Consulting is pleased to submit this Transportation Study for the proposed site expansion located on the south side of Eglinton Avenue East and west of Tomken Road, in the City of Mississauga.

Based on a comprehensive review, the proposed parking supply is adequate to support the expected parking demand generated by the development proposal and it satisfied the City's Zoning By-law parking requirements.

In addition, the study concludes that the incremental site traffic generated by the proposed development can be accommodated by the existing transportation network, no roadway improvements are required. The proposed site accesses can adequately support the forecasted traffic operations.

Should you have any questions regarding this study, please do not hesitate to contact the undersigned.

Yours truly,

**CGE TRANSPORTATION CONSULTING**

A handwritten signature in blue ink that reads "Casey Ge".

Casey Ge, P.Eng.  
President

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## **1.0 INTRODUCTION**

CGE Transportation Consulting was retained by Antrix Architects Inc. to prepare a Transportation Study for a proposed site expansion located on the south side of Eglinton Avenue East and west of Tomken Road, in the City of Mississauga.

### **Existing Site Descriptions:**

The site is bounded by Eglinton Avenue East to the north, commercial uses to the east and south and vacant / environmental lands to the west. It is currently occupied by the Bab ul Ilm Islamic Centre (under the trust of Bani Hashim Society) in a one-storey building with a single full-movement driveway onto Eglinton Avenue East.

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

### **Development Proposal Descriptions:**

Based on the current version of the proposed site plan, the development proposal will expand the operations of the Bab ul Ilm Islamic Centre by constructing a new two-storey building with a floor area of 1,221.1 m<sup>2</sup> (13,144 ft<sup>2</sup>). The worship area is 448.7 m<sup>2</sup> (4,830 ft<sup>2</sup>) and it can accommodate approximately 170 attendees.

The existing driveway will be reconfigured into a right-in / right-out access and a total of 123 parking spaces will be provided.

As advised by the owner, the peak worship service (Nimaaz e Jumma) occurs on Friday afternoon at 1:30 PM (First Khutba) and 1:55 PM (Namaaz).

The proposed draft plan is provided in Figure 2.

### **Scope of Work:**

Based on our review of the development proposal, the identified study area consists of the following key intersections:

- Eglinton Avenue East and Highway 403 Northbound Off-Ramp;
- Eglinton Avenue East and Tomken Road; and,
- Eglinton Avenue East and Site Driveway.

Estimation of site generated trip will utilize the existing trip rates surveyed at the subject site during the peak operation hour.

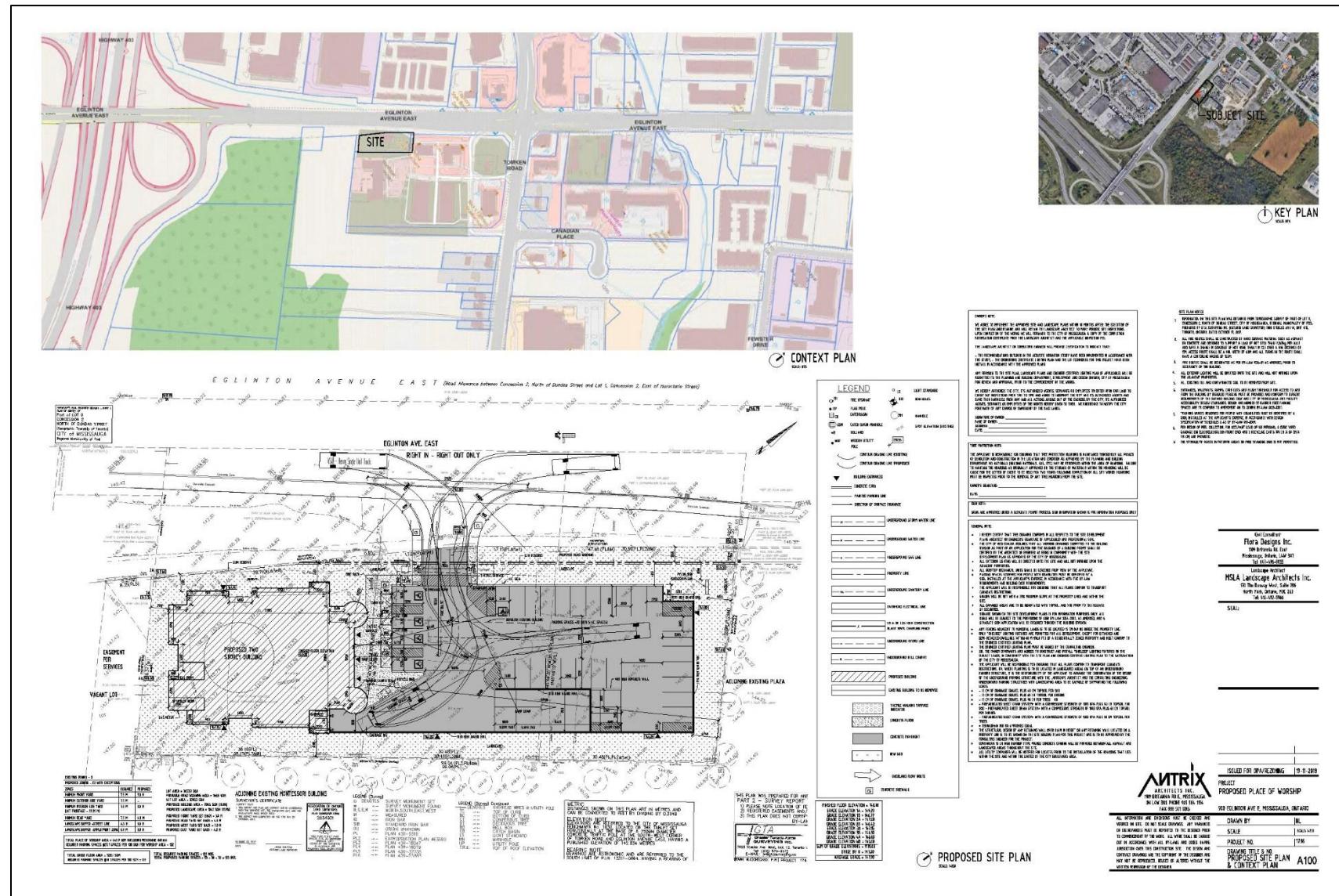
**Figure 1 Site Location**



Source: Google Maps

## Transportation Study – 900 Eglinton Avenue East

**Figure 2 Proposed Site Plan**



## 2.0 EXISTING AREA

### 2.1 Existing Road Network

The existing road network, lane configuration and existing traffic control for the study area are shown in Figure 3. The details are described below:

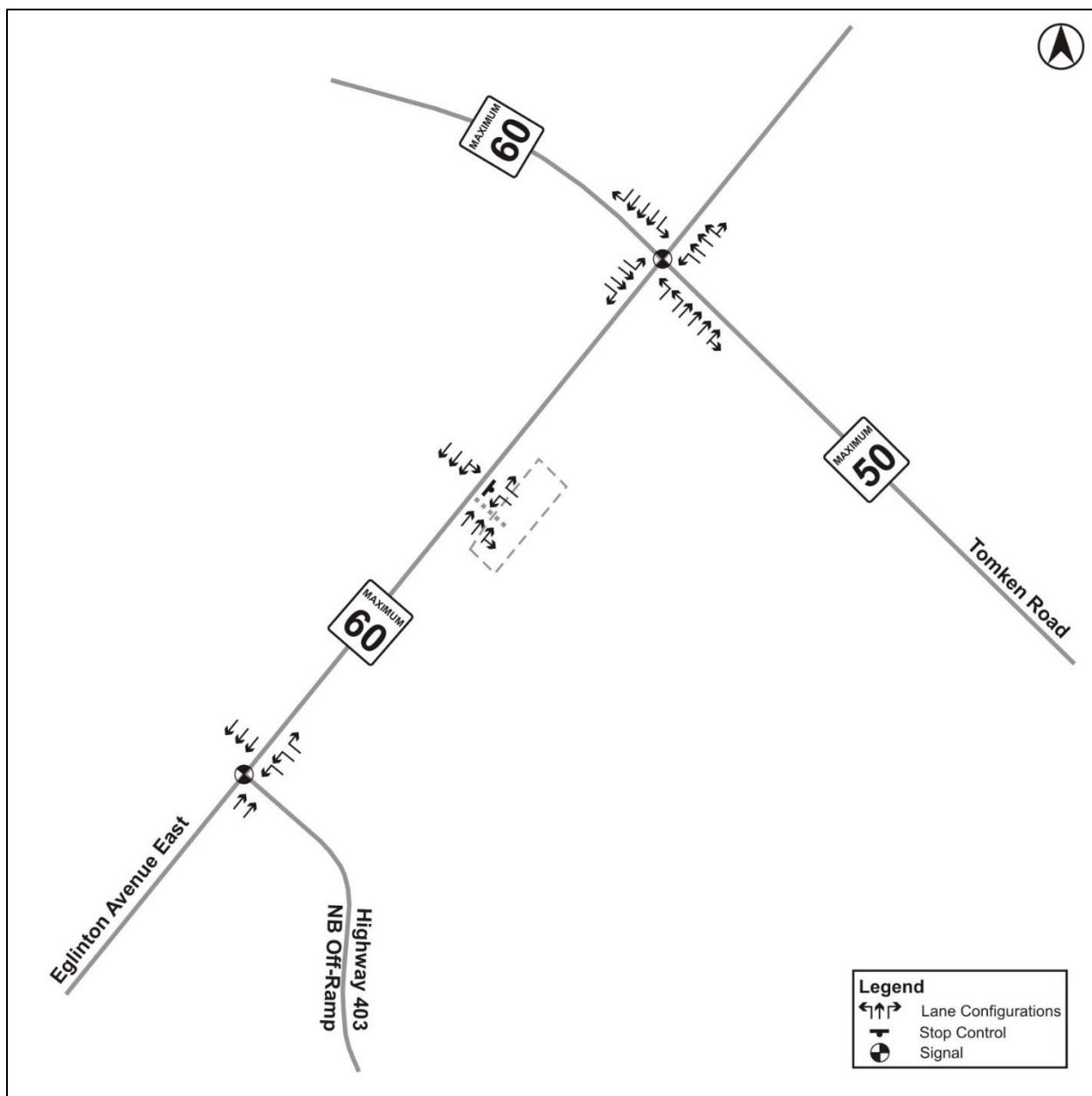
- **Eglinton Avenue East:** is an east-west arterial road under the jurisdictional control of the City. It has 6 general purpose lanes and it maintains a posted speed limit of 60 km/h in the vicinity of the subject site. Sidewalks are provided on both sides of the road.
- **Tomken Road:** is a north-south major collector road under the jurisdictional control of the City and it has 4 general purpose lanes. North of Eglinton Avenue East: the posted speed limit is 60 km/h and sidewalks are provided on both sides of the road. South of Eglinton Avenue East: the posted speed limit is 50 km/h and sidewalks are provided on the east side of the road.

### 2.2 Existing Transit Services

The subject site is currently served by the following bus routes operated by MiWay. It provides existing and future residents access and connections to both local and regional public transit system and it is illustrated in Figure 4.

- **Bus Route No. 7 (Airport)** – operates between City Centre Transit Terminal and Westwood Square Bus Terminal, generally in an east-west direction, everyday. The average headways are approximately every 20-30 minutes during the weekday morning and afternoon peak periods.
- **Bus Route No. 35 (Eglinton-Ninth Line)** – operates between the area of Erin Centre Boulevard and Longford Drive and Islington Subway Bus Terminal, generally in an east-west direction, everyday. The average headways are approximately every 10 minutes during the weekday morning and afternoon peak periods.
- **Bus Route No. 51 (Tomken)** – operates between the area of Dundas Street and Tomken Road intersection and the area of Cardiff Boulevard and Lorimar Drive intersection, generally in a north-south direction, Monday to Saturday. The average headways are approximately every 11-13 minutes during the weekday morning and afternoon peak periods.
- **Bus Route No. 87 (Meadowvale-Skymark)** – operates between the area of Skymark Avenue and Commerce Boulevard intersection and Meadowvale Town Centre, generally in an east-west direction, rush hour only. The average headways are approximately every 23 minutes during the weekday afternoon peak periods.

**Figure 3 Existing Road Network**



**Figure 4 Existing Transit Facilities**



Source: MiWay Service Map: Effective October 29, 2018

## **3.0 VEHICULAR PARKING REQUIREMENTS**

### **3.1 Zoning By-law**

In accordance to the City's Zoning By-law, Part 3 for Parking, Loading and Stacking Lane Regulations, the applicable parking requirement for the proposed development is:

- Place of Religious Assembly:
  - 1.0 space per 4.5 seats for permanent fixed seating; plus
  - 27.1 spaces for any non-fixed moveable seating per 100 m<sup>2</sup>; or
  - 27.1 spaces for all non-fixed moveable seating per 100 m<sup>2</sup>; or
  - 10.0 spaces per 100 m<sup>2</sup>, whichever greater.

