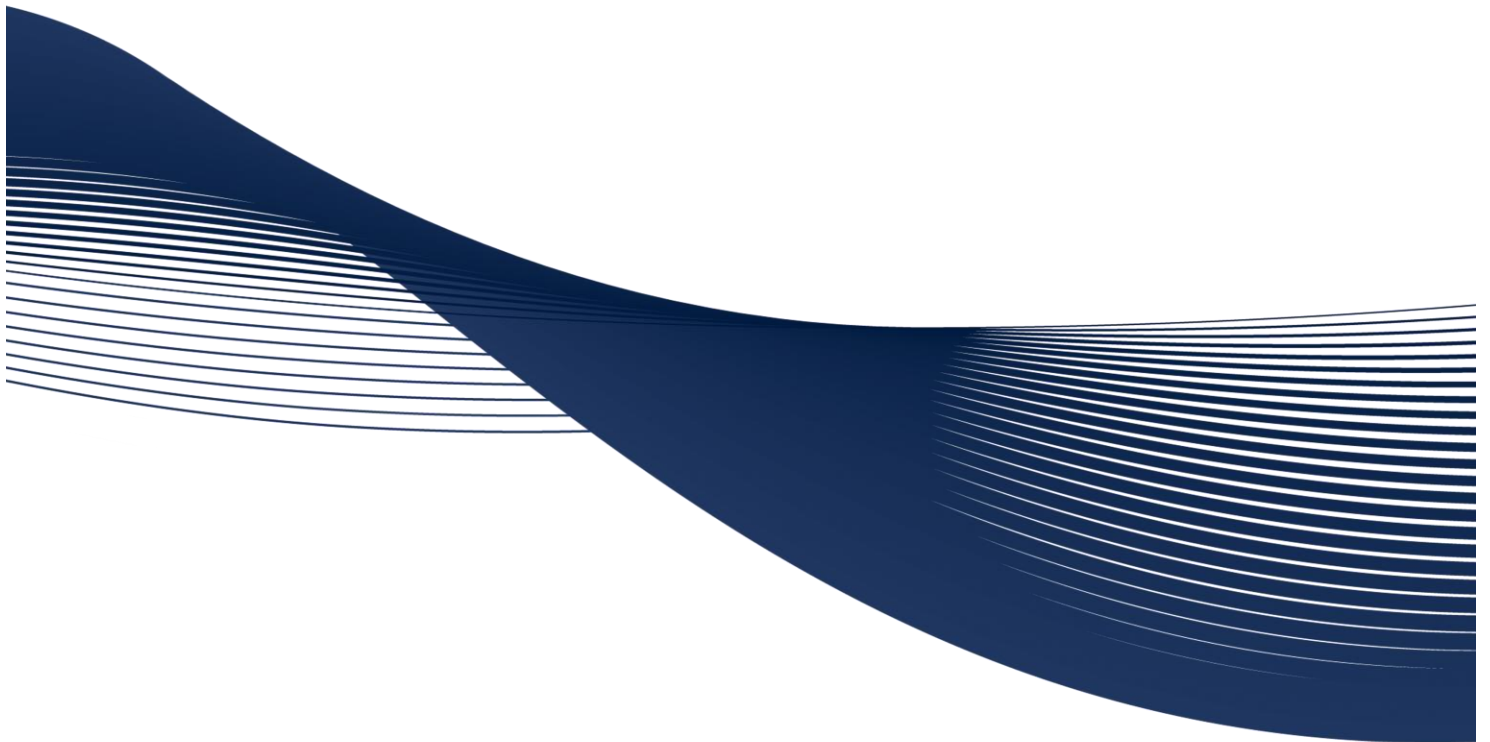


# CITY PARK (OLD BARBER) HOMES INC.

REVISED TRAFFIC IMPACT AND PARKING STUDY

5155 Mississauga Road, City of Mississauga

Project No.: UD16-0022



OCTOBER 2017

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October 23, 2017  
Project No. UD16-0022

Giancarlo Tedesco, E.I.T., C.E.T.  
Traffic Planning Technologist  
City of Mississauga  
300 City Centre Drive  
Mississauga, ON L5B 3C1

Dear Mr. Tedesco:

**Re: Response Letter to City of Mississauga Comments dated June 8, 2017  
5155 Mississauga Road Proposed Residential Development  
City of Mississauga**

Cole Engineering Group Ltd. (COLE) is pleased to provide this letter to the City of Mississauga (the "City"), Planning and Building Department, Development and Design Division, in response to City Staff Comments, issued via the Application Status Report dated June 8, 2017. The transportation comments were drafted by Giancarlo Tedesco in May 11, 2017.

The subject property is located on the northeast side of the intersection of Barbertown Road and Mississauga Road, municipally known as 5155 Mississauga Road.

We have reviewed the June 8, 2017 the Application Status Report. This letter provides City comments reiterated below in **bold**, and our response to said comments in *italics*. COLE has also attached a Revised Traffic Impact Study (TIS), which includes an updated Site Plan dated October 19, 2017.

- 1. March 28, 2017 Recirculation: The plans have revised visitor parking, shifting the 4<sup>th</sup> space required to just within the site entrance. A minimum access clear throat length of 8.0m is required. Notwithstanding other comments related to access, the visitor parking space located near the site entrance will not be permitted. The required 4 visitor spaces should be identified in suitable location(s). A detailed turning movement diagram will be required to demonstrate how the most easterly visitor parking space will function to the satisfaction of this department. Additional provisions to aid in the safety and operation of these features may be required.**

*As per the comments, the Site Plan has been modified by the Site Plan team. The visitor parking spaces have been relocated to the most easterly side of the roadway. The detailed turning movement diagram for the visitor parking #4 is illustrated in Figure 7-3. As per the AutoTurn Diagram a typical 5m (TAC-1999) vehicle, can enter / exit parking stall with a four (4) point turn. AutoTurn analysis has been completed for compact car as well.*

*Compact cars are classified by volume in North America under the United States Environmental Protection Agency (EPA). As such, a sample compact car (Toyota Auris) was utilized for modelling and analysis purposes. The sample car has a length of 4.245m and a total width of 1.76m. This sample car was used to demonstrate parking maneuvers for the visitor parking space #4. Other examples of possible compact cars include:*

- *Toyota Corolla*
- *Honda Civic*
- *Chevrolet Cruze*
- *Hyundai Elantra*
- *Ford Focus*

*Based on the passenger vehicle template it is determined that 4.245m passenger vehicle can enter / exit the parking space with ease.*

- 2. The proposed Mississauga Road access is to be relocated to Barbertown Road. The applicant is advised that the access to Mississauga Road will be restricted in accordance with the Scenic Route Policy and Official Plan. Access shall be designed for the safe and efficient flow of goods and traffic, further minimizing conflicts with active transportation modes. To ensure this operation, the applicant is to revise the site plan drawing to illustrate access from Barbertown Road only.**

*The site access for the proposed development is proposed to be a full movement access, via Mississauga Road (west side of the development).*

*The proposed access is expected to have negligible effect on the operations of Mississauga Road due to low site traffic volume. As seen in **Section 5.2** of the revised TIPS, the addition of site traffic onto Mississauga Road will have no effect on the operations of Mississauga Road.*

*If the site access were to be provided along Barbertown Road (south of the proposed development), the traffic operations at the site access may be poor due to no dedicated turning lanes along Barbertown Road. With the close proximity to the intersection of Barbertown Road and Mississauga Road, the queue length of vehicles waiting to turn left, eastbound, into the proposed development, may impact intersection operations. Mississauga Road currently has a two (2)-way centre left-turn lane, which provides a safe refuge and queuing area for left turns along Mississauga Road, and will maintain an acceptable LOS along the roadway.*

*The proposed site access is located approximately 60m away from the intersection of Barbertown Road and Mississauga Road, and with an existing left-turn lane, the site traffic will have no impact on the intersection.*

*Closing the current site access onto Barbertown Road, and not providing access for the future proposed development on Barbertown Road, would increase the safety of the roadway, neighbourhood and the park which is located directly south of the proposed development, and minimize traffic infiltration into the neighbourhood.*

*In addition, the four (4) detached dwellings along Barbertown Road will be access from Barbertown Road so that does remove some of the traffic generation from the main site access on Mississauga Road.*

- 3. March 28, 2017 Recirculation:** The plans shall be revised to identify an appropriate "clear throat" at the internal intersection, whereas the parking spaces shown will not be permitted to intersect the radii curbing.