The proposed development will have a total floor area of 1,221.1 m<sup>2</sup> (13,144 ft<sup>2</sup>), including 448.7 m<sup>2</sup> (4,830 ft<sup>2</sup>) of worship area. No fixed / permeant seating is proposed. Therefore, in accordance to the Zoning By-law parking requirements, a total of 122 parking spaces are required. The proposed parking supply of 123 spaces satisfied the parking requirements.

### **3.2 Site Observations**

In addition, the maximum observed existing parking demand is 38 spaces during the Friday afternoon worship period, or approximately 0.35 spaces per person capacity. The proposed site expansion is expected to generate 60 parking spaces based on a maximum capacity of 170 attendees.

## **4.0 TRAFFIC VOLUMES**

### **4.1 Existing Traffic Volumes**

Baseline traffic volumes at the Eglinton Avenue East and Highway 403 northbound off-ramp interaction was based on the traffic count administrated by the Ministry of Transportation on October 12, 2016. The intersection of Eglinton Avenue East and Tomken Road was counted by Accu-Traffic Inc. on November 16, 2018 during the AM (7:00 to 9:00) and PM (4:00 to 6:00) peak periods.

In addition, we have contacted the City and obtained the official signal timing plans and cycle lengths for the signalized intersection.

The assumed baseline traffic volumes are illustrated in Figure 5 and a copy of the data is provided in Appendix A.

### **4.2 Future Background Traffic Volumes**

#### **4.2.1 Analysis Horizon Year**

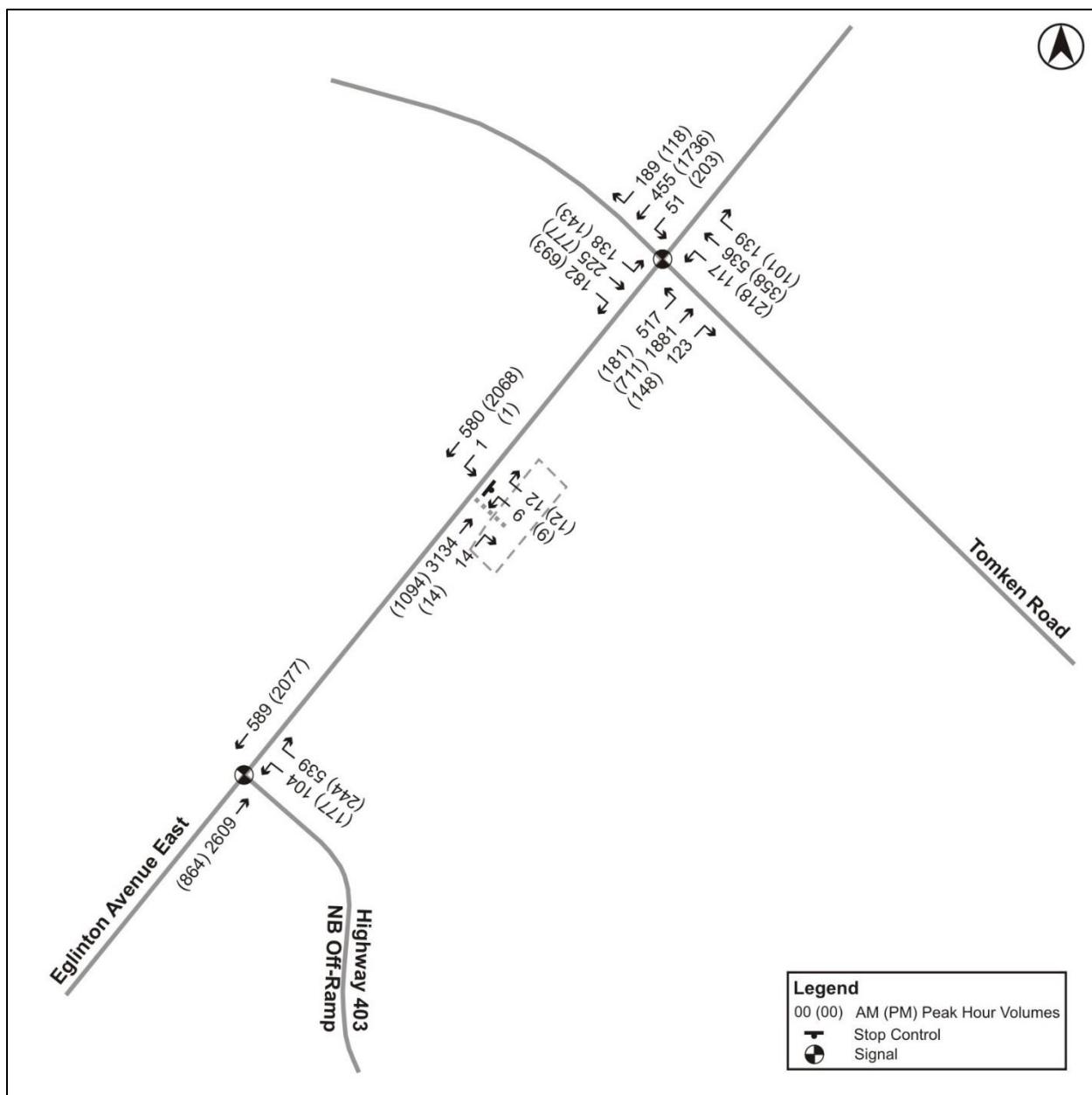
Given the scale of the proposed development, the horizon year of 2023 was selected, which represents the expected full build-out of the site plus period for traffic normalization.

#### **4.2.2 Corridor Growth**

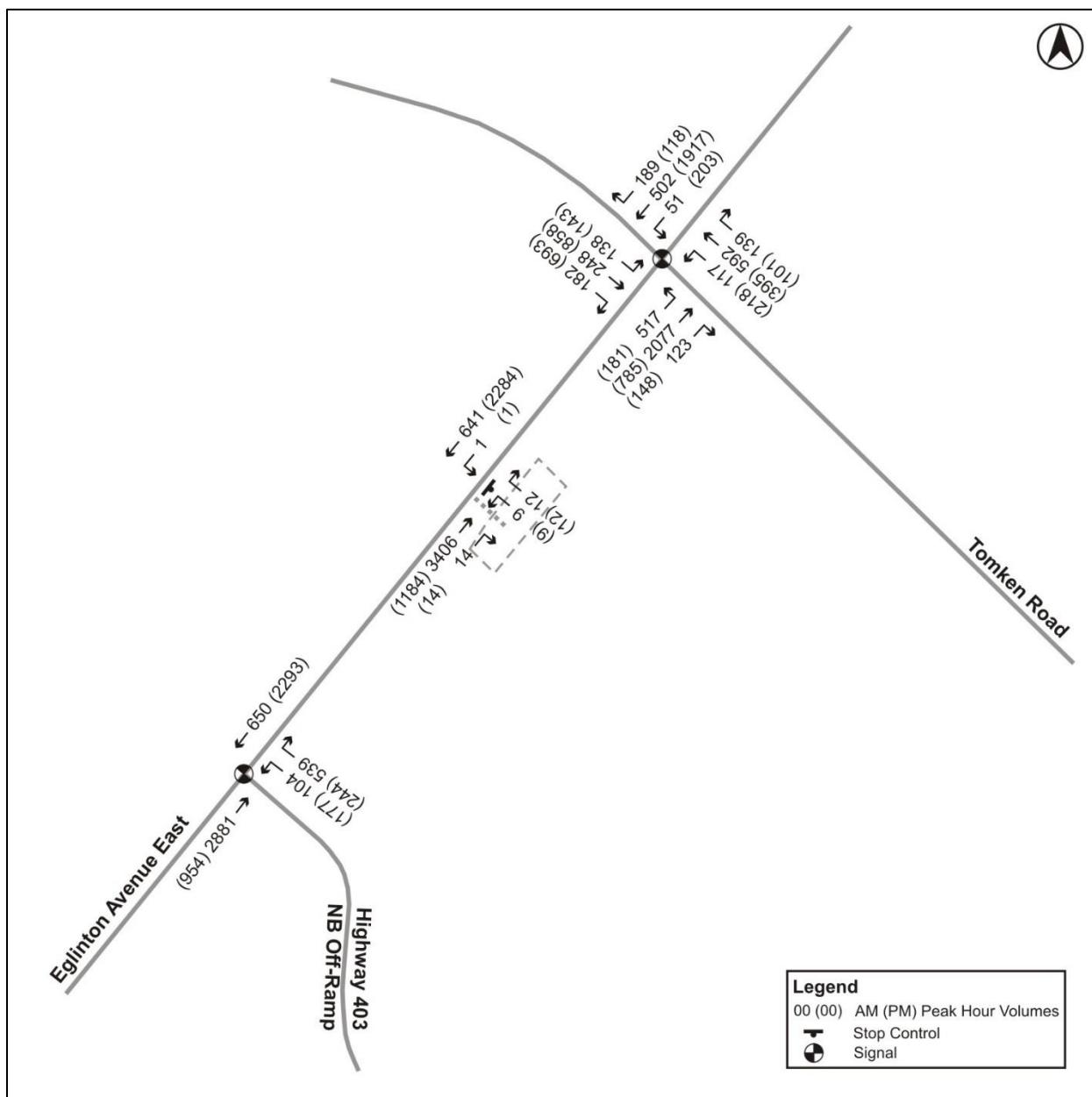
A general growth rate of 2% compounded annually was assumed for the through movements.

Future background traffic volumes are illustrated in Figure 6.

**Figure 5 Existing Traffic Volumes**



**Figure 6 2023 Future Background Traffic Volumes**



## 4.3 Site Traffic Projection

### 4.3.1 Trip Generation

The projection of new additional traffic volumes generated by the development proposal is estimated based on the trip rates surveyed at the subject site during the peak worship service period occurred on Friday afternoon.

Table 1 summarizes the total site trip generation for the proposed development.

**Table 1 Site Trip Generation**

Land Use		Friday Afternoon (Peak Worship Period)		
		In	Out	Total
Assumed Max. 170 Attendees	Rates	0.14	0.19	0.33
	Trips	24	32	56

*Note: trip rates are based on inbound and outbound vehicles counted at the site driveway during peak hour over the existing capacity of 110 attendees.*

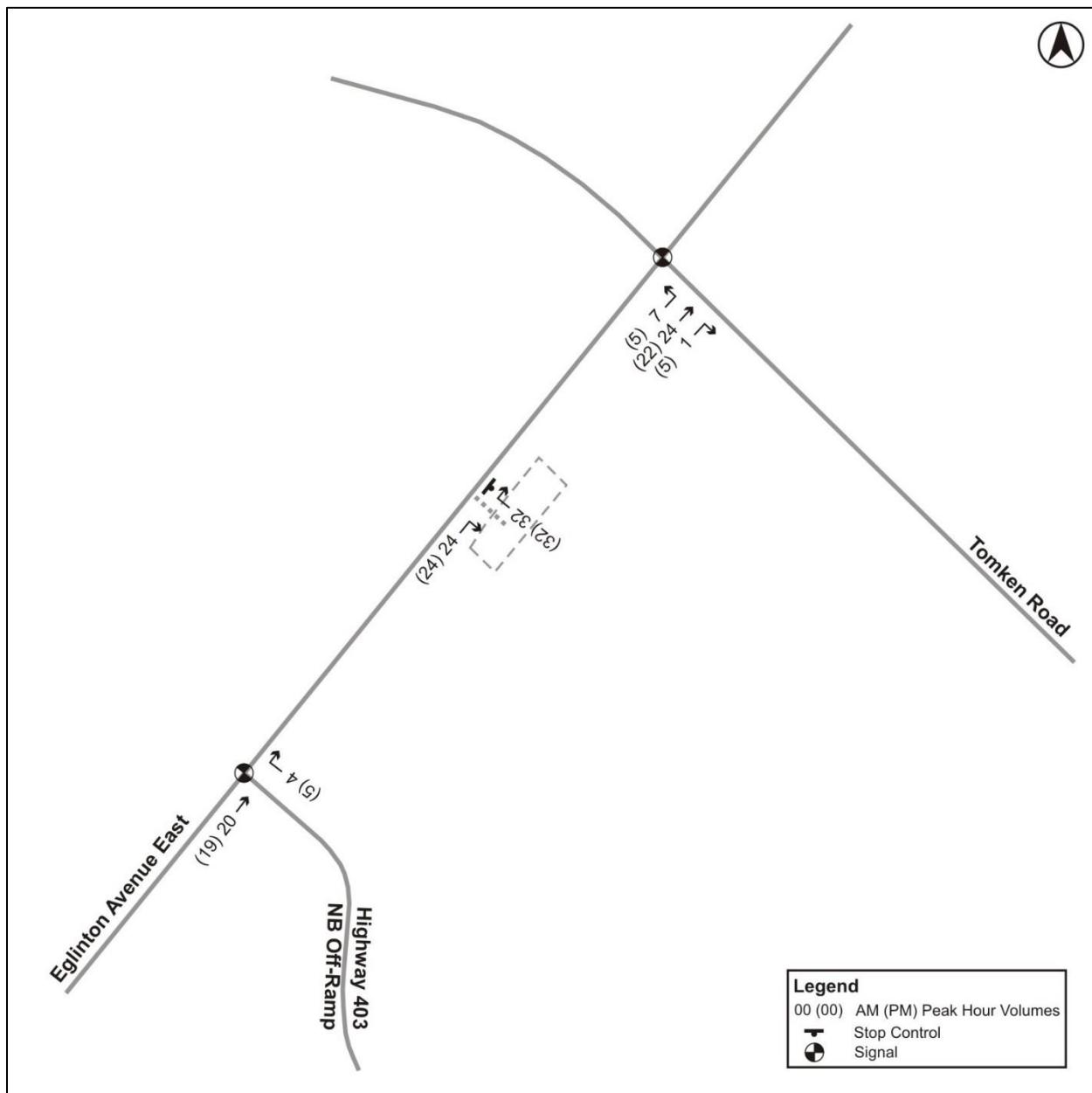
Based on the foregoing, the development proposal is anticipated to generate 56 two-way trips during the peak worship service period which is occurring on a Friday afternoon. For the purpose of this study, these new trips were assumed for the typical AM and PM peak hours which represents a conservative analysis assumption since demand during those periods are limited.