*As per the comments, the Site Plan has been modified by the Site Plan team. Please see Figure 1-2 in the report for the most updated Site Plan.*

- 4. This department is in receipt of a Traffic Impact Study, prepared by Cole Engineering Group Ltd. (dated June 2016 and updated March 23, 2017). Detailed comments and conditions will be provided prior to the Recommendation Meeting. - Additionally, the study shall recognize the following existing uses and provide an opinion on their impacts to the network and study: - The Portico a community church, located at 1814 Barbertown Road. - Sunday Service: (Sundays: 8:40am; 10:10am; and 11:40am); - Students @ Portico: (Tuesdays: 7:00pm - 9:00pm) - Mid Week Ministry Program: (Wednesdays: 7:00pm - 8:30pm) - Facility Rentals: 1,000 seat auditorium; 200 seat chapel; 450 seat gymnasium - ADM Milling, located at 1770 Barbertown Road. - Tankers: 6 in, 6 out (12 two-way) trips \*daily\* - Wheat delivery: 6 in, 6 out (12 two way trips) \*daily\* - The consultant is to review and provide an opinion on the queuing potential associated with the at grade rail crossing North of the site.**

*We have recognized the above existing uses. In our opinion, these developments will not have any effect on the road network and study as they are existing developments. Any traffic that is generated from these developments that coincide with the peak periods of the proposed development was captured in the turning movement count data collection and subsequently included in our existing traffic analysis.*

*As for the peak periods of these developments, they do not coincide with the proposed developments peak periods. Since these developments do not have corresponding peak periods, the surrounding road network will be able to accommodate the associated traffic. While one (1) development is experiencing high site generated traffic, the other will be experiencing negligible traffic (off-peak).*

*We have also reviewed the at grade rail crossing, which is located approximately 560m north of the proposed development, and we are of the opinion that the proposed development will have no effect on the crossing.*

*The opinion was made after reviewing both study area intersections (Mississauga Road and Barbertown Road, and Mississauga Road and Site Access) in the future (2021) total traffic horizon year. All southbound movements at both intersections were reviewed for their 95<sup>th</sup> percentile queue length in both the weekday AM and PM peak period. It was determined that the queue lengths would not have any effect on the crossing, as the maximum observed 95<sup>th</sup> percentile queue length for the southbound movements was 1.0m, which was for the southbound left turn at the intersection of Mississauga Road and Barbertown Road.*

5. **March 28, 2017 Recirculation:** The plans identify a structure described as "relocated brick shed (bike storage)". A response should be supplied which provides clarification of how this achieves the requirement for 1 outdoor and 3 indoor spaces. RE: 4 Barber House Units The applicant is required to provide short term (outdoor) and long term (indoor) bicycle storage facilities for the purpose of a minimum 1 outdoor and 3 indoor parking spaces (in a close vicinity to the main access). The Site Plan shall be revised to identify these locations and to specify the facility detail(s), including quantity of spaces proposed for each.

*Short-term bicycle parking is typically provided in close proximity to entrances via high tensile strength racks. Long term bicycle parking is intended for use over several hours or overnight and the residents will also likely use their garages for bicycle storage and parking on a long term basis.*

*The proposed development will provide a brick shed, to be located to the east of the Barber House that will serve as a secure storage facility for both residents and visitors wishing to cycle to and from the site. The brick shed will serve as both short term and long term bicycle parking, with an area of 6.54m<sup>2</sup>, and exclusively will be used by visitors and residents. Based on the City's comments, dated June 8, 2017, **Table 1** below summarizes the required bicycle parking spaces for the proposed development, based on short-term and long-term parking.*

**Table 1 Required Bicycle Parking Requirements**

Type of Bicycle Parking	Rate	# Parking Required
Short-Term (outdoor) (four (4) units) two (2)-storey back-to-back within the converted Old Barber House	0.08/unit	1 space
Long-Term (indoor) (four (4) units) two (2)-storey back-to-back within the converted Old Barber House	0.70/unit	3 spaces

*The proposed development will provide a total of one (1) bicycle parking spaces for visitors (short-term) and three (3) bicycle parking spaces for residents (long-term) as summarized in the above table.*

6. **Waste Collection Comments:** For the townhouses: The Region of Peel will provide curbside collection of garbage, recyclable materials, household organics and yard waste subject to the following conditions: The current proposed plan will not be permitted for waste collection, as the back-up distance is too large. Each dwelling unit within a development must have its own identifiable collection point. **Waste Collection Vehicle Access Route Comments:** The turning radius from the centre line must be a minimum of 13 metres on all turns. In those situations where a waste collection vehicle must reverse, then the maximum straight back-up distance is 15 metres. The internal road layouts should be designed to permit continuous collection without reversing. Where the requirement for continuous collection cannot be met, a cul-de-sac or a T?-turnaround will be permitted in accordance with the specifications shown in Appendix 2 and 3 of the WCDSM (Waste Collection Design Standards Manual), respectively. **Curbside Collection Comments:** The waste set out location is to be as close as possible to the travelled portion of the roadway, directly adjacent to the private property of the unit occupier/owner, directly accessible to the waste collection vehicle and free of obstructions (i.e. parked cars). For the 4 back-to-back units (Block 4): The use of common collection areas for single-detached dwellings, semi-detached dwellings, townhouses and multi-residential complexes up to six dwelling units is not permitted. The set out area along the curb, adjacent to the driveway must be at least 3 square metres per unit in order to provide sufficient space for the placement of two carts: maximum 1 large garbage or recycling cart (360 litres) and 1 organics cart (100 litres), overflow waste (i.e. additional bags), yard waste receptacles and bulky items. Each unit within a development must have its own identifiable waste collection point (distinct set out area along the curb or the sod that cannot be shared with neighbouring units) as approved by Public Works Commissioner or Delegate. The collection point must be located along the curb, adjacent to the driveway, and must be directly accessible to the waste collection vehicle and free of obstruction such as parked cars.

*As per the City comments, the Site Plan has been revised. The minimum turning radius from the centerline 13m is provided.*

*Based on the discussion with the Regional staff, given the constraints of the site, the Region allowed exception to the backup distance requirement with following conditions:*

- *Developer will provide space for storage of waste carts for units 17-20, on the day of collection, carts to be set out close to curb for collection;*
- *Waste collection vehicle driver will backup for approximately 15m for automated collection from some units, and for the remaining units (units 11-16) she / he will manoeuvre the carts manually for collection;*
- *Common collection pad will not be allowed.*

Yours sincerely,

**COLE ENGINEERING GROUP LTD.**



Kim Nystrom  
Senior Project Manager  
Transportation Planning and Traffic  
Transportation

SC:KN/jay



Sevim Coskun, C.E.T.  
Transportation Analyst  
Transportation Planning and Traffic  
Transportation



October 23, 2017  
Reference No. UD16-0022

Mr. Evan Perlman  
Glen Scharr & Associates Inc.  
c/o City Park (Old Barber) Homes Inc.  
700 – 10 Kingsbridge Garden Circle  
Mississauga, ON L5R 3K6

Dear Mr. Perlman:

**Re: Revised Traffic Impact and Parking Study  
5155 Mississauga Road  
City of Mississauga**

Cole Engineering Group Ltd. (COLE) is pleased to submit this Revised Traffic Impact and Parking Study for the above noted development. This report documents our findings and conclusions regarding the traffic impact and parking requirements in support of an application for Official Plan and Zoning By-law Amendment for the proposed residential development located at 5155 Mississauga Road, in the City of Mississauga (the "City").

The conceptual development plan for the site will consist of 25 residences including: five (5) freehold detached single family units, 16 townhouse dwellings, and four (4) two (2)-storey back-to-back units within the converted Old Barber House. Access to the proposed development will be provided via a proposed full movement driveway to Mississauga Road. A total 44 parking spaces including 32 parking spaces for common element detached / townhouse dwelling units, seven (7) spaces for common element condo / two (2)-storey townhouse visitors, and five (5) parking spaces for visitors are provided.

This Revised Traffic Impact and Parking Study concludes that the development will have minimal impact to the study intersections. Further, the proposed parking supply was found to be adequate to accommodate the parking demands of the proposed development.

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

Yours truly,

**COLE ENGINEERING GROUP LTD.**

A handwritten signature in blue ink, appearing to read 'K. Nystrom'.

Kim Nystrom  
Principal  
Traffic and Planning  
Transportation

A handwritten signature in blue ink, appearing to read 'Sevim'.

Sevim Coskun, C.E.T.  
Transportation Analyst  
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Kim Nystrom  
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**Issues and Revisions Registry**

Identification	Date	Description of issued and/or revision
Draft Report	March 2016	For internal review
Draft Report	March 2016	For Client review
Final Report	April 2016	For Client submission
Final Report	May 2016	For Client review
Final Report	June 2016	For Client review
Draft Report	March 2017	For Client review
Final Report	October 2017	For submission

**Statement of Conditions**

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# 1 Introduction

Cole Engineering Group Ltd. (COLE) was retained by City Park (Old Barber) Homes Inc. (the “Owner”) to undertake a Traffic Impact and Parking Study in support of an application for Official Plan and Zoning By-law Amendment for the proposed residential development located at 5155 Mississauga Road, in the City of Mississauga (the “City”), in the Region of Peel (the “Region”).

The subject property is located in the northeast quadrant of the Mississauga Road and Barbertown Road intersection, with single family houses to the east, Mississauga Road to the west, vacant land to the north and Barbertown Road to the south. **Figure 1-1** illustrates the site location.

The proposed use will consist of 24 residences including four (4) freehold detached single family units, 16 townhouse dwellings, and four (4) two (2)-storey back-to-back units within the converted Old Barber House. Access to the development will be provided via a proposed full moves driveway to Mississauga Road. The proposed development will provide a total 44 parking spaces including 32 parking spaces for common element detached / townhouse dwelling units, seven (7) spaces for common element condo / two (2)-storey townhouse visitors, and five (5) parking spaces for visitors are provided. **Figure 1-2** illustrates the proposed Site Plan.

The purpose of this study is to:

- Establish existing traffic conditions for the study area through the operational assessment of the study area intersections;
- Determine future traffic conditions for a post build out, five (5)-year traffic horizon;
- Identify study area capacity constraints (if any) in the future background conditions and recommend roadway improvements, if required, to provide better roadway operations;
- Forecast and estimate the traffic associated with the proposed development using the information published in the *Trip Generation Manual, 9<sup>th</sup> Edition*, by the Institute of Transportation Engineers (ITE);
- Undertake future total traffic analysis to determine the impact of the proposed development on the surrounding road network and recommend any improvements which may be required to accommodate the proposed development;
- Identify mitigation measures to address any deficiencies at each horizon year (existing, future background and future total traffic) for key study area intersections; and,
- Review the adequacy of the proposed parking supply with regards to the future demands of the site.

## 1.1 Study Approach

The study's methodology and analysis reflects the *City of Mississauga's Traffic Impact Study Guidelines*.

Weekday morning and afternoon peak period traffic volume counts were undertaken by Accu-Traffic Inc. on February 10, 2016, on behalf of COLE for following intersection:

- Mississauga Road and Barbertown Road (Unsignalized).

Future background traffic volumes for the 2021 horizon year, excluding the additional traffic volumes generated by the proposed development, consist of the following components: traffic growth from outside the study area, and traffic from active developments in the vicinity of the subject development.

Site traffic was derived using information contained in the *Trip Generation, 9<sup>th</sup> Edition*, published by the Institute of Transportation Engineers (ITE), and distributed based on the existing traffic pattern.

Future total traffic conditions were determined by the summation of the estimated traffic volumes generated by the site and the background traffic volumes for the 2021 full build-out horizon.

### 1.1.1 Assessment of Unsignalized Intersection Operations

The unsignalized intersection operational analysis in this report was also conducted using *Synchro 9.0* software, which employs the Highway Capacity Manual (HCM 2000) methodology. All parameters for the unsignalized intersection analysis were based on the Synchro default values. Synchro results for the unsignalized intersections are provided in HCM format.

## 2 Existing Traffic Conditions

### 2.1 Existing Road Networks

The existing road network, lane configurations and existing traffic control for the study area is shown in **Figure 2-1**. The details are described as follows:

- **Mississauga Road:** is a north-south major collector (scenic) road consisting of two (2) through travel lanes with a continuous left turn lane in the center with dedicated a bike lane on both sides of the road. The road is under the jurisdiction of the City. The roadway maintains a posted speed limit of 50km/h in the vicinity of the subject site.
- **Barbertown Road:** is an east-west local road consisting of two (2) through travel lanes, and is under jurisdiction of the City. The roadway maintains an unposted speed limit of 50km/h in the vicinity of the subject site. It is a dead end road with a sidewalk on the south side.
- **Rothsay Court:** is an east-west and south-north local road consisting of two (2) through travel lanes, and is under jurisdiction of the City. The roadway maintains an unposted speed limit of 50km/h in the vicinity of the subject site. It is a dead end road with a cul-de-sac. A sidewalk is located on the south side of the road.

### 2.2 Existing Traffic Volumes

Existing traffic volumes were collected by Accu-Traffic Inc. on February 10, 2016 during the morning (7:00 a.m. to 9:00 a.m.) and afternoon (4:00 p.m. to 6:00 p.m.) peak periods. Detailed existing traffic data is provided in **Appendix A**.

## 2.3 Existing Traffic Assessment

The study area intersections were analyzed under existing traffic conditions using *Synchro 9.0* software. Volume / capacity (v/c) ratios for overall intersection operations, through movements, or shared through / turning movements greater than 0.85, and v/c ratios for exclusive movements greater than 0.95 have been shown in bold. The existing traffic volumes are illustrated in **Figure 2-2**. The results are summarized in **Table 2.1** below, and the detailed calculations are shown in **Appendix B**.

**Table 2.1 Existing Traffic Analysis**

Intersection	Key Movement	AM Peak Hour	PM Peak Hour
		LOS (v/c)	LOS (v/c)
Mississauga Road / Barbertown Road (Unsignalized)	EB left-through-right	B (0.05)	B (0.02)
	WB left-through-right	B (0.07)	C (0.08)
	NB Left	A (<0.01)	A (0.01)
	NB through-right	A (0.29)	A (0.41)
	SB left	A (0.01)	A (0.03)
	SB through-right	A (0.40)	A (0.33)

The existing analysis reveals that the unsignalized intersection of Mississauga Road / Barbertown Road is operating with good levels of service (LOS) and v/c ratios during the a.m. and p.m. peak hours.

## 3 Future Background Traffic Conditions

### 3.1 Background Traffic Growth

Based on the discussion with the City staff, a 1.0% growth rate per annum was applied to all traffic directions during the a.m. and p.m. peak hours, along Mississauga Road.

### 3.2 Background Developments

As discussed with the City staff, COLE was advised that there are three (3) active background development applications in the vicinity of the study area. The background developments included in the assessment are summarized in **Table 3.1** on the following page. The detailed calculations are shown in **Appendix C**.

**Table 3.1 Background Developments Trip Generation**

Land Use	Unit / GFA	Parameters	AM peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
5276 Mississauga Road Commercial/Retail Plaza (LUC 820)	111,900ft²	Gross Trips	104	63	167	199	216	415
		Gross Trip Rate (trips / unit)	0.92	0.57	1.49	1.78	1.93	3.71
		Bypass Trip (33%)	--	--	--	69	69	138
		New Trips	--	--	--	130	147	277
		New Trip Rate	--	--	--	1.16	1.32	2.48
5276 Mississauga Road Residential Development (LUC 210)	10 Units	Gross Trips	4	13	17	8	5	13
		Gross Trip Rate (trips / unit)	0.40	1.30	1.70	0.80	0.50	1.30
5175 Mississauga Road Residential Development (LUC 210)	15 Units	Gross Trips	5	15	20	12	7	19
		Gross Trip Rate (trips / unit)	0.33	1.00	1.33	0.80	0.47	1.27
Total			113	91	204	150	159	309

Based on the foregoing, the proposed background developments are expected to generate 204 two (2)-way, and 309 two (2)-way trips during the roadway a.m. and p.m. peak hours, respectively. The background development site traffic volumes are illustrated in **Figure 3-1**.

The following two (2) developments are currently existing in the surrounding area, and are currently fully functioning:

- The Portico Community Church (1814 Barbertown Road); and,
- ADM Milling (1770 Barbertown Road).

The above existing land uses have been acknowledged. In our opinion, these developments will not have any additional impact on the road network and study, as they are existing developments. Any traffic that is generated from these developments that coincides with the peak periods of the proposed development, is captured in the turning movement count data collected, and subsequently included in our existing traffic analysis.

As for the peak periods of these developments, they do not coincide with the proposed development's peak periods. Since these developments do not have corresponding peak periods, the surrounding road network will be able to accommodate the associated traffic. While one (1) development is experiencing high site generated traffic, the other will be experiencing negligible traffic (off-peak).

### 3.3 Future Background (2021) Assessment

The future background (2021) traffic (sum of the existing, general background growth and active background developments) was analyzed using *Synchro 9.0* software. The background developments included in the assessment and results are summarized in **Table 3.2** below with v/c ratios for overall intersection operations, through movements, or shared through / turning movements greater than 0.85; and v/c ratios for exclusive movements greater than 0.95 have been shown in bold. The detailed calculations are shown in **Appendix D**. The future background traffic volumes are illustrated in **Figure 3-2** below.

**Table 3.2 Future Background (2021) Traffic Analysis**

Intersection	Key Movement	AM Peak Hour	PM Peak Hour
		LOS (v/c)	LOS (v/c)
Mississauga Road / Barbertown Road (Unsignalized)	EB left-through-right	C (0.06)	C (0.03)
	WB left-through-right	C (0.09)	C (0.11)
	NB Left	A (<0.01)	A (0.01)
	NB through-right	A (0.36)	A (0.53)
	SB left	A (0.02)	B (0.04)
	SB through-right	A (0.50)	A (0.43)

The future background analysis reveals that the unsignalized intersection of Mississauga Road / Barbertown Road is operating with good LOS and v/c ratios during the a.m. and p.m. peak hours.

## 4 Site Traffic

The proposed site will consist of 24 residences including four (4) freehold detached units, 16 townhouse dwellings, and four (4) two (2)-storey back-to-back units within the converted Old Barber House on the subject property, for a total of 24 dwelling units. The existing historic Barber House will remain in place and is proposed for two-storey townhouses.

### 4.1 Site Generated Traffic

Trip generation forecasts are based on information contained in the *Trip Generation Manual, 9<sup>th</sup> Edition* published by the Institute of Transportation Engineers (ITE). The ITE Land Use Code (LUC) 230 (Residential Condominium / Townhouse) was selected to estimate residential townhouse trips, while LUC 210 was used for the Detached Single Family Units, for the weekday a.m., and p.m. peak hours. The equation was used instead of the average rate calculation since the equations generate higher traffic volume, which is considered more conservative. The results are summarized in **Table 4.1** in the following page.

**Table 4.1 Trip Generation for Proposed Development**

Land Use	Unit / GFA	Parameters	AM peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single –Family Detached Housing (LUC 210)	4 Units	Gross Trips	3	10	13	4	2	6
		Gross Trip Rate (trips / unit)	0.75	2.50	3.25	1.0	0.50	1.50
Residential Condominium Common Element Townhouse (LUC 230)	20 Units	Gross Trips	2	12	14	11	5	16
		Gross Trip Rate (trips / unit)	0.10	0.60	0.70	0.55	0.25	0.80
Total			5	22	27	15	7	22

The proposed development is expected to generate 27 two (2)-way (five (5) inbound and 22 outbound) trips during the a.m. peak hour and 22 two (2)-way (15 inbound and seven (7) outbound) trips during the p.m. peak hour. The site traffic volumes associated with the proposed development are illustrated in **Figure 4-1** and detailed calculations are provided in **Appendix E**.

## 4.2 Trip Distribution

Trip distribution is based on the existing traffic patterns and the available road network. The resulting distribution is summarized in **Table 4.2** below. The site traffic was assigned to the road network as per the trip distribution noted below.