### 4.3.2 Trip Distribution

In accordance to the site plan, the site driveway will operate as right-in / right-out access. The assumed trip distribution rates are based on existing travel patterns observed at the site, proposed configuration of the site driveway and general traffic flow at the external intersections.

New site traffic volumes are illustrated in Figure 7.

**Figure 7 New Site Traffic Volumes**



## **4.4 Future Road Network**

Based on our review, there are no roadway improvements approved or scheduled within the study area.

## **4.5 Future Total Traffic Volumes**

Future total traffic volumes were established by adding site generated traffic to the future background traffic, and they are illustrated in Figure 8.

# **5.0 OPERATION ANALYSIS**

### **Analysis Methodology:**

Intersection capacity analyses contained in this study were undertaken using the Synchro software, which is based on the methodologies and procedures outlined in the Highway Capacity Manual (HCM) 2000 published by the Transportation Research Board.

### **Analysis Summary:**

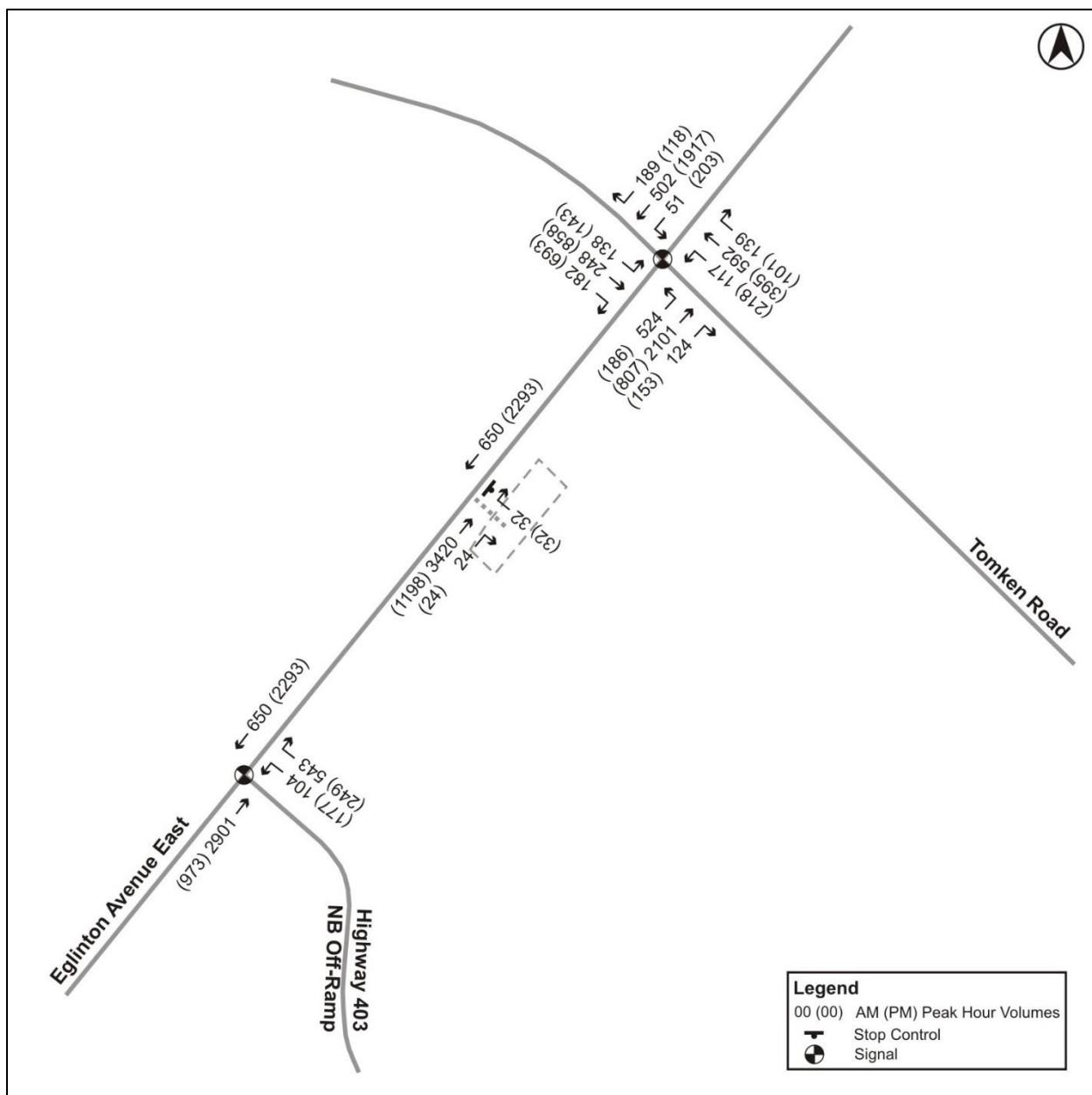
The analysis results are summarized in the following tables:

- Table 2: 2023 traffic conditions (AM Peak Hour)
- Table 3: 2023 traffic conditions (PM Peak Hour)

The study intersections are projected to operate with acceptable delays (LOS ‘E’ or better) and sufficient capacity (below v/c ratio of 1.00).

Detailed Synchro calculations are provided in Appendix B.

**Figure 8 2023 Future Total Traffic Volumes**



**Table 2 2023 Intersection Analysis Summary – AM Peak Hour**

Intersection	Movement	Existing				Future Background				Future Total			
		LOS	v/c	Delays	95 <sup>th</sup> Queue	LOS	v/c	Delays	95 <sup>th</sup> Queue	LOS	v/c	Delays	95 <sup>th</sup> Queue
Eglinton Avenue East and Highway 403 NB Off-Ramp	EB T	C	0.95	22.0	309.9	C	0.97	21.8	398.9	C	0.98	23.2	403.5
	WB T	A	0.17	4.8	17.9	A	0.19	4.2	18.2	A	0.19	4.2	18.2
	NB L	D	0.20	45.6	20.4	D	0.23	47.6	20.8	D	0.23	47.6	20.8
	NB R	A	0.35	0.6	0.0	A	0.35	0.6	0.0	A	0.36	0.7	0.0
Eglinton Avenue East and Tomken Road	EB L	E	0.84	58.1	85.1	E	0.84	58.1	85.1	E	0.84	58.4	86.1
	EB T	D	0.87	37.1	187.3	D	0.96	45.6	234.8	D	0.97	47.4	239.3
	EB R	C	0.09	21.4	12.1	C	0.10	21.5	13.8	C	0.11	21.6	14.3
	WB L	C	0.36	32.1	12.7	C	0.36	33.5	12.7	C	0.36	33.8	12.7
	WB T	D	0.36	36.8	46.2	D	0.40	37.3	50.9	D	0.40	37.5	50.9
	WB R	C	0.13	34.2	18.4	C	0.13	34.2	18.4	C	0.13	34.4	18.4
	NB L	C	0.27	28.0	31.4	C	0.27	28.0	31.4	C	0.27	28.0	31.4
	NB T	D	0.57	41.4	84.2	D	0.62	42.8	93.6	D	0.62	42.8	93.6
	NB R	C	0.10	34.5	16.9	C	0.12	34.8	19.1	C	0.12	34.8	19.1
	SB L	C	0.46	28.1	36.7	C	0.49	28.6	36.7	C	0.49	28.6	36.7
	SB T	D	0.24	35.0	36.1	D	0.26	35.4	39.5	D	0.26	35.4	39.5
	SB R	A	0.14	0.2	0.0	A	0.14	0.2	0.0	A	0.14	0.2	0.0
Eglinton Avenue East and Site Driveway	WB L	A	0.00	0.3	0.1	A	0.00	0.2	0.1	-	-	-	-
	NB L	E	0.09	44.5	2.3	E	0.07	36.1	1.8	-	-	-	-
	NB R	B	0.03	13.2	0.7	C	0.04	16.9	0.9	C	0.11	18.3	2.8

*Note: signal timings and cycle lengths were maintained.*

**Table 3 2023 Intersection Analysis Summary – PM Peak Hour**

Intersection	Movement	Existing				Future Background				Future Total			
		LOS	v/c	Delays	95 <sup>th</sup> Queue	LOS	v/c	Delays	95 <sup>th</sup> Queue	LOS	v/c	Delays	95 <sup>th</sup> Queue
Eglinton Avenue East and Highway 403 NB Off-Ramp	EB T	B	0.43	13.7	56.1	B	0.44	10.9	58.6	B	0.45	11.0	60.2
	WB T	B	0.70	17.9	108.5	B	0.71	15.0	118.8	B	0.71	15.0	118.8
	NB L	C	0.18	31.6	29.3	D	0.21	36.4	30.2	D	0.21	36.4	30.2
	NB R	A	0.19	0.3	0.0	A	0.19	0.3	0.0	A	0.19	0.3	0.0
Eglinton Avenue East and Tomken Road	EB L	E	0.57	55.5	34.3	E	0.57	55.5	34.3	E	0.58	55.4	35.1
	EB T	C	0.39	28.8	61.9	C	0.43	29.5	68.9	C	0.44	29.7	70.9
	EB R	C	0.11	25.5	14.3	C	0.11	25.5	14.3	C	0.11	25.6	14.6
	WB L	C	0.51	21.3	41.2	C	0.54	21.9	41.2	C	0.55	22.2	41.2
	WB T	D	0.96	51.7	206.5	D	0.96	51.6	205.2	D	0.97	52.4	206.0
	WB R	C	0.08	26.3	10.8	C	0.08	26.3	10.8	C	0.08	26.4	10.9
	NB L	D	0.83	48.7	75.9	D	0.83	49.3	75.9	D	0.83	49.3	75.9
	NB T	D	0.38	37.9	55.9	D	0.42	38.6	61.8	D	0.42	38.6	61.8
	NB R	C	0.07	34.0	8.6	C	0.07	34.0	8.6	C	0.07	34.0	8.6
	SB L	C	0.37	29.5	37.6	C	0.39	29.5	37.6	C	0.39	29.5	37.6
	SB T	E	0.87	55.3	136.7	E	0.96	66.8	159.9	E	0.96	66.8	159.9
	SB R	A	0.45	0.9	0.0	A	0.45	0.9	0.0	A	0.45	0.9	0.0
Eglinton Avenue East and Site Driveway	WB L	A	0.00	0.00	0.0	A	0.00	0.0	0.0	-	-	-	-
	NB L	B	0.02	14.7	0.6	C	0.03	17.2	0.7	-	-	-	-
	NB R	A	0.01	9.5	0.4	A	0.02	9.7	0.4	A	0.04	9.8	1.0

*Note: signal timings and cycle lengths were maintained.*

## **6.0 TRANSPORTATION DEMAND MANAGEMENT**

### **6.1 Transit Accommodation**

As detailed in Section 2.2, the site is currently serviced by multiple bus routes operated by MiWay. The nearest transit stop is located less than 200 m from the subject site.