**Table 4.2 Trip Distribution Based on Existing Traffic Pattern**

Direction (to / from)	Street	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
North	Mississauga Road	58%	41%	45%	55%
South	Mississauga Road	42%	59%	55%	45%
<b>Total</b>		<b>100%</b>			

## 4.3 Trip Assignment

The proposed site development traffic volumes noted in **Section 4.1** were assigned to the study area intersections based on the trip distribution presented in **Table 4.2**. The site traffic was assigned to the proposed site access on Mississauga Road.

## 5 Future Total Traffic Conditions

### 5.1 Future Total (2021) Assessment

The future (2021) total traffic (sum of the future (2021) background traffic and site traffic) was analyzed using *Synchro 9.0* software. The results are summarized in **Table 5.1** below with v/c ratios for overall intersection operations, through movements, or shared through / turning movements greater than 0.85; and v/c ratios for exclusive movements greater than 0.95 have been shown in bold. The future total traffic volumes are illustrated in **Figure 5-1**, respectively, and detailed calculations are provided in **Appendix F**.

**Table 5.1 Future Total (2021) Traffic Analysis**

Intersection	Key Movement	AM Peak Hour	PM Peak Hour
		LOS (v/c)	LOS (v/c)
Mississauga Road / Barbertown Road (Unsignalized)	EB left-through-right	C (0.06)	C (0.03)
	WB left-through-right	C (0.12)	C (0.12)
	NB Left	A (0.00)	A (0.01)
	NB through-right	- (0.36)	- (0.53)
	SB left	A (0.02)	B (0.04)
	SB through-right	- (0.50)	- (0.43)
Mississauga Road / Proposed Site Access (Unsignalized)	WB left-right	B (0.03)	C (0.02)
	NB through-right	- (0.36)	- (0.53)
	SB left	A (0.00)	A (0.01)
	SB through	- (0.51)	- (0.45)

The future total analysis reveals that the unsignalized intersection of Mississauga Road / Barbertown Road will operate with good LOS and v/c ratio during the a.m. and p.m. peak hours. In addition, the proposed Site Access / Mississauga Road intersection will operate with good LOS and v/c ratios during the road peak hours.

### 5.2 Proposed Site Access

The site access for the proposed development is proposed to be a full movement access, via Mississauga Road (west side of the development).

The proposed access is expected to have negligible effect on the operations of Mississauga Road due to low site traffic volume. As discussed in **Section 5.1**, the addition of site traffic onto Mississauga Road will have no effect on the operations of Mississauga Road.

If the site access were to be provided along Barbertown Road (south of the proposed development), the traffic operations at the site access may be poor, due to no dedicated turning lanes along Barbertown Road. With the close proximity to the intersection of Barbertown Road and Mississauga Road, the queue length of vehicles waiting to turn left, eastbound, into the proposed development, may impact intersection operations. Mississauga Road currently has a two-way centre left-turn lane, which provides a safe refuge and queuing area for left turns along Mississauga Road, and will maintain an acceptable LOS along the roadway.

The proposed site access is located approximately 60m away from the intersection of Barbertown Road and Mississauga Road, and with an existing left-turn lane, the site traffic will have no impact on the intersection.

As well, closing the current site access onto Barbertown Road, and not providing access for the future proposed development on Barbertown Road, would increase the safety of the roadway, neighbourhood and the park which is located directly south of the proposed development, and minimize traffic infiltration into the neighbourhood.

## 6 Parking Supply Evaluation

The Site Plan proposes a total 44 parking spaces including 32 parking spaces for common element townhouse dwelling units, seven (7) spaces for common element condo / two (2)-storey townhouse visitors, and five (5) parking spaces for visitors are provided. To determine the adequacy of the proposed parking supply to service the proposed residential development, the existing in force City's Zoning By-law No. 0225-2007 Part III was reviewed and examined.

### 6.1 City of Mississauga Zoning By-law No.: 0225-2007

The City Zoning By-law No. 0225-2007 Part III has been reviewed. The parking rates are as follows and the detailed calculations are summarized in **Table 6.1** and **Table 6.2** below.

**Table 6.1 Parking Requirements for Freehold Townhouses**

Land Use	Unit/GFA	Parking Rate	Required Parking Spaces	Proposed Parking Spaces	Difference
Freehold SFU	4 Units	3.25 spaces / unit	13	16	+3

Based on the current City's Zoning By-law, the proposed development is required to provide 3.25 parking spaces per unit including visitors, for the freehold detached single family units, and is being exceeded by the proposed development.

**Table 6.2 Parking Requirements for Rest of the Development**

Land Use	Unit/GFA	Parking Rate	Required Parking Spaces	Proposed Parking Spaces	Difference
Common Elements Townhouse	16 Units	2 spaces / unit	32	32	-
Condominium (Two (2)-storey back-to-back within the converted Old Barber House)	4 Units	1.5 spaces / unit	6	7	+1
Residential Visitors	20 Units	0.25 spaces / unit	5	5	-
<b>Total</b>			<b>43</b>	<b>44</b>	<b>+1</b>

Based on the current City's Zoning By-law, the proposed development is required to provide 43 parking spaces (32 parking spaces for common element townhouses, five (5) parking spaces for residential visitors and six (6) spaces for two (2)-storey townhouse residents). Therefore, the proposed parking supply will meet the requirement with 44 parking spaces.

### 6.1.1 Public Transit

The site is located within an area serviced by the Mississauga Transit (Miway) bus services with at least 12 bus stops within a 500m walking radius. **Figure 6-1** illustrates 500m walking distance bus stops. The transit routes include:

- **Route 9 – Rathburn-Millers Grove:** operates along Rathburn Road to Creditview Road, continues to Eglinton Avenue and turns to Mississauga Road. The Route 9 ends at Meadowvale Town Centre Bus Terminal. In the vicinity of the site, this route operates with an average headway of 30 minutes during the weekday a.m. and p.m. peak hour, respectively. **Figure 6-2** illustrates Route 9 road network;
- **Route 44 – Mississauga Road:** operates along Mississauga Road. In the vicinity of the site, this route operates with an average headway of 18 to 19 minutes during the weekday a.m. and p.m. peak hour, respectively. **Figure 6-3** illustrates Route 44 road network;
- **Route 35 / Route 35A – Eglinton Road:** operates along Eglinton Avenue. Service starts at Islington Subway Station and it ends at Ninth Line. In the vicinity of the site, this route operates with an average headway of seven (7) minutes during the weekday a.m. and p.m. peak hour, respectively. **Figure 6-4** illustrates Route 35 road network;
- **Route 34 – Credit Valley:** operates along Eglinton Avenue. Service starts at Square One Bus Terminal and it ends at Erin Mills Town Centre Bus Terminal. In the vicinity of the site, this route operates with an average headway of 23 minutes during the weekday a.m. and p.m. peak hour, respectively. **Figure 6-5** illustrates Route 34 road network; and,
- **The Streetville GO Train Station** is approximately a 13 minute walk from the subject development property, travelling north along Queen Street to Old Station Road.

The above bus services provide a reliable, cost effective alternative mode of traveling through the comprehensive and continually growing transit network system. This further validates the accessibility of the subject site for non-automotive users.

## 7 Site Circulation Assessment

The inbound and outbound movements were reviewed based on the latest Site Plan, dated October 19, 2017. The internal vehicular circulation for emergency and servicing has been reviewed. The *AutoTURN* analysis for fire and garbage trucks entering and exiting the site is illustrated in **Figure 7-1** and **Figure 7-2**. The garbage truck dimensions were based on the standards set out in the Region of Peel's Waste Collection Design Standards Manual, for a 11.93m long Fully-Automated Waste Collection Vehicle.

In addition, based on the discussion with the Regional staff, given the constraints of the site, the Region allowed exception to the backup distance requirement with following conditions:

- Developer will provide space for storage of waste carts for units 17-20, on the day of collection, carts to be set out close to curb for collection;
- Waste collection vehicle driver will backup for approximately 15m for automated collection from some units, and for the remaining units (units 11-16) she / he will manoeuvre the carts manually for collection; and,
- Common collection pad will not be allowed.

From the analysis, there is adequate manoeuvring area on-site to enable garbage and other similar service trucks to exit the site in a forward manner without adversely affecting the adjacent public roadways. Corresponding with the Region Peel included in **Appendix G**.

In addition, *AutoTURN* analysis for passenger vehicles illustrated in **Figure 7-3**. As per the *AutoTurn* Diagram a typical 5m (TAC-1999) vehicle, can enter / exit the parking stall with a four (4) point turn, however, *AutoTurn* analysis completed it for compact car as well.

Compact cars are classified by volume in North America under the United States Environmental Protection Agency (EPA). As such, a sample compact car (Toyota Auris) was utilized for modelling and analysis purposes. The sample car has a length of 4.245m and a total width of 1.76m. This sample car was used to demonstrate parking maneuvers for the visitor parking space #4. Other examples of possible compact cars include:

- Toyota Corolla;
- Honda Civic;
- Chevrolet Cruze;
- Hyundai Elantra; and,
- Ford Focus.

Based on the analysis it is determined that 4.245m passenger vehicle can enter / exit the parking space with ease.

## 8 Transportation Demand Management Plan

Transportation Demand Management (TDM) Plan refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. In short, a TDM plan works to change how, when, where, and why people travel.

The TDM measures have been prepared to address the following required transportation demand management objectives:

- Provision of facilities / operations to minimize single occupant vehicle (SOV) access to the study area and encourage the use of alternate transportation modes, particularly transit; and,
- Identify the operational and financial roles and responsibilities of the landowner including program development, implementation and ongoing management and operations of the travel demand management plan / program.