Based on the City's Official Plan Schedule 6, Eglinton Avenue is identified as "Transit Priority Corridor". In addition, improvements are proposed for the adjacent major corridors including Dixie Road as "Transit Priority Corridor" and East Gate Parkway as "Bus Rapid Transit Corridor".

### **6.2 Pedestrian Accommodation**

As detailed in Section 2.1, the site is currently situated in a pedestrian-oriented neighbourhood with sidewalks generally provided on both sides of the roads to encourage and facilitate pedestrian activities.

Furthermore, as shown on the site plan the proposed development will provide sidewalks throughout the site with connections onto the external sidewalk network.

### **6.3 Cyclist Accommodation**

Although under the existing condition cyclist accommodation is limited, the Region and City is committed to promote non-auto modes of transportation.

Based on the City's Official Plan Schedule 7, Eglinton Avenue and Tomken Road are identified as "Primary On-Road / Boulevard Routes".

In addition, the proposed development will include bicycle racks to further encourage cycling to / from the site.

## **7.0 CONCLUSIONS**

The site is bounded by Eglinton Avenue East to the north, commercial uses to the east and south and vacant / environmental lands to the west. It is currently occupied by the Bab ul Ilm Islamic Centre (under the trust of Bani Hashim Society) in a one-storey building with a single full-movement driveway onto Eglinton Avenue East.

Based on the current version of the proposed site plan, the development proposal will expand the operations of the Bab ul Ilm Islamic Centre by constructing a new two-storey building with a floor area of 1,221.1 m<sup>2</sup> (13,144 ft<sup>2</sup>). The worship area is 448.7 m<sup>2</sup> (4,830 ft<sup>2</sup>) and it can accommodate approximately 170 attendees. The existing driveway will be reconfigured into a right-in / right-out access and a total of 123 parking spaces will be provided.

As advised by the owner, the peak worship service (Nimaaz e Jumma) occurs on Friday afternoon at 1:30 PM (First Khutba) and 1:55 PM (Namaaz).

The key findings are summarized below:

- Parking supply is adequate to support the expected parking demand generated by the development proposal and it comply with the City's Zoning By-law parking requirements.
- Under future traffic analysis scenarios, the study intersections are operating with acceptable delays and sufficient capacity.
- New traffic generated by the development proposal can be accommodated at the study intersections. There is no mitigation measures required.
- The proposed site driveway is expected to operate with acceptable delays and sufficient capacity.

## **Appendix A:**

### **Existing Traffic Data**

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## Accu-Traffic Inc.

### Morning Peak Diagram

#### Specified Period

From: 7:00:00

To: 9:00:00

#### One Hour Peak

From: 7:45:00

To: 8:45:00

**Municipality:** Mississauga

**Site #:** 1814800001

**Intersection:** Eglinton Ave E & Tomken Rd

**TFR File #:** 1

**Count date:** 16-Nov-18

#### Weather conditions:

**Person counted:**

**Person prepared:**

**Person checked:**

#### \*\* Signalized Intersection \*\*

**Major Road:** Eglinton Ave E runs W/E

North Leg Total: 1787

North Entering: 545

North Peds: 23

Peds Cross: 

Heavys	17	9	5	31
Trucks	21	6	10	37
Cars	144	210	123	477
Totals	182	225	138	

Heavys 28

Trucks 23

Cars 1191

Totals 1242

East Leg Total: 2853

East Entering: 695

East Peds: 33

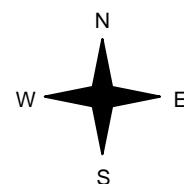
Peds Cross: 

Heavys	56	49	649	754
Trucks				
Cars				
Totals				



Tomken Rd

Eglinton Ave E



Heavys	14	12	491	517
Trucks	21	18	1842	1881
Cars	1	0	122	123
Totals	36	30	2455	

Cars	174	9	6	189
Trucks	391	25	39	455
Heavys	49	1	1	51
Totals	614	35	46	

Eglinton Ave E				
	Cars	2101	Trucks	28
	Heavys	29	Totals	2158

Peds Cross:	
West Peds:	32
West Entering:	2521
West Leg Total:	3275

Cars	381
Trucks	7
Heavys	11
Totals	399

Cars	114	526	136	776
Trucks	3	2	0	5
Heavys	0	8	3	11
Totals	117	536	139	

Peds Cross:	
South Peds:	68
South Entering:	792
South Leg Total:	1191

### Comments

## Accu-Traffic Inc.

### Afternoon Peak Diagram

#### Specified Period

From: 16:00:00

To: 18:00:00

#### One Hour Peak

From: 16:00:00

To: 17:00:00

**Municipality:** Mississauga

**Site #:** 1814800001

**Intersection:** Eglinton Ave E & Tomken Rd

**TFR File #:** 1

**Count date:** 16-Nov-18

#### Weather conditions:

**Person counted:**

**Person prepared:**

**Person checked:**

#### \*\* Signalized Intersection \*\*

**Major Road:** Eglinton Ave E runs W/E

North Leg Total: 2270

North Entering: 1613

North Peds:

Peds Cross: 

Heavys	11	7	4	22
Trucks	2	1	5	8
Cars	680	769	134	1583
Totals	693	777	143	

Heavys	23
Trucks	15
Cars	619
Totals	657

East Leg Total: 3012

East Entering: 2057

East Peds: 36

Peds Cross: 

Heavys	46	16	2585	2647
Trucks				
Cars				
Totals				

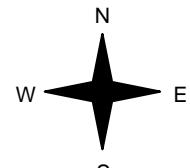


Tomken Rd

Cars	112	2	4	118
Trucks	1689	13	34	1736
Heavys	201	2	0	203
Totals	2002	17	38	

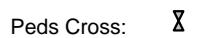
Heavys	13	8	160	181
Trucks	30	17	664	711
Cars	1	0	147	148
Totals	44	25	971	

Eglinton Ave E



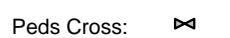
Eglinton Ave E

Cars	898	23	34	955
Trucks				
Heavys				
Totals				

Peds Cross:	
West Peds:	31
West Entering:	1040
West Leg Total:	3687

Cars	1117
Trucks	3
Heavys	8
Totals	1128

Cars	216	347	100	663
Trucks	1	5	1	7
Heavys	1	6	0	7
Totals	218	358	101	

Peds Cross:	
South Peds:	62
South Entering:	677
South Leg Total:	1805

#### Comments

# Accu-Traffic Inc.

## Total Count Diagram

**Municipality:** Mississauga

**Site #:** 1814800001

**Intersection:** Eglinton Ave E & Tomken Rd

**TFR File #:** 1

**Count date:** 16-Nov-18

**Weather conditions:**

**Person counted:**

**Person prepared:**

**Person checked:**

**\*\* Signalized Intersection \*\***

**Major Road:** Eglinton Ave E runs W/E

North Leg Total: 7473

North Entering: 3866

North Peds: 58

Peds Cross:

Heavys	50	32	15	97
Trucks	38	15	24	77
Cars	1389	1831	472	3692
Totals	1477	1878	511	

Heavys 86

Trucks 56

Cars 3465

Totals 3607

East Leg Total: 10846

East Entering: 5089

East Peds: 154

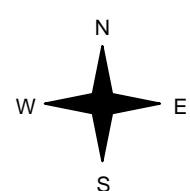
Peds Cross:

Heavys	188	110	5794	6092
Trucks				
Cars				
Totals				



Tomken Rd

Eglinton Ave E



Cars	548	17	20	585
Trucks	3781	67	136	3984
Heavys	513	5	2	520
Totals	4842	89	158	

Heavys	39	27	1206	1272
Trucks	105	55	4636	4796
Cars	2	0	522	524
Totals	146	82	6364	

Cars	2866
Trucks	20
Heavys	36
Totals	2922



Cars	5548	84	125	5757
Trucks				
Heavys				
Totals				

Peds Cross:	
West Peds:	144
West Entering:	6592
West Leg Total:	12684

Cars	624	1711	440	2775
Trucks	5	12	5	22
Heavys	2	27	5	34
Totals	631	1750	450	

Peds Cross:	
South Peds:	307
South Entering:	2831
South Leg Total:	5753

## Comments

# **Accu-Traffic Inc.**

## **Traffic Count Summary**

Intersection: Eglinton Ave E & Tomken Rd				Count Date: 16-Nov-18			Municipality: Mississauga					
North Approach Totals							South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	91	180	109	380	24	1081	8:00:00	84	516	101	701	87
9:00:00	144	247	202	593	13	1445	9:00:00	138	557	157	852	82
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	143	777	693	1613	13	2290	17:00:00	218	358	101	677	62
18:00:00	133	674	473	1280	8	1881	18:00:00	191	319	91	601	76
Totals:	511	1878	1477	3866	58	6697	S Totals:	631	1750	450	2831	307
East Approach Totals							West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	44	487	143	674	29	2942	8:00:00	467	1678	123	2268	34
9:00:00	69	474	189	732	38	3034	9:00:00	444	1738	120	2302	32
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	203	1736	118	2057	36	3097	17:00:00	181	711	148	1040	31
18:00:00	204	1287	135	1626	51	2608	18:00:00	180	669	133	982	47
Totals:	520	3984	585	5089	154	11681	W Totals:	1272	4796	524	6592	144
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	16:00			17:00	18:00	0:00	0:00		
Crossing Values:	0	754	909	0			1205	1096	0	0		



# Accu-Traffic Inc.

Count Date: 16-Nov-18    Site #: 1814800001

Interval Time	Passenger Cars - North Approach				Trucks - North Approach				Heavys - North Approach				Pedestrians							
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	14	14	46	46	28	28	1	1	1	1	3	3	2	2	2	2	2	2	1	1
7:30:00	29	15	88	42	46	18	2	1	2	1	5	2	3	1	4	2	5	3	5	4
7:45:00	47	18	129	41	66	20	3	1	4	2	6	1	4	1	6	2	9	4	12	7
8:00:00	82	35	168	39	87	21	5	2	4	0	8	2	4	0	8	2	14	5	24	12
8:15:00	108	26	213	45	126	39	6	1	5	1	14	6	5	1	9	1	16	2	27	3
8:30:00	141	33	272	59	167	41	10	4	10	5	22	8	6	1	11	2	21	5	29	2
8:45:00	170	29	339	67	210	43	13	3	10	0	27	5	9	3	15	4	26	5	35	6
9:00:00	208	38	398	59	247	37	17	4	11	1	32	5	10	1	18	3	32	6	37	2
9:15:00	208	0	398	0	247	0	17	0	11	0	32	0	10	0	18	0	32	0	37	0
16:00:00	208	0	398	0	247	0	17	0	11	0	32	0	10	0	18	0	32	0	37	0
16:15:00	249	41	565	167	431	184	17	0	11	0	32	0	12	2	20	2	36	4	44	7
16:30:00	287	38	783	218	600	169	20	3	12	1	33	1	13	1	21	1	39	3	44	0
16:45:00	320	33	973	190	806	206	20	0	12	0	33	0	13	0	24	3	42	3	46	2
17:00:00	342	22	1167	194	927	121	22	2	12	0	34	1	14	1	25	1	43	1	50	4
17:15:00	384	42	1384	217	1088	161	23	1	13	1	36	2	14	0	26	1	47	4	54	4
17:30:00	424	40	1557	173	1214	126	24	1	14	1	38	2	14	0	27	1	48	1	58	4
17:45:00	448	24	1713	156	1318	104	24	0	14	0	38	0	15	1	29	2	48	0	58	0
18:00:00	472	24	1831	118	1389	71	24	0	15	1	38	0	15	0	32	3	50	2	58	0
18:15:00	472	0	1831	0	1389	0	24	0	15	0	38	0	15	0	32	0	50	0	58	0
18:15:15	472	0	1831	0	1389	0	24	0	15	0	38	0	15	0	32	0	50	0	58	0









Ministry of Transportation  
Ministère des Transports

2016

## Intersection Layout Sheet

Version: 1.0 Feb 1, 2016

Contract # 9015-E-0009  
Work Order # 590

Date: Oct 121 Day: We 1 Hrs: 6-10 + 15-19 + -  
Location: Eglinton Ave IC East Ramps Ramps: East 124, 2  
Reg/Mun: CR Town/City: Mississauga Area: \_\_\_\_\_  
File Name: 3482550000 Device: Gretch / Jamar Unit #: 15 1 Interval 1: (AM) NN / PM  
Observer: Renat Shuliko Weather: Clear/Cloudy Road Condition: Good