The TDM education and promotion related strategies support mobility by making the public aware of the options available and actively encourages the use of alternative transportation. These marketing initiatives may take the form of general marketing to targeted outreach. TDM marketing and promotion approaches include:

- Area marketing campaigns – Promoting transit services, carpooling or other TDM;
- Education Programs – Campaigns to inform the public about the specifics of services; and,
- Employer Based Outreach – Partnerships with employers to support TDM.

## **8.1 TDM Programs**

### **8.1.1 Area Marketing Campaigns**

Area marketing campaigns are premised on the objective of behavioural change. The methods of persuasion include conveying messages of:

- Personal benefit;
- Social benefit; and,
- Adhering to the “social norm”.

It is recognized that individuals are more likely to change their current behaviour or continue that behaviour if it is the social norm amongst their peers.

One of the first area marketing TDM campaigns within the GTA was established by Metropolitan Toronto in 1994. The Diamond Lane Campaign was implemented in co-ordination with the expansion of the High Occupancy Lane network. The campaign included billboard, transit vehicle, radio, and newspaper ads. Transportation Management Association (TMA)’s can help facilitate TDM directives by developing promotional materials, advocate for funding, conduct transportation fairs, and many other things.

### **8.1.2 Education Programs and Information Services**

The effectiveness of transportation systems to provide mobility to the public is only as good as the awareness of the public to the services provided. Education programs and information services (such as call-lines and internet based route planners) can supplement marketing campaigns, increasing the commuter’s understanding of their mobility options.

Miway provides <http://www.mississauga.ca/portal/miway>, which is a map based navigator. Progressive trip planners including web based trip data, can add to the commuter’s understanding of travel options by providing real time information.

A Denver, Colorado TMA (Transportation Solutions) managed a program which was designed to improve ridership. Before-and-after surveys were to gauge the impact of the efforts. The results clearly demonstrated the direct impact of the project on improved perceptions of bus transportation in the area. The results showed an increase in awareness:

- 17% increase in those who “know which bus routes to take to work / school”; and,
- 19% increase in those who feel they have “the information I need to ride the bus”.

### 8.1.3 Walking / Cycling

The City has a long-standing commitment to an off-road trail system, having built over 250km of pathways and trails in parks and greenspaces across the City. Pathways in the neighbourhood parks provide cycling and walking friendly connections to schools, community centres and libraries. In addition, cycling safety programs were offered such as CAN-BIKE courses and community safety workshops. The Road Safety Handbook was published and includes a chapter on cycling safety.

### 8.1.4 Bicycle Parking

As per the City's comments, dated June 8, 2017, "the applicant is required to provide short term (outdoor) and long term (indoor) bicycle storage facilities for the purpose of a minimum rate of 0.08 outdoor and 0.70 indoor parking spaces per units (in a close vicinity to the main access)."

Short-term bicycle parking is typically provided in close proximity to entrances via high tensile strength racks. Long term bicycle parking is intended for use over several hours or overnight and the residents will also likely use their garages for bicycle storage and parking on a long term basis.

The proposed development will provide a brick shed, to be located to the east of the Barber House that will serve as a secure storage facility for both residents and visitors wishing to cycle to and from the site, thus further reducing the single occupancy vehicle (SOV) mode. The brick shed will serve as both short term and long term bicycle parking, with an area of 6.54m<sup>2</sup>.

Based on the discussion with staff, **Table 8.1** below summarizes the required bicycle parking spaces for the proposed development, based on short-term and long-term parking.

**Table 8.1 Required Bicycle Parking Supply**

Type of Bicycle Parking	Rate	# Parking Required
Short-Term (outdoor) (four (4) units) two (2)-storey back-to-back within the converted Old Barber House	0.08/unit	1 spaces
Long-Term (indoor) (four (4) units) two (2)-storey back-to-back within the converted Old Barber House	0.70/unit	3 spaces

The proposed development will provide a total of one (1) bicycle parking spaces for visitors (short-term) and three (3) bicycle parking spaces for residents (long-term) as summarized in **Table 8.1**.

### 8.1.5 Carpooling

The Smart Commute program has been established in the form of 10 transportation management associations (TMAs) across the GTHA. The Smart Commute TMAs are supported by Metrolinx to coordinate and implement TDM initiatives.

Smart Commute – Mississauga is a TMA committed to reducing traffic congestion, improving air quality and advocating for sustainable transportation within the study area. Since inception in 2001, Smart Commute has collectively reduced approximately 1.2 million single-occupant vehicle (SOV) trips, which avoided more than 61 million vehicle kilometres traveled (VKT) and prevented the emission of over 14,000 tonnes of greenhouse gases (GHG) and 88 tonnes of smog-causing air pollutants. Smart Commute works to:

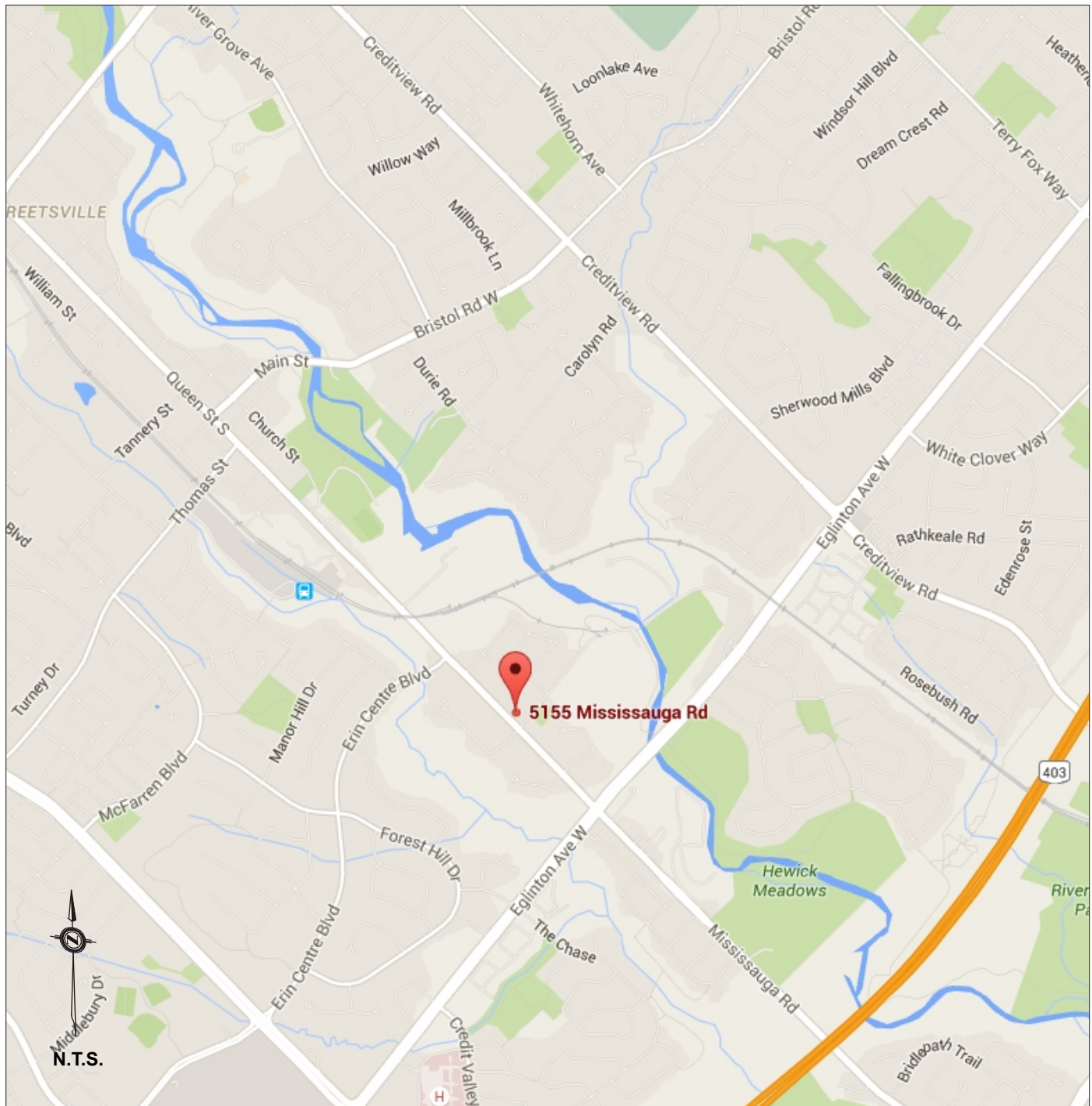
- Implement employee trip reduction programs at local workplaces;
- Decrease traffic congestion, and improve air quality and health by reducing vehicle emissions;
- Improve employee productivity and morale, and reduce employee turnover;
- Advocate for improved transit service, and increased local transportation infrastructure;
- Bus-only and cycling lanes, and a wider network of subway and light rapid transit;
- Promote the benefits of transit-supportive development and smart-growth strategies;
- Encourage legislative flexibility in support of high-value, cost effective transportation strategies such as vanpools, telework, transit subsidies and shuttle services; and,
- Increase opportunities for TMA collaboration with business and government.

Smart Commute offers one-on-one support for staff to use sustainable modes of transportation and provides promotions and incentives on an on-going basis. A web based car matching tool is provided to allow carpoolers to easily identify ride matching options among a large membership base and form carpooling arrangements.