LHRS & O/S: 48255 0 Comments:  
GPS: G-Starr IV  
Datum: WGS 84 (Y) N  
Lat: 43.622923  
Long: -79.634840

SIGNALIZED (Y) N

If intersection is unsignalized;  
Sign Type: Stop / Yield

Sign Size: cm x cm

Sign Condition:

NA: New / Good / Poor / Missing

SA: New / Good / Poor / Missing

WA: New / Good / Poor / Missing

EA: New / Good / Poor / Missing

Photograph all approach's

including all Signs (Y) N

40

Hwy / Street Name

HWY 403

Ramp

60

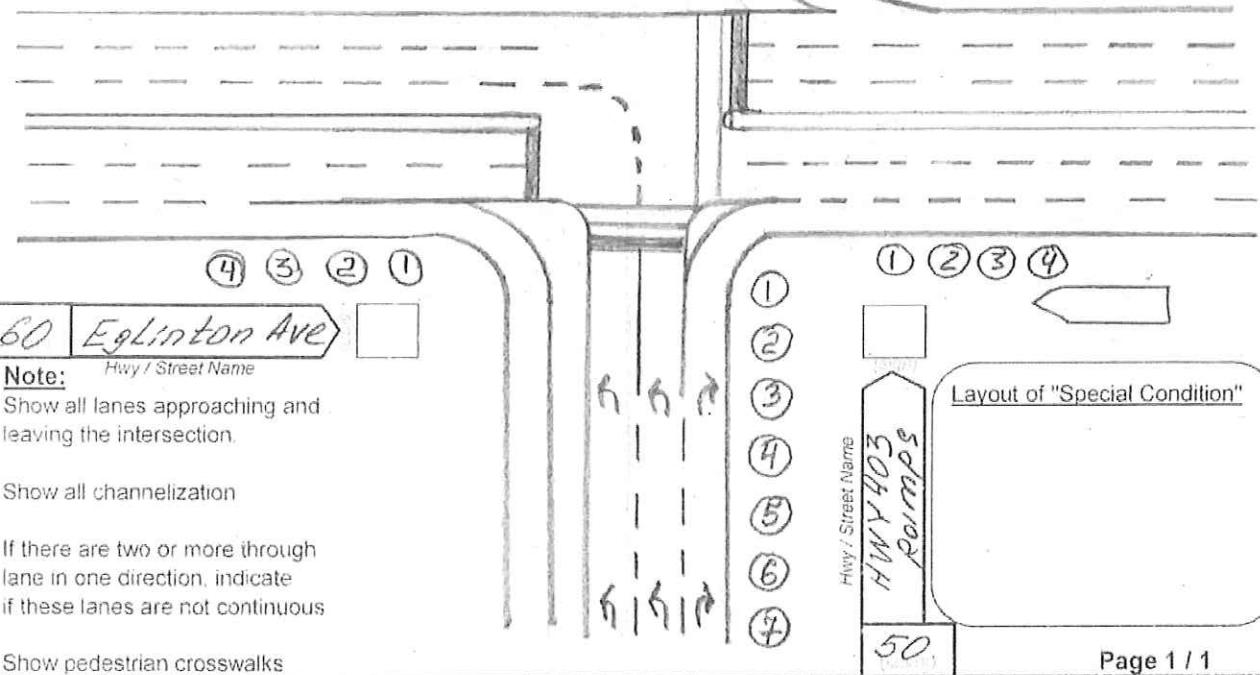


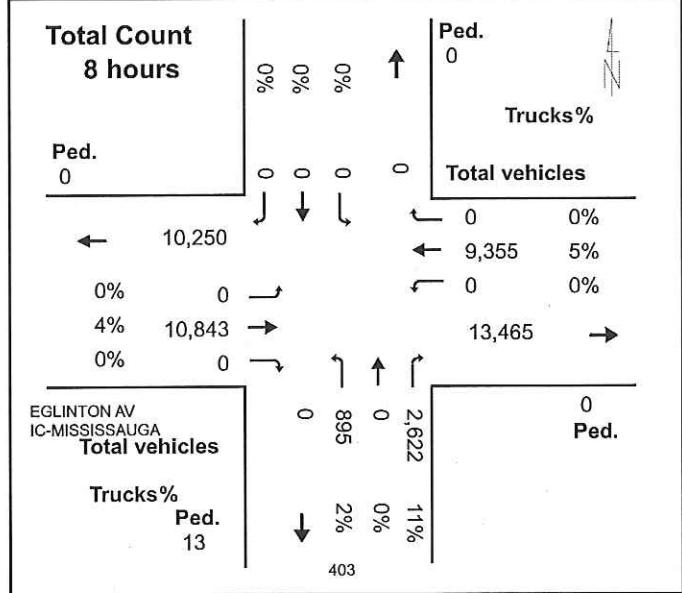
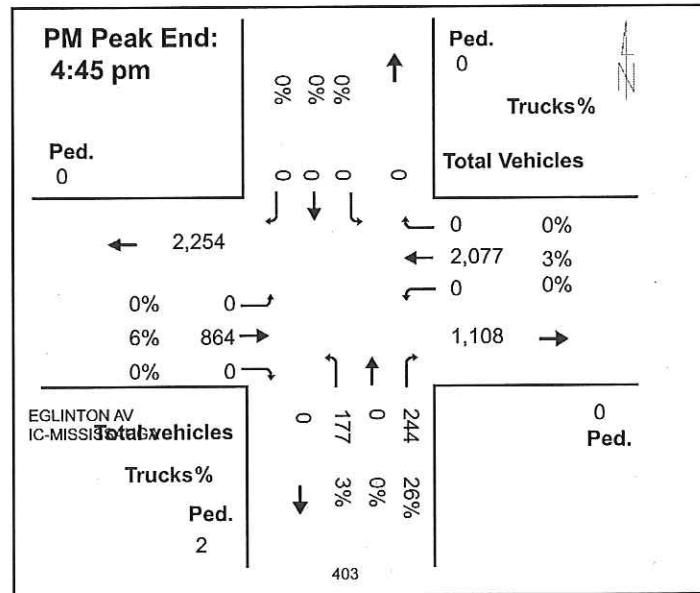
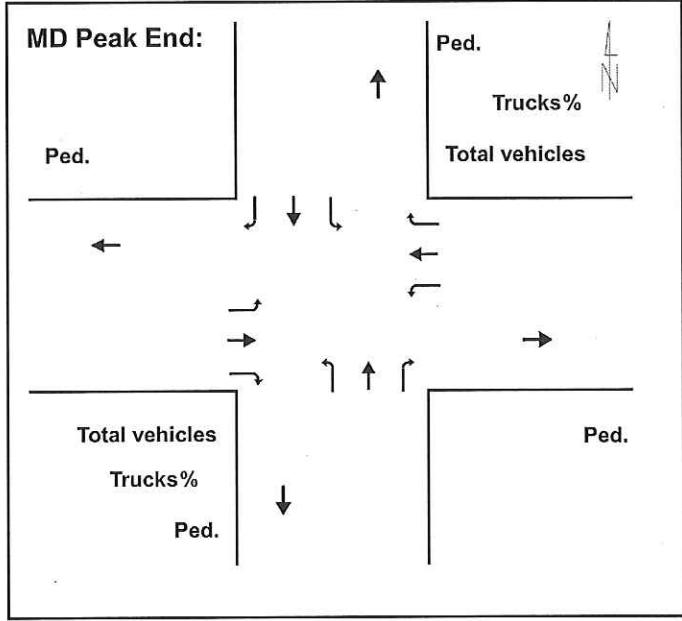
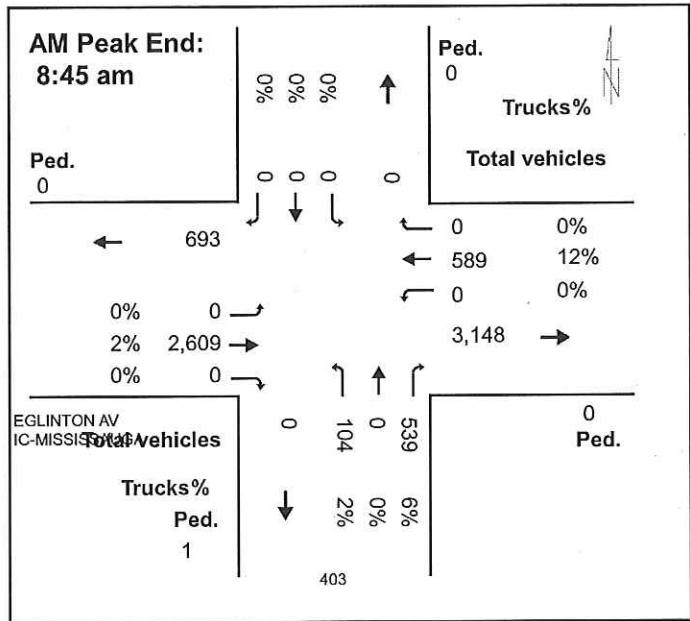
INDICATE LOCATION & DIRECTION OF VEHICLE

Vehicle N S E (W)

Hwy / Street Name

Eglinton Ave 60



**HWY 403 @ EGLINTON AV IC-MISSISSAUGA**
**Central**
**Intersection ID:482550000(--E--)**
**Count Day:Wednesday**
**Count Date: 12-Oct-2016**


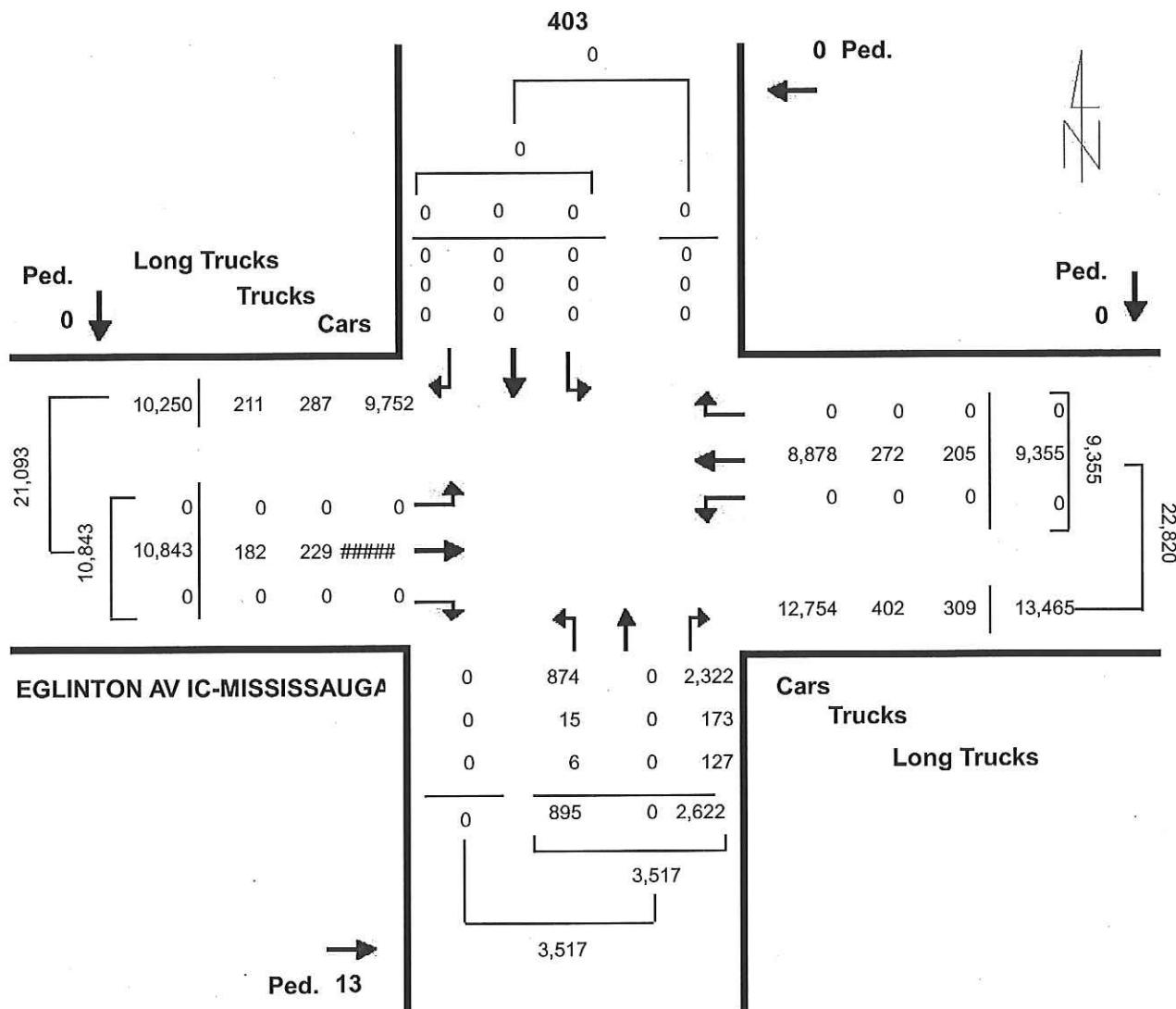
# COUNT TOTAL

HWY 403 @ EGLINTON AV IC-MISSIONSAUGA

Central

Intersection ID: 482550000(--E--)