## 9 Conclusions

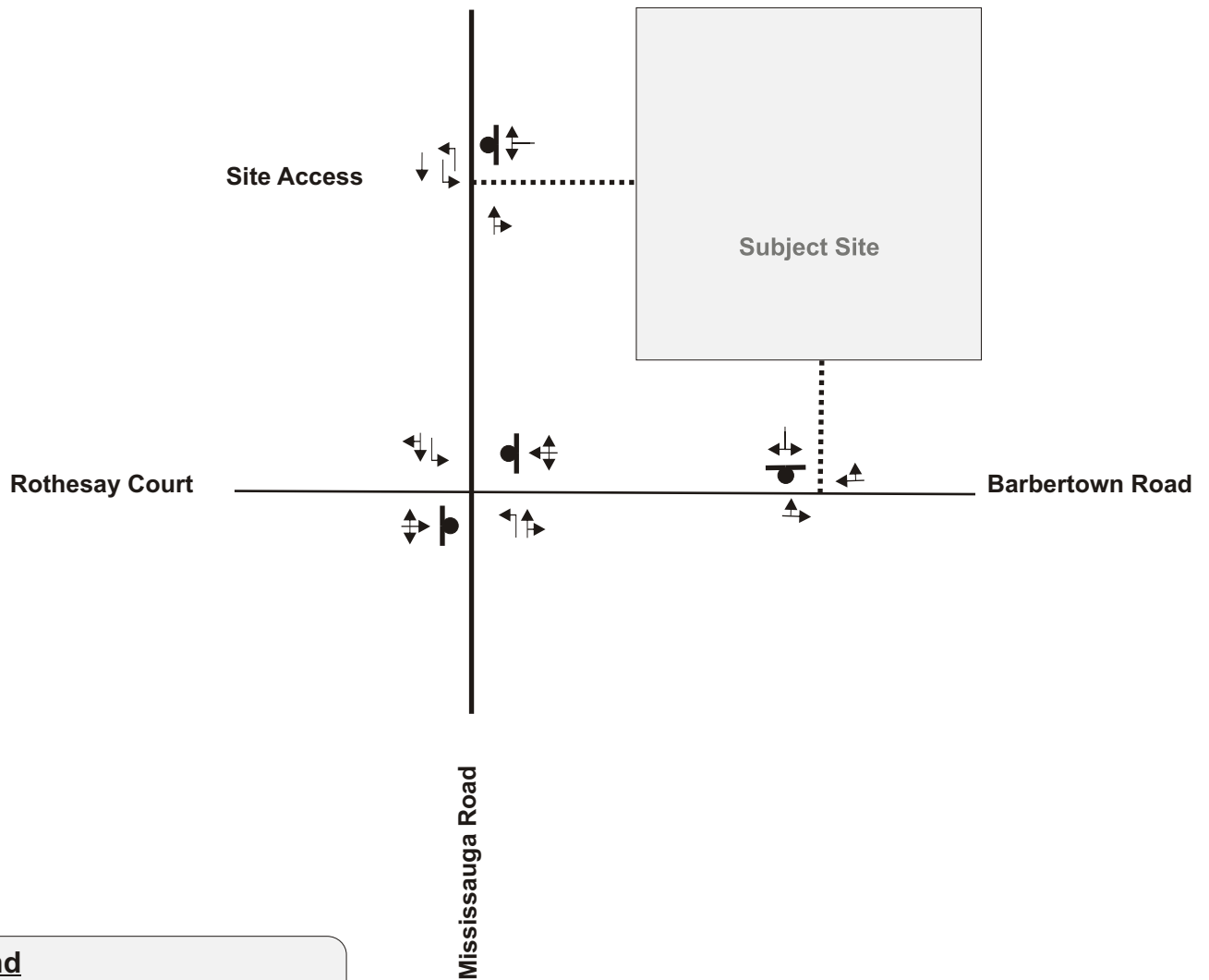
Based on our analysis, our findings and recommendations are as follows:




- The study area intersection operates at good LOS in the existing traffic conditions during a.m. and p.m. peak hours;
- The study area intersection is operating at good LOS in the future (2021) background traffic conditions during a.m. and p.m. peak hours;
- The proposed development is expected to generate 27 two (2)-way (five (5) inbound and 22 outbound) trips during the a.m. peak hour and 22 two (2)-way (15 inbound and seven (7) outbound) trips during the p.m. peak hour;
- Similar to the future 2021 background traffic analysis, the study area intersections will operate at good LOS in the future (2021) total traffic conditions during a.m. and p.m. peak hours;
- Based on the current City Zoning By-law, the proposed development is required to provide 13 parking spaces for the freehold detached units, while 16 spaces are provided. In addition, the proposed development is required to provide 43 parking spaces (32 parking spaces for common element townhouses, five (5) parking spaces for residential visitors and six (6) spaces for two (2)-storey townhouses). The proposed parking supply of 44 will successfully accommodate the parking requirements during peak operation;
- The results of the *AutoTURN* assessment indicate that there is sufficient manoeuvring space within the site for trucks to enter / egress the site with ease; and,
- The proposed development will have minimal impact on the surrounding road network.



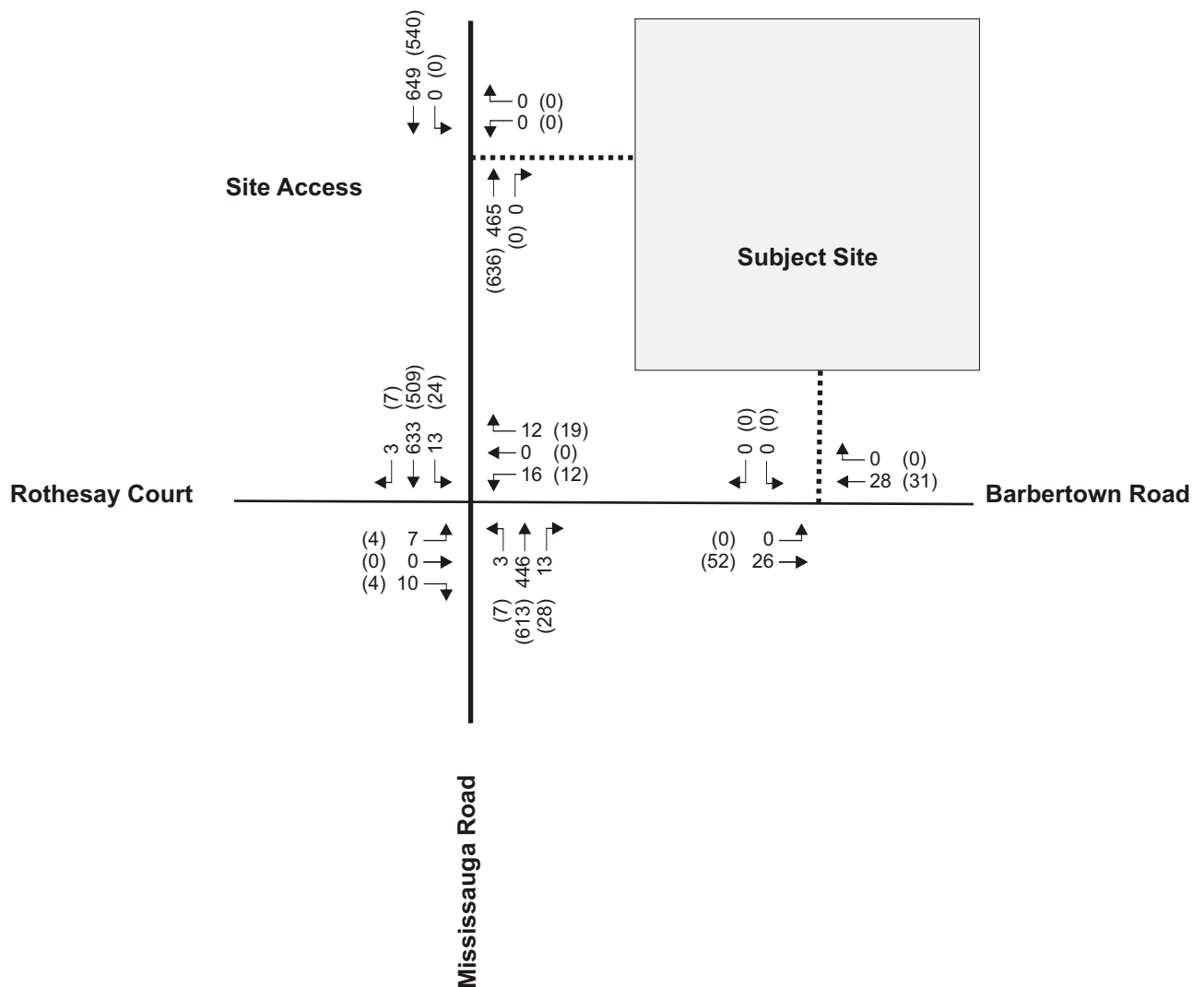
**Figure 1-1**  
**Site Location**



**Legend**

-  Existing Stop Control
-  Existing Lane Configuration
-  Continuous Centre Left Turn

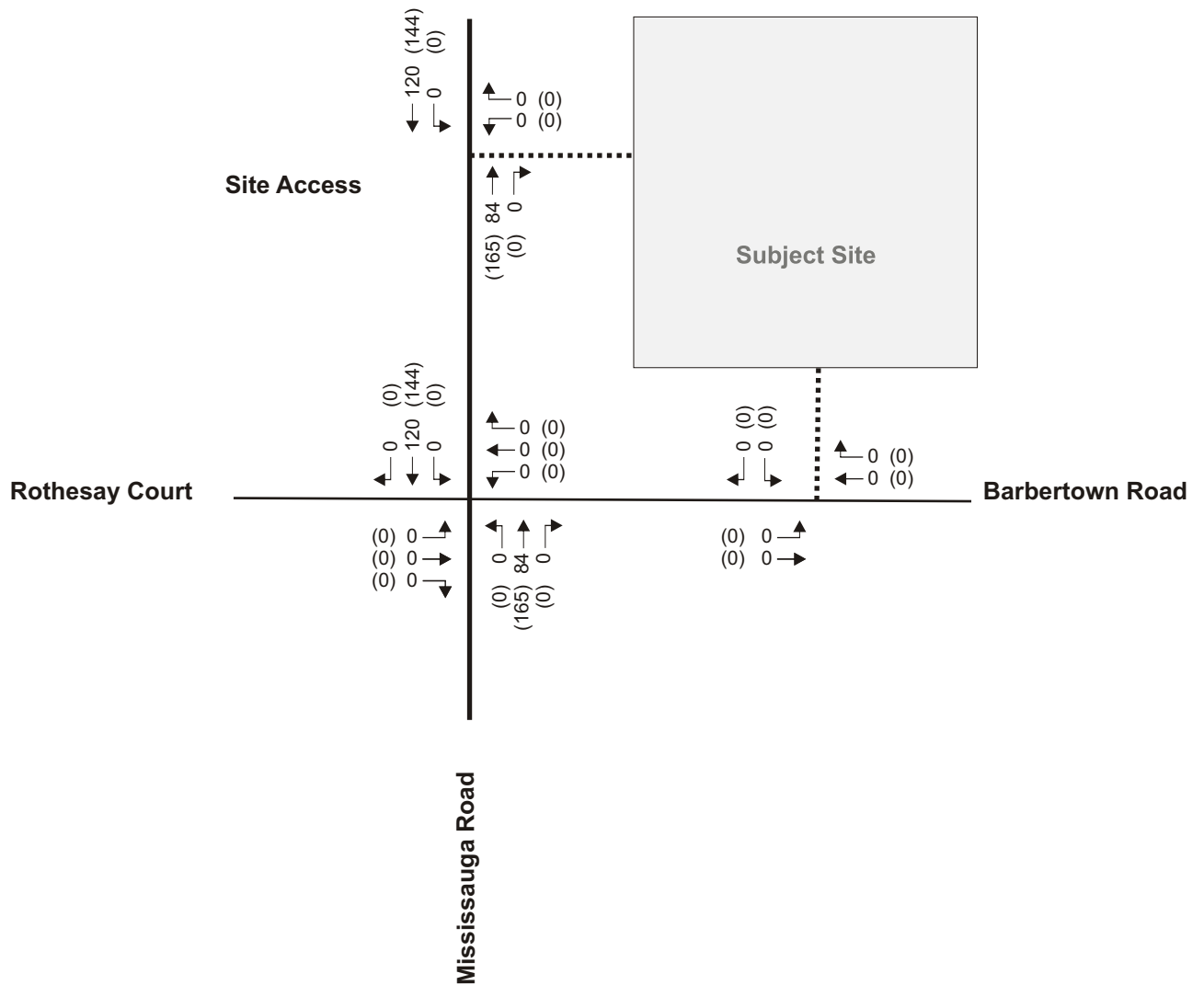
**Figure 2-1**  
**Existing Lane Configurations**



### Legend

99 AM Peak Hour Volume  
(99) PM Peak Hour Volume

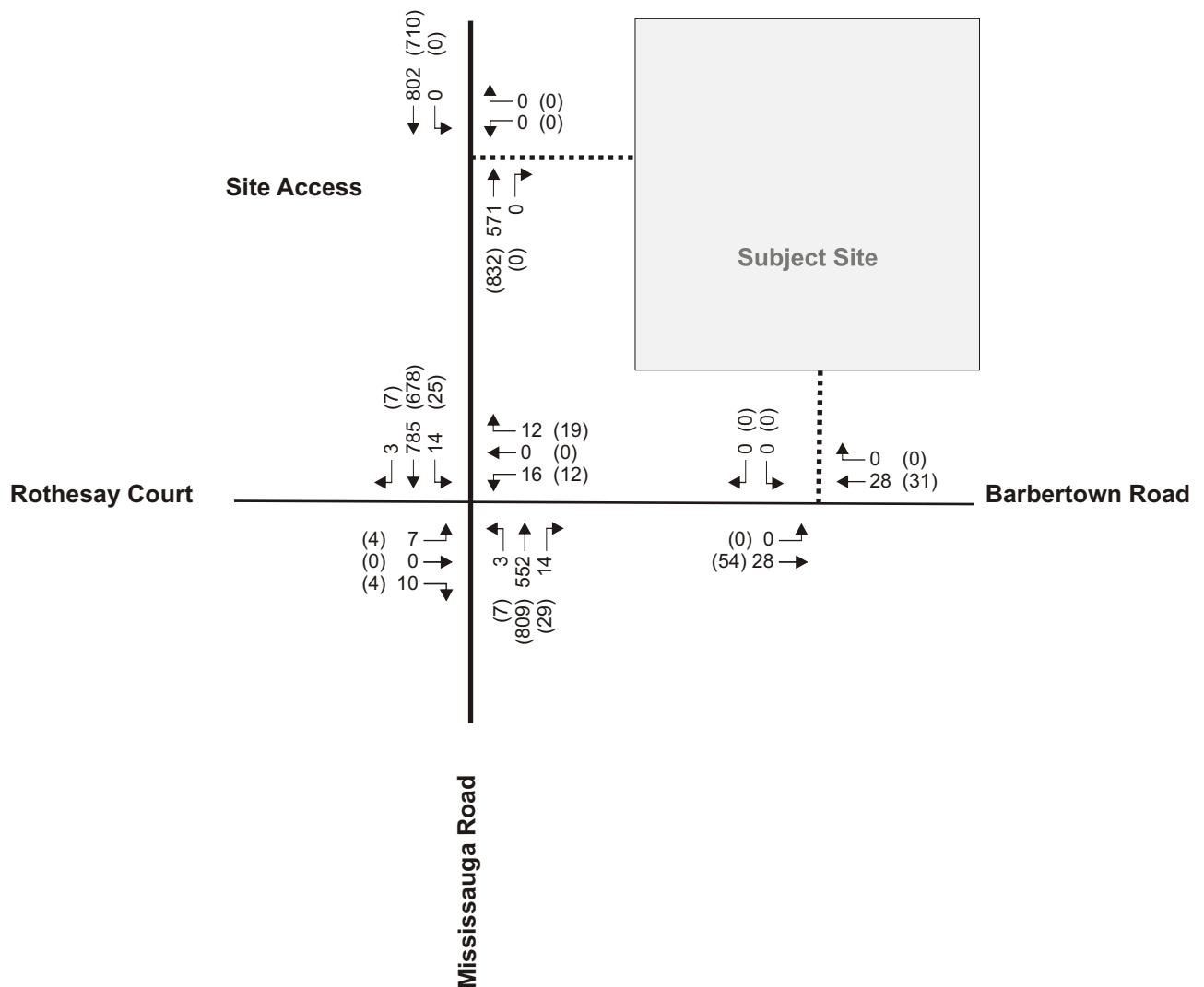
**Figure 2-2**  
**Existing Traffic Volumes**



### Legend

99 AM Peak Hour Volume  
(99) PM Peak Hour Volume

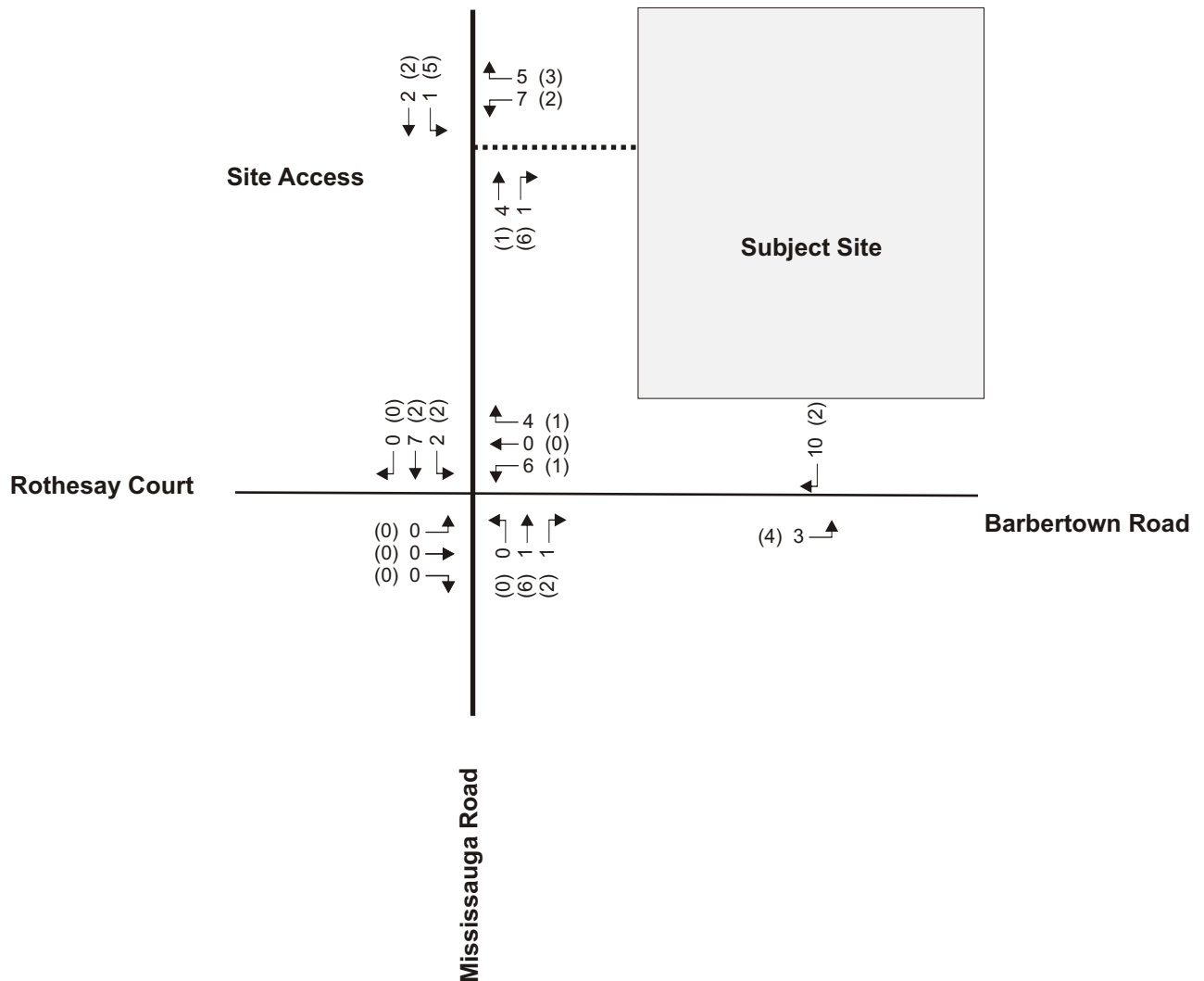
**Figure 3-1**  
**Background Development Site Traffic Volumes**