Date: 12-Oct-2016



15 MIN REPORT

Intersection ID:482550000(--E--) HWY 403 @ EGLINTON AV IC-MISSIONAUGA

## Municipality: Central

Date: 12-Oct-2016



## **Appendix B:**

### **Synchro Analysis Output**

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## **Appendix B1**

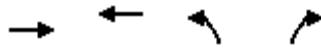
### **Existing Condition**

---

## Queues

## 1: Highway 403 NB Off-Ramp &amp; Eglinton Ave E

16/12/2018



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2609	589	104	539
v/c Ratio	0.95	0.17	0.20	0.35
Control Delay	23.4	4.9	45.9	0.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.4	4.9	45.9	0.6
Queue Length 50th (m)	247.1	14.0	11.8	0.0
Queue Length 95th (m)	#309.9	17.9	20.4	0.0
Internal Link Dist (m)	315.3	297.1	382.4	
Turn Bay Length (m)				
Base Capacity (vph)	2747	3415	514	1524
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.95	0.17	0.20	0.35

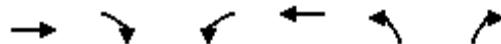
## Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
1: Highway 403 NB Off-Ramp & Eglinton Ave E

16/12/2018



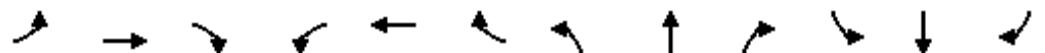
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↑↑	↑
Volume (vph)	2609	0	0	589	104	539
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	4.0
Lane Util. Factor	*1.00			0.91	0.97	1.00
Fr <sub>t</sub>	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3725			4631	3433	1524
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3725			4631	3433	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2609	0	0	589	104	539
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2609	0	0	589	104	539
Heavy Vehicles (%)	2%	0%	0%	12%	2%	6%
Turn Type	NA			NA	Perm	Free
Protected Phases	4			8		
Permitted Phases				2	Free	
Actuated Green, G (s)	88.5			88.5	18.0	120.0
Effective Green, g (s)	88.5			88.5	18.0	120.0
Actuated g/C Ratio	0.74			0.74	0.15	1.00
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2747			3415	514	1524
v/s Ratio Prot	c0.70			0.13		
v/s Ratio Perm				0.03	c0.35	
v/c Ratio	0.95			0.17	0.20	0.35
Uniform Delay, d1	13.8			4.7	44.7	0.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	8.2			0.0	0.9	0.6
Delay (s)	22.0			4.8	45.6	0.6
Level of Service	C			A	D	A
Approach Delay (s)	22.0			4.8	7.9	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay	17.0			HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.87					
Actuated Cycle Length (s)	120.0			Sum of lost time (s)	13.5	
Intersection Capacity Utilization	86.7%			ICU Level of Service	E	
Analysis Period (min)	15					

c Critical Lane Group

## Queues

2: Tomken Rd &amp; Eglinton Ave E

16/12/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	517	1881	123	51	455	189	117	536	139	138	225	182
V/c Ratio	0.84	0.86	0.19	0.32	0.36	0.35	0.25	0.56	0.28	0.44	0.24	0.14
Control Delay	61.0	37.0	4.7	22.3	37.5	6.9	23.8	42.3	7.8	27.4	36.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	37.0	4.7	22.3	37.5	6.9	23.8	42.3	7.8	27.4	36.0	0.2
Queue Length 50th (m)	65.4	159.9	0.0	6.1	34.8	0.0	18.3	62.4	0.2	21.9	23.4	0.0
Queue Length 95th (m)	85.1	187.3	12.1	12.7	46.2	18.4	31.4	84.2	16.9	36.7	36.1	0.0
Internal Link Dist (m)		243.1			294.8			402.8			371.6	
Turn Bay Length (m)	125.0		115.0	100.0		105.0	125.0		50.0	110.0		150.0
Base Capacity (vph)	675	2199	646	265	1254	537	523	949	488	348	938	1306
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.86	0.19	0.19	0.36	0.35	0.22	0.56	0.28	0.40	0.24	0.14

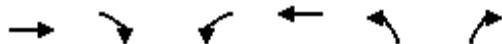
## Intersection Summary



# HCM Unsignalized Intersection Capacity Analysis

## 3: Site Access & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Volume (veh/h)	3134	14	1	580	9	12		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	3134	14	1	580	9	12		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	TWLTL			None				
Median storage veh	2							
Upstream signal (m)	321			267				
pX, platoon unblocked			0.41	0.42	0.41			
vC, conflicting volume			3148	3336	1052			
vC1, stage 1 conf vol				3141				
vC2, stage 2 conf vol				195				
vCu, unblocked vol			1228	1567	0			
tC, single (s)			4.1	6.8	6.9			
tC, 2 stage (s)				5.8				
tF (s)			2.2	3.5	3.3			
p0 queue free %			100	91	97			
cM capacity (veh/h)			237	100	451			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1254	1254	641	117	232	232	9	12
Volume Left	0	0	0	1	0	0	9	0
Volume Right	0	0	14	0	0	0	0	12
cSH	1700	1700	1700	237	1700	1700	100	451
Volume to Capacity	0.74	0.74	0.38	0.00	0.14	0.14	0.09	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.1	0.0	0.0	2.3	0.7
Control Delay (s)	0.0	0.0	0.0	0.3	0.0	0.0	44.5	13.2
Lane LOS				A			E	B
Approach Delay (s)	0.0			0.1			26.6	
Approach LOS							D	
Intersection Summary								
Average Delay			0.2					
Intersection Capacity Utilization			70.9%	ICU Level of Service			C	
Analysis Period (min)			15					

## Queues

## 1: Highway 403 NB Off-Ramp &amp; Eglinton Ave E

16/12/2018

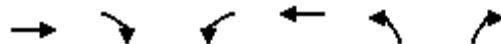


Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	864	2077	177	244
V/c Ratio	0.43	0.70	0.18	0.19
Control Delay	13.8	18.2	34.1	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.8	18.2	34.1	0.3
Queue Length 50th (m)	58.1	123.5	16.8	0.0
Queue Length 95th (m)	56.1	108.5	29.3	0.0
Internal Link Dist (m)	315.3	297.1	382.4	
Turn Bay Length (m)				
Base Capacity (vph)	2370	3504	1011	1282
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.59	0.18	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Highway 403 NB Off-Ramp & Eglinton Ave E

16/12/2018



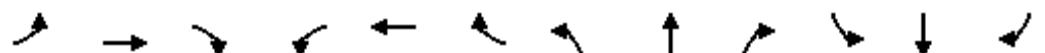
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	864	0	0	2077	177	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	4.0
Lane Util. Factor	0.95			0.91	0.97	1.00
Fr <sub>t</sub>	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3406			5036	3400	1282
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3406			5036	3400	1282
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	864	0	0	2077	177	244
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	864	0	0	2077	177	244
Heavy Vehicles (%)	6%	0%	0%	3%	3%	26%
Turn Type	NA			NA	Perm	Free
Protected Phases	4			8		
Permitted Phases				2	Free	
Actuated Green, G (s)	70.8			70.8	35.7	120.0
Effective Green, g (s)	70.8			70.8	35.7	120.0
Actuated g/C Ratio	0.59			0.59	0.30	1.00
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2009			2971	1011	1282
v/s Ratio Prot	0.25			c0.41		
v/s Ratio Perm				0.05	c0.19	
v/c Ratio	0.43			0.70	0.18	0.19
Uniform Delay, d1	13.5			17.2	31.2	0.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.7	0.4	0.3
Delay (s)	13.7			17.9	31.6	0.3
Level of Service	B			B	C	A
Approach Delay (s)	13.7			17.9	13.5	
Approach LOS	B			B	B	
Intersection Summary						
HCM 2000 Control Delay	16.3			HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.54					
Actuated Cycle Length (s)	120.0			Sum of lost time (s)	13.5	
Intersection Capacity Utilization	56.4%			ICU Level of Service	B	
Analysis Period (min)	15					

c Critical Lane Group

## Queues

2: Tomken Rd &amp; Eglinton Ave E

16/12/2018



Lane Group	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	181	711	148	203	1736	118	218	358	101	143	777	693
V/c Ratio	0.57	0.39	0.25	0.50	0.96	0.19	0.81	0.38	0.21	0.35	0.87	0.45
Control Delay	59.9	29.3	5.3	20.0	52.1	4.4	50.8	38.8	4.2	25.4	55.8	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	29.3	5.3	20.0	52.1	4.4	50.8	38.8	4.2	25.4	55.8	0.9
Queue Length 50th (m)	23.0	48.4	0.0	26.5	157.5	0.0	36.2	39.3	0.0	22.7	101.6	0.0
Queue Length 95th (m)	34.3	61.9	14.3	41.2	#206.5	10.8	#75.9	55.9	8.6	37.6	#136.7	0.0
Internal Link Dist (m)		243.1			294.8			402.8			371.6	
Turn Bay Length (m)	125.0		115.0	100.0		105.0	125.0		50.0	110.0		150.0
Base Capacity (vph)	632	1822	601	444	1814	615	282	941	482	455	897	1550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.39	0.25	0.46	0.96	0.19	0.77	0.38	0.21	0.31	0.87	0.45

## Intersection Summary

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

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

2: Tomken Rd & Eglinton Ave E

16/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑↑	↑	↑	↑↑	↑
Volume (vph)	181	711	148	203	1736	118	218	358	101	143	777	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5	6.5	3.0	6.5	6.5	3.0	7.0	7.0	3.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.85	1.00	1.00	0.96	1.00	1.00	0.91	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3127	4848	1355	1763	5036	1474	1787	3505	1449	1662	3574	1550
Flt Permitted	0.95	1.00	1.00	0.33	1.00	1.00	0.12	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	3127	4848	1355	615	5036	1474	227	3505	1449	900	3574	1550
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)	181	711	148	203	1736	118	218	358	101	143	777	693
RTOR Reduction (vph)	0	0	92	0	0	75	0	0	74	0	0	0
Lane Group Flow (vph)	181	711	56	203	1736	43	218	358	27	143	777	693
Confl. Peds. (#/hr)	13		62	62		13	31		36	36		31
Heavy Vehicles (%)	12%	7%	1%	1%	3%	5%	1%	3%	1%	6%	1%	2%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		Free
Actuated Green, G (s)	12.5	46.4	46.4	57.1	44.5	44.5	47.2	33.2	33.2	42.8	31.0	123.5
Effective Green, g (s)	12.5	46.4	46.4	57.1	44.5	44.5	47.2	33.2	33.2	42.8	31.0	123.5
Actuated g/C Ratio	0.10	0.38	0.38	0.46	0.36	0.36	0.38	0.27	0.27	0.35	0.25	1.00
Clearance Time (s)	5.0	6.5	6.5	3.0	6.5	6.5	3.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	316	1821	509	401	1814	531	263	942	389	384	897	1550
v/s Ratio Prot	c0.06	0.15		0.05	c0.34		c0.09	0.10		0.04	0.22	
v/s Ratio Perm			0.04	0.18		0.03	c0.22		0.02	0.09		c0.45
v/c Ratio	0.57	0.39	0.11	0.51	0.96	0.08	0.83	0.38	0.07	0.37	0.87	0.45
Uniform Delay, d1	53.0	28.2	25.1	20.3	38.6	26.0	29.8	36.8	33.6	28.9	44.3	0.0
Progression 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
Incremental Delay, d2	2.5	0.6	0.4	1.0	13.1	0.3	18.9	1.2	0.3	0.6	11.0	0.9
Delay (s)	55.5	28.8	25.5	21.3	51.7	26.3	48.7	37.9	34.0	29.5	55.3	0.9
Level of Service	E	C	C	C	D	C	D	D	C	C	E	A
Approach Delay (s)		33.0			47.3			40.8			29.6	
Approach LOS		C			D			D			C	
Intersection Summary												
HCM 2000 Control Delay		38.4									D	
HCM 2000 Volume to Capacity ratio		0.88										
Actuated Cycle Length (s)		123.5									21.5	
Intersection Capacity Utilization		91.0%									F	
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 3: Site Access & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Volume (veh/h)	1094	14	1	2068	9	12		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	1094	14	1	2068	9	12		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	TWLTL			None				
Median storage veh	2							
Upstream signal (m)	321			267				
pX, platoon unblocked			0.95	0.72	0.95			
vC, conflicting volume			1108	1792	372			
vC1, stage 1 conf vol				1101				
vC2, stage 2 conf vol				691				
vCu, unblocked vol			941	321	168			
tC, single (s)			4.1	6.8	6.9			
tC, 2 stage (s)				5.8				
tF (s)			2.2	3.5	3.3			
p0 queue free %			100	98	99			
cM capacity (veh/h)			702	382	813			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	438	438	233	415	827	827	9	12
Volume Left	0	0	0	1	0	0	9	0
Volume Right	0	0	14	0	0	0	0	12
cSH	1700	1700	1700	702	1700	1700	382	813
Volume to Capacity	0.26	0.26	0.14	0.00	0.49	0.49	0.02	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.7	9.5
Lane LOS				A			B	A
Approach Delay (s)	0.0			0.0			11.7	
Approach LOS							B	
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			50.6%	ICU Level of Service			A	
Analysis Period (min)			15					

## **Appendix B2**

### **2023 Background Condition**

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## Queues

## 1: Highway 403 NB Off-Ramp &amp; Eglinton Ave E

16/12/2018



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2881	650	104	539
v/c Ratio	0.97	0.19	0.23	0.35
Control Delay	23.0	4.4	47.9	0.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.0	4.4	47.9	0.6
Queue Length 50th (m)	262.3	14.4	12.0	0.0
Queue Length 95th (m)	#398.9	18.2	20.8	0.0
Internal Link Dist (m)	315.3	297.1	382.4	
Turn Bay Length (m)				
Base Capacity (vph)	2964	3492	457	1524
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.97	0.19	0.23	0.35

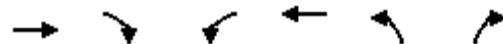
## Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
1: Highway 403 NB Off-Ramp & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↑↑	↑
Volume (vph)	2881	0	0	650	104	539
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.5			6.5	7.0	4.0
Lane Util. Factor	*1.00			0.91	0.97	1.00
Fr <sub>t</sub>	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3725			4631	3433	1524
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3725			4631	3433	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2881	0	0	650	104	539
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2881	0	0	650	104	539
Heavy Vehicles (%)	2%	0%	0%	12%	2%	6%
Turn Type	NA			NA	Perm	Free
Protected Phases	4			8		
Permitted Phases				2	Free	
Actuated Green, G (s)	90.5			90.5	16.0	120.0
Effective Green, g (s)	95.5			90.5	16.0	120.0
Actuated g/C Ratio	0.80			0.75	0.13	1.00
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2964			3492	457	1524
v/s Ratio Prot	c0.77			0.14		
v/s Ratio Perm				0.03	c0.35	
v/c Ratio	0.97			0.19	0.23	0.35
Uniform Delay, d1	11.0			4.2	46.5	0.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	10.8			0.0	1.2	0.6
Delay (s)	21.8			4.2	47.6	0.6
Level of Service	C			A	D	A
Approach Delay (s)	21.8			4.2	8.2	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay	17.0			HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.94					
Actuated Cycle Length (s)	120.0			Sum of lost time (s)	13.5	
Intersection Capacity Utilization	92.1%			ICU Level of Service	F	
Analysis Period (min)	15					

c = Critical Lane Group

## Queues

2: Tomken Rd &amp; Eglinton Ave E

16/12/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	517	2077	123	51	502	189	117	592	139	138	248	182
V/c Ratio	0.84	0.94	0.19	0.32	0.40	0.35	0.25	0.62	0.29	0.47	0.26	0.14
Control Delay	61.0	44.4	5.8	22.3	38.0	6.9	23.9	43.7	9.4	28.3	36.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	44.4	5.8	22.3	38.0	6.9	23.9	43.7	9.4	28.3	36.3	0.2
Queue Length 50th (m)	65.4	188.0	1.5	6.1	38.9	0.0	18.3	70.3	2.1	21.9	26.0	0.0
Queue Length 95th (m)	85.1	#234.8	13.8	12.7	50.9	18.4	31.4	93.6	19.1	36.7	39.5	0.0
Internal Link Dist (m)		243.1			294.8			402.8			371.6	
Turn Bay Length (m)	125.0		115.0	100.0		105.0	125.0		50.0	110.0		150.0
Base Capacity (vph)	675	2199	640	265	1254	537	517	949	481	328	938	1306
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.94	0.19	0.19	0.40	0.35	0.23	0.62	0.29	0.42	0.26	0.14

## Intersection Summary

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

Queue shown is maximum after two cycles.



# HCM Unsignalized Intersection Capacity Analysis

## 3: Site Access & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Volume (veh/h)	3406	14	1	641	9	12		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	3406	14	1	641	9	12		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	TWLTL			None				
Median storage veh	2							
Upstream signal (m)	321			267				
pX, platoon unblocked			0.29	0.30	0.29			
vC, conflicting volume			3420	3629	1142			
vC1, stage 1 conf vol				3413				
vC2, stage 2 conf vol				216				
vCu, unblocked vol			754	973	0			
tC, single (s)			4.1	6.8	6.9			
tC, 2 stage (s)				5.8				
tF (s)			2.2	3.5	3.3			
p0 queue free %			100	93	96			
cM capacity (veh/h)			249	125	315			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1362	1362	695	129	256	256	9	12
Volume Left	0	0	0	1	0	0	9	0
Volume Right	0	0	14	0	0	0	0	12
cSH	1700	1700	1700	249	1700	1700	125	315
Volume to Capacity	0.80	0.80	0.41	0.00	0.15	0.15	0.07	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.1	0.0	0.0	1.8	0.9
Control Delay (s)	0.0	0.0	0.0	0.2	0.0	0.0	36.1	16.9
Lane LOS				A			E	C
Approach Delay (s)	0.0			0.0			25.1	
Approach LOS							D	
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization		76.1%		ICU Level of Service			D	
Analysis Period (min)		15						

## Queues

## 1: Highway 403 NB Off-Ramp &amp; Eglinton Ave E

16/12/2018

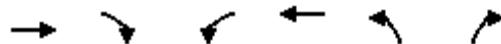


Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	954	2293	177	244
v/c Ratio	0.44	0.71	0.21	0.19
Control Delay	11.2	15.4	38.5	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.2	15.4	38.5	0.3
Queue Length 50th (m)	55.8	123.4	18.2	0.0
Queue Length 95th (m)	58.6	118.8	30.2	0.0
Internal Link Dist (m)	315.3	297.1	382.4	
Turn Bay Length (m)				
Base Capacity (vph)	2370	3504	842	1282
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.65	0.21	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Highway 403 NB Off-Ramp & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	954	0	0	2293	177	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	4.0
Lane Util. Factor	0.95			0.91	0.97	1.00
Fr <sub>t</sub>	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3406			5036	3400	1282
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3406			5036	3400	1282
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	954	0	0	2293	177	244
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	954	0	0	2293	177	244
Heavy Vehicles (%)	6%	0%	0%	3%	3%	26%
Turn Type	NA			NA	Perm	Free
Protected Phases	4			8		
Permitted Phases				2	Free	
Actuated Green, G (s)	76.8			76.8	29.7	120.0
Effective Green, g (s)	76.8			76.8	29.7	120.0
Actuated g/C Ratio	0.64			0.64	0.25	1.00
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2179			3223	841	1282
v/s Ratio Prot	0.28			c0.46		
v/s Ratio Perm				0.05	c0.19	
v/c Ratio	0.44			0.71	0.21	0.19
Uniform Delay, d1	10.8			14.3	35.8	0.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.8	0.6	0.3
Delay (s)	10.9			15.0	36.4	0.3
Level of Service	B			B	D	A
Approach Delay (s)	10.9			15.0	15.5	
Approach LOS	B			B	B	
Intersection Summary						
HCM 2000 Control Delay	14.0			HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.58					
Actuated Cycle Length (s)	120.0			Sum of lost time (s)	13.5	
Intersection Capacity Utilization	60.6%			ICU Level of Service	B	
Analysis Period (min)	15					

c Critical Lane Group

## Queues

2: Tomken Rd &amp; Eglinton Ave E

16/12/2018



Lane Group	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	181	785	148	203	1917	118	218	395	101	143	858	693
V/c Ratio	0.57	0.43	0.25	0.53	0.96	0.19	0.81	0.42	0.21	0.36	0.96	0.45
Control Delay	59.9	30.0	5.3	20.8	52.0	4.4	50.8	39.4	4.2	25.6	67.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	30.0	5.3	20.8	52.0	4.4	50.8	39.4	4.2	25.6	67.2	0.9
Queue Length 50th (m)	23.0	54.3	0.0	26.5	158.7	0.0	36.2	43.9	0.0	22.7	115.5	0.0
Queue Length 95th (m)	34.3	68.9	14.3	41.2	#205.2	10.8	#75.9	61.8	8.6	37.6	#159.9	0.0
Internal Link Dist (m)		243.1			294.8			402.8			371.6	
Turn Bay Length (m)	125.0		115.0	100.0		105.0	125.0		50.0	110.0		150.0
Base Capacity (vph)	632	1822	601	421	1994	615	282	941	482	437	897	1550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.43	0.25	0.48	0.96	0.19	0.77	0.42	0.21	0.33	0.96	0.45

## Intersection Summary

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

Queue shown is maximum after two cycles.



# HCM Unsignalized Intersection Capacity Analysis

## 3: Site Access & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Volume (veh/h)	1184	14	1	2284	9	12		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	1184	14	1	2284	9	12		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	TWLTL			None				
Median storage veh	2							
Upstream signal (m)	321			267				
pX, platoon unblocked			0.95	0.70	0.95			
vC, conflicting volume			1198	1954	402			
vC1, stage 1 conf vol				1191				
vC2, stage 2 conf vol				763				
vCu, unblocked vol			1032	417	195			
tC, single (s)			4.1	6.8	6.9			
tC, 2 stage (s)				5.8				
tF (s)			2.2	3.5	3.3			
p0 queue free %			100	97	98			
cM capacity (veh/h)			649	305	780			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	474	474	251	458	914	914	9	12
Volume Left	0	0	0	1	0	0	9	0
Volume Right	0	0	14	0	0	0	0	12
cSH	1700	1700	1700	649	1700	1700	305	780
Volume to Capacity	0.28	0.28	0.15	0.00	0.54	0.54	0.03	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	17.2	9.7
Lane LOS				A			C	A
Approach Delay (s)	0.0			0.0			12.9	
Approach LOS							B	
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			54.8%	ICU Level of Service			A	
Analysis Period (min)			15					

## **Appendix B3**

### **2023 Total Condition**

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## Queues

## 1: Highway 403 NB Off-Ramp &amp; Eglinton Ave E

16/12/2018



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2901	650	104	543
v/c Ratio	0.98	0.19	0.23	0.36
Control Delay	24.4	4.4	47.9	0.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.4	4.4	47.9	0.7
Queue Length 50th (m)	270.3	14.4	12.0	0.0
Queue Length 95th (m)	#403.5	18.2	20.8	0.0
Internal Link Dist (m)	315.3	297.1	382.4	
Turn Bay Length (m)				
Base Capacity (vph)	2964	3492	457	1524
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.98	0.19	0.23	0.36

## Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
1: Highway 403 NB Off-Ramp & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↖↖	↗
Volume (vph)	2901	0	0	650	104	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.5			6.5	7.0	4.0
Lane Util. Factor	*1.00			0.91	0.97	1.00
Fr <sub>t</sub>	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3725			4631	3433	1524
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3725			4631	3433	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2901	0	0	650	104	543
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2901	0	0	650	104	543
Heavy Vehicles (%)	2%	0%	0%	12%	2%	6%
Turn Type	NA			NA	Perm	Free
Protected Phases	4			8		
Permitted Phases				2	Free	
Actuated Green, G (s)	90.5			90.5	16.0	120.0
Effective Green, g (s)	95.5			90.5	16.0	120.0
Actuated g/C Ratio	0.80			0.75	0.13	1.00
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2964			3492	457	1524
v/s Ratio Prot	c0.78			0.14		
v/s Ratio Perm				0.03	c0.36	
v/c Ratio	0.98			0.19	0.23	0.36
Uniform Delay, d1	11.3			4.2	46.5	0.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	11.9			0.0	1.2	0.7
Delay (s)	23.2			4.2	47.6	0.7
Level of Service	C			A	D	A
Approach Delay (s)	23.2			4.2	8.2	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay	17.9			HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.95					
Actuated Cycle Length (s)	120.0			Sum of lost time (s)	13.5	
Intersection Capacity Utilization	92.7%			ICU Level of Service	F	
Analysis Period (min)	15					

c Critical Lane Group

## Queues

2: Tomken Rd &amp; Eglinton Ave E

16/12/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	524	2101	124	51	502	189	117	592	139	138	248	182
V/c Ratio	0.84	0.96	0.19	0.32	0.40	0.35	0.25	0.62	0.29	0.47	0.26	0.14
Control Delay	61.3	45.9	6.0	22.3	38.1	7.0	23.9	43.7	9.4	28.3	36.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	45.9	6.0	22.3	38.1	7.0	23.9	43.7	9.4	28.3	36.3	0.2
Queue Length 50th (m)	66.2	191.7	1.8	6.1	39.0	0.0	18.3	70.3	2.1	21.9	26.0	0.0
Queue Length 95th (m)	86.1	#239.3	14.3	12.7	50.9	18.4	31.4	93.6	19.1	36.7	39.5	0.0
Internal Link Dist (m)		243.1			294.8			402.8			371.6	
Turn Bay Length (m)	125.0		115.0	100.0		105.0	125.0		50.0	110.0		150.0
Base Capacity (vph)	675	2199	640	265	1248	535	517	949	481	328	938	1306
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.96	0.19	0.19	0.40	0.35	0.23	0.62	0.29	0.42	0.26	0.14

## Intersection Summary

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

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

2: Tomken Rd & Eglinton Ave E

16/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Volume (vph)	524	2101	124	51	502	189	117	592	139	138	248	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5	6.5	3.0	6.5	6.5	3.0	7.0	7.0	3.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.83	1.00	1.00	0.94	1.00	1.00	0.91	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl <sub>t</sub> Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3335	5085	1333	1671	4550	1453	1699	3539	1446	1619	3374	1306
Fl <sub>t</sub> Permitted	0.95	1.00	1.00	0.12	1.00	1.00	0.60	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	3335	5085	1333	208	4550	1453	1070	3539	1446	449	3374	1306
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)	524	2101	124	51	502	189	117	592	139	138	248	182
RTOR Reduction (vph)	0	0	64	0	0	137	0	0	94	0	0	0
Lane Group Flow (vph)	524	2101	60	51	502	52	117	592	45	138	248	182
Confl. Peds. (#/hr)	23		68	68		23	32		33	33		32
Heavy Vehicles (%)	5%	2%	1%	8%	14%	4%	3%	2%	2%	11%	7%	21%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		Free
Actuated Green, G (s)	23.1	52.8	52.8	40.1	33.9	33.9	43.7	33.1	33.1	46.3	34.4	123.5
Effective Green, g (s)	23.1	52.8	52.8	40.1	33.9	33.9	43.7	33.1	33.1	46.3	34.4	123.5
Actuated g/C Ratio	0.19	0.43	0.43	0.32	0.27	0.27	0.35	0.27	0.27	0.37	0.28	1.00
Clearance Time (s)	5.0	6.5	6.5	3.0	6.5	6.5	3.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	623	2173	569	140	1248	398	432	948	387	281	939	1306
v/s Ratio Prot	c0.16	c0.41		0.02	0.11		0.02	c0.17		c0.05	0.07	
v/s Ratio Perm			0.04	0.10		0.04	0.07		0.03	0.14		0.14
v/c Ratio	0.84	0.97	0.11	0.36	0.40	0.13	0.27	0.62	0.12	0.49	0.26	0.14
Uniform Delay, d1	48.4	34.5	21.2	32.2	36.5	33.7	27.7	39.7	34.2	27.3	34.7	0.0
Progression 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
Incremental Delay, d2	10.0	12.9	0.4	1.6	1.0	0.7	0.3	3.1	0.6	1.4	0.7	0.2
Delay (s)	58.4	47.4	21.6	33.8	37.5	34.4	28.0	42.8	34.8	28.6	35.4	0.2
Level of Service	E	D	C	C	D	C	C	D	C	C	D	A
Approach Delay (s)		48.4			36.5			39.5			22.5	
Approach LOS		D			D			D			C	

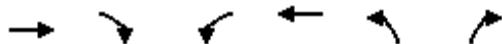
  

Intersection Summary		
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.82	
Actuated Cycle Length (s)	123.5	Sum of lost time (s)
Intersection Capacity Utilization	85.9%	ICU Level of Service
Analysis Period (min)	15	E
c Critical Lane Group		

# HCM Unsignalized Intersection Capacity Analysis

## 3: Site Access & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations							
Volume (veh/h)	3420	24	0	650	0	32	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	3420	24	0	650	0	32	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage veh)							
Upstream signal (m)	321			267			
pX, platoon unblocked			0.28		0.29	0.28	
vC, conflicting volume			3444		3649	1152	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			704		872	0	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			100		100	89	
cM capacity (veh/h)			251		87	304	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	1368	1368	708	217	217	217	32
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	24	0	0	0	32
cSH	1700	1700	1700	1700	1700	1700	304
Volume to Capacity	0.80	0.80	0.42	0.13	0.13	0.13	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	18.3
Lane LOS							C
Approach Delay (s)	0.0			0.0			18.3
Approach LOS							C
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			76.6%		ICU Level of Service		D
Analysis Period (min)			15				

## Queues

## 1: Highway 403 NB Off-Ramp &amp; Eglinton Ave E

16/12/2018



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	973	2293	177	249
v/c Ratio	0.45	0.71	0.21	0.19
Control Delay	11.3	15.4	38.5	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.3	15.4	38.5	0.3
Queue Length 50th (m)	57.3	123.4	18.2	0.0
Queue Length 95th (m)	60.2	118.8	30.2	0.0
Internal Link Dist (m)	315.3	297.1	382.4	
Turn Bay Length (m)				
Base Capacity (vph)	2370	3504	842	1282
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.65	0.21	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Highway 403 NB Off-Ramp & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	973	0	0	2293	177	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	4.0
Lane Util. Factor	0.95			0.91	0.97	1.00
Fr <sub>t</sub>	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3406			5036	3400	1282
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3406			5036	3400	1282
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	973	0	0	2293	177	249
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	973	0	0	2293	177	249
Heavy Vehicles (%)	6%	0%	0%	3%	3%	26%
Turn Type	NA			NA	Perm	Free
Protected Phases	4			8		
Permitted Phases				2	Free	
Actuated Green, G (s)	76.8			76.8	29.7	120.0
Effective Green, g (s)	76.8			76.8	29.7	120.0
Actuated g/C Ratio	0.64			0.64	0.25	1.00
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2179			3223	841	1282
v/s Ratio Prot	0.29			c0.46		
v/s Ratio Perm				0.05	c0.19	
v/c Ratio	0.45			0.71	0.21	0.19
Uniform Delay, d1	10.9			14.3	35.8	0.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.8	0.6	0.3
Delay (s)	11.0			15.0	36.4	0.3
Level of Service	B			B	D	A
Approach Delay (s)	11.0			15.0	15.3	
Approach LOS	B			B	B	
Intersection Summary						
HCM 2000 Control Delay	14.0			HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.58					
Actuated Cycle Length (s)	120.0			Sum of lost time (s)	13.5	
Intersection Capacity Utilization	60.6%			ICU Level of Service	B	
Analysis Period (min)	15					

c Critical Lane Group

## Queues

2: Tomken Rd &amp; Eglinton Ave E

16/12/2018



Lane Group	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	186	807	153	203	1917	118	218	395	101	143	858	693
V/c Ratio	0.58	0.44	0.25	0.54	0.97	0.19	0.81	0.42	0.21	0.36	0.96	0.45
Control Delay	59.9	30.1	5.3	21.2	52.8	4.5	50.8	39.4	4.2	25.6	67.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	30.1	5.3	21.2	52.8	4.5	50.8	39.4	4.2	25.6	67.2	0.9
Queue Length 50th (m)	23.7	56.2	0.0	26.5	159.1	0.0	36.2	43.9	0.0	22.7	115.5	0.0
Queue Length 95th (m)	35.1	70.9	14.6	41.2	#206.0	10.9	#75.9	61.8	8.6	37.6	#159.9	0.0
Internal Link Dist (m)		243.1			294.8			402.8			371.6	
Turn Bay Length (m)	125.0		115.0	100.0		105.0	125.0		50.0	110.0		150.0
Base Capacity (vph)	632	1822	605	413	1985	613	282	941	482	437	897	1550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.44	0.25	0.49	0.97	0.19	0.77	0.42	0.21	0.33	0.96	0.45

## Intersection Summary

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

Queue shown is maximum after two cycles.

## HCM Signalized Intersection Capacity Analysis

2: Tomken Rd &amp; Eglinton Ave E

16/12/2018



Movement	EBL	EBT	EBC	WBL	WBT	WBC	NBL	NBT	NBC	SBL	SBT	SBC
Lane Configurations												
Volume (vph)	186	807	153	203	1917	118	218	395	101	143	858	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5	6.5	3.0	6.5	6.5	3.0	7.0	7.0	3.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	*1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.85	1.00	1.00	0.96	1.00	1.00	0.91	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3127	4848	1355	1771	5534	1474	1787	3505	1449	1669	3574	1550
Flt Permitted	0.95	1.00	1.00	0.29	1.00	1.00	0.12	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	3127	4848	1355	532	5534	1474	227	3505	1449	835	3574	1550
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)	186	807	153	203	1917	118	218	395	101	143	858	693
RTOR Reduction (vph)	0	0	96	0	0	76	0	0	74	0	0	0
Lane Group Flow (vph)	186	807	57	203	1917	42	218	395	27	143	858	693
Confl. Peds. (#/hr)			13		62	62		13	31		36	31
Heavy Vehicles (%)	12%	7%	1%	1%	3%	5%	1%	1%	1%	6%	1%	2%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		Free
Actuated Green, G (s)	12.7	46.4	46.4	56.9	44.3	44.3	47.2	33.2	33.2	42.8	31.0	123.5
Effective Green, g (s)	12.7	46.4	46.4	56.9	44.3	44.3	47.2	33.2	33.2	42.8	31.0	123.5
Actuated g/C Ratio	0.10	0.38	0.38	0.46	0.36	0.36	0.38	0.27	0.27	0.35	0.25	1.00
Clearance Time (s)	5.0	6.5	6.5	3.0	6.5	6.5	3.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	321	1821	509	371	1985	528	263	942	389	369	897	1550
v/s Ratio Prot	c0.06	0.17		0.06	c0.35		c0.09	0.11		0.04	c0.24	
v/s Ratio Perm			0.04	0.20		0.03	0.22		0.02	0.10		c0.45
v/c Ratio	0.58	0.44	0.11	0.55	0.97	0.08	0.83	0.42	0.07	0.39	0.96	0.45
Uniform Delay, d <sub>1</sub>	52.9	28.9	25.1	20.5	38.9	26.1	30.3	37.2	33.6	28.9	45.6	0.0
Progression 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
Incremental Delay, d <sub>2</sub>	2.5	0.8	0.4	1.7	13.6	0.3	18.9	1.4	0.3	0.7	21.2	0.9
Delay (s)	55.4	29.7	25.6	22.2	52.4	26.4	49.3	38.6	34.0	29.5	66.8	0.9
Level of Service	E	C	C	C	D	C	D	D	C	C	E	A
Approach Delay (s)		33.3			48.3			41.2			36.7	
Approach LOS		C			D			D			D	

## Intersection Summary

HCM 2000 Control Delay 41.1 HCM 2000 Level of Service D

HCM 2000 Volume to Capacity ratio 0.90

Actuated Cycle Length (s) 123.5 Sum of lost time (s) 21.5

Intersection Capacity Utilization 96.9% ICU Level of Service F

Analysis Period (min) 15

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 3: Site Access & Eglinton Ave E

16/12/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↓			↑↑↑		↑	
Volume (veh/h)	1198	24	0	2293	0	32	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	1198	24	0	2293	0	32	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage veh)							
Upstream signal (m)	321			267			
pX, platoon unblocked		0.95		0.70	0.95		
vC, conflicting volume		1222		1974	411		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol		1042		417	186		
tC, single (s)		4.1		6.8	6.9		
tC, 2 stage (s)							
tF (s)		2.2		3.5	3.3		
p0 queue free %		100		100	96		
cM capacity (veh/h)		640		401	787		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	479	479	264	764	764	764	32
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	24	0	0	0	32
cSH	1700	1700	1700	1700	1700	1700	787
Volume to Capacity	0.28	0.28	0.16	0.45	0.45	0.45	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.8
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.8
Approach LOS							A
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization		47.6%		ICU Level of Service			A
Analysis Period (min)		15					