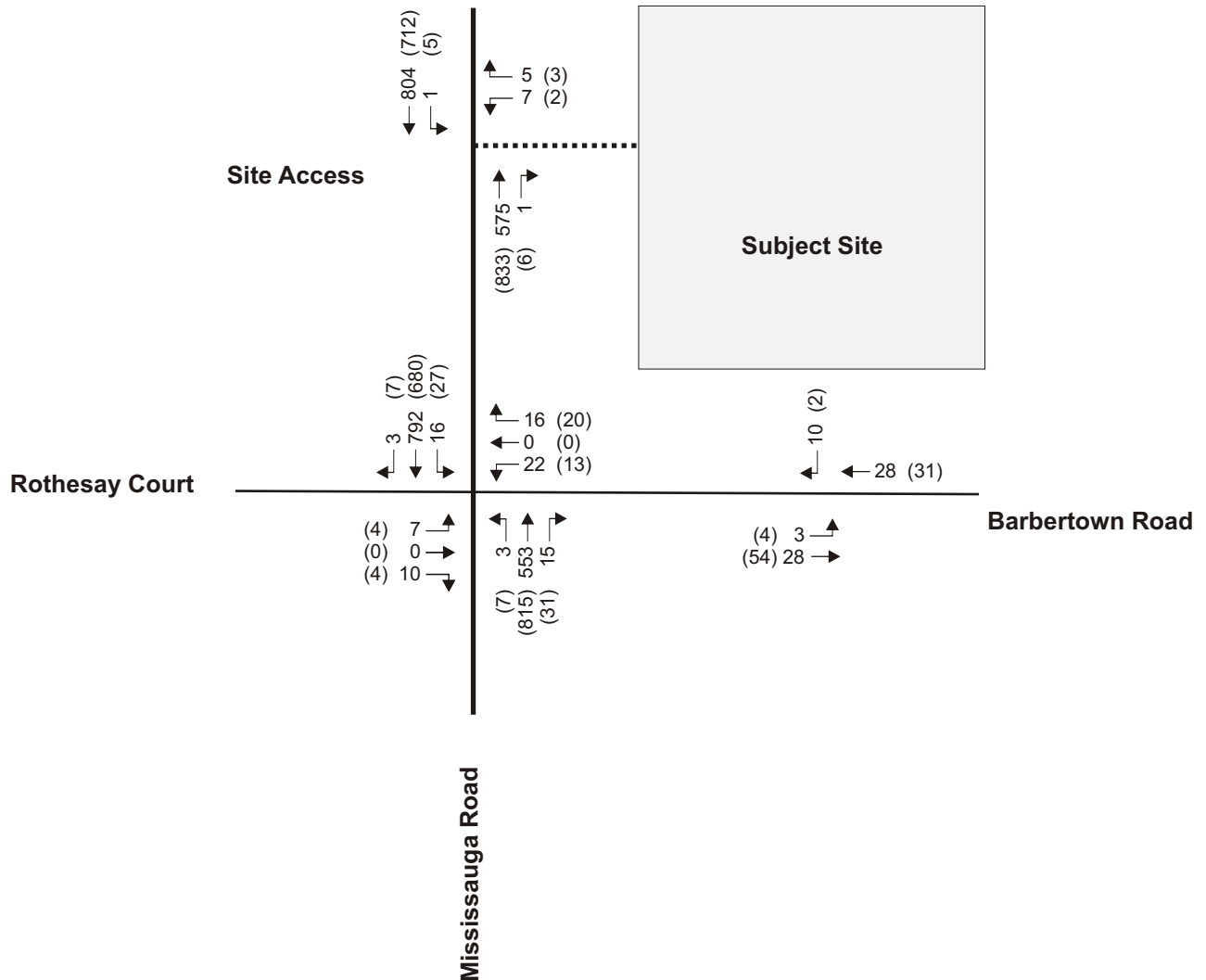
### Legend

99 AM Peak Hour Volume  
(99) PM Peak Hour Volume

**Figure 3-2**  
**Future Background Traffic Volumes**



**Figure 4-1**  
**Site Traffic Volumes**



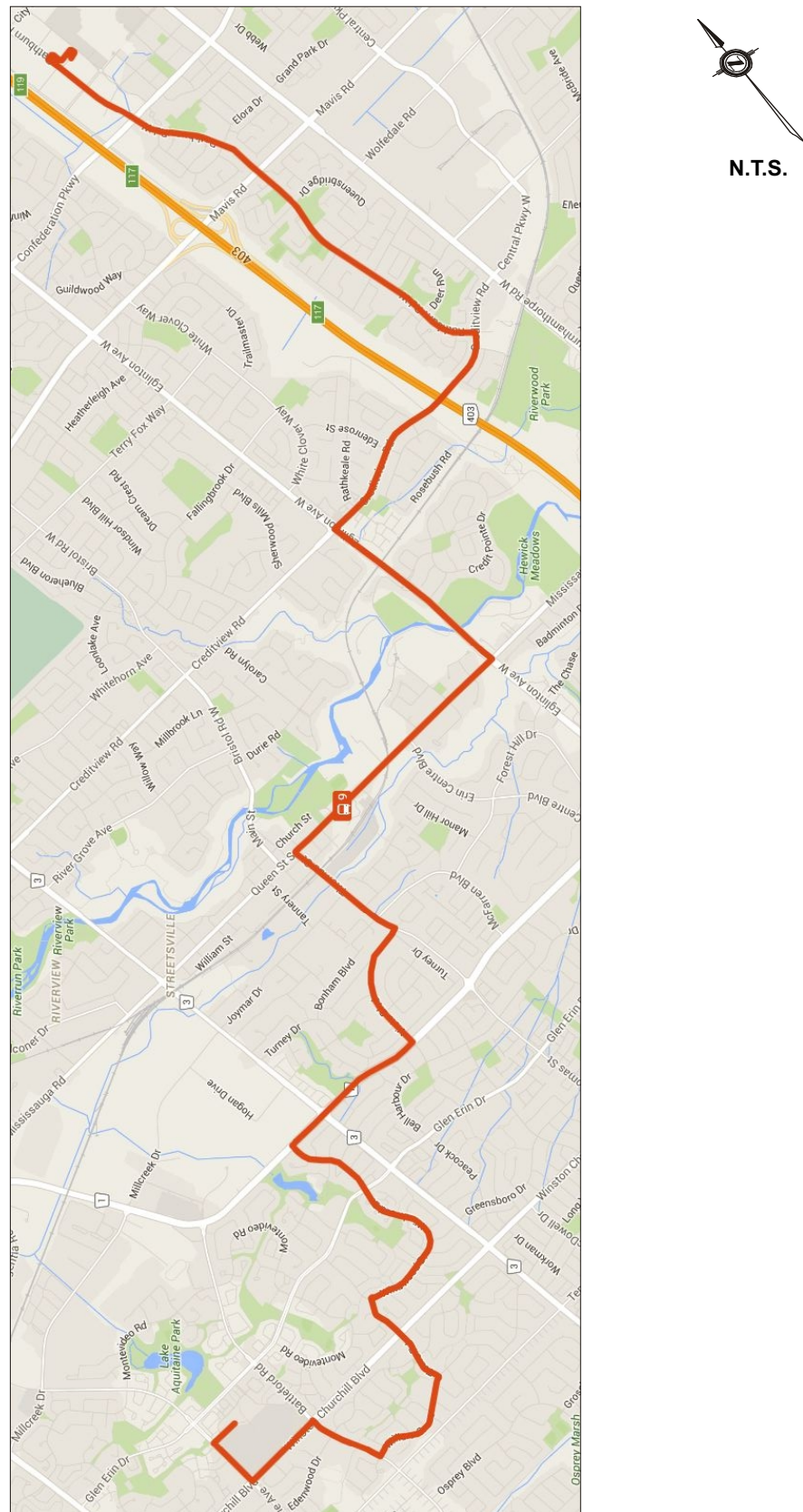
### Legend

99 AM Peak Hour Volume  
(99) PM Peak Hour Volume

**Figure 5-1**  
**Future Total Traffic Volumes**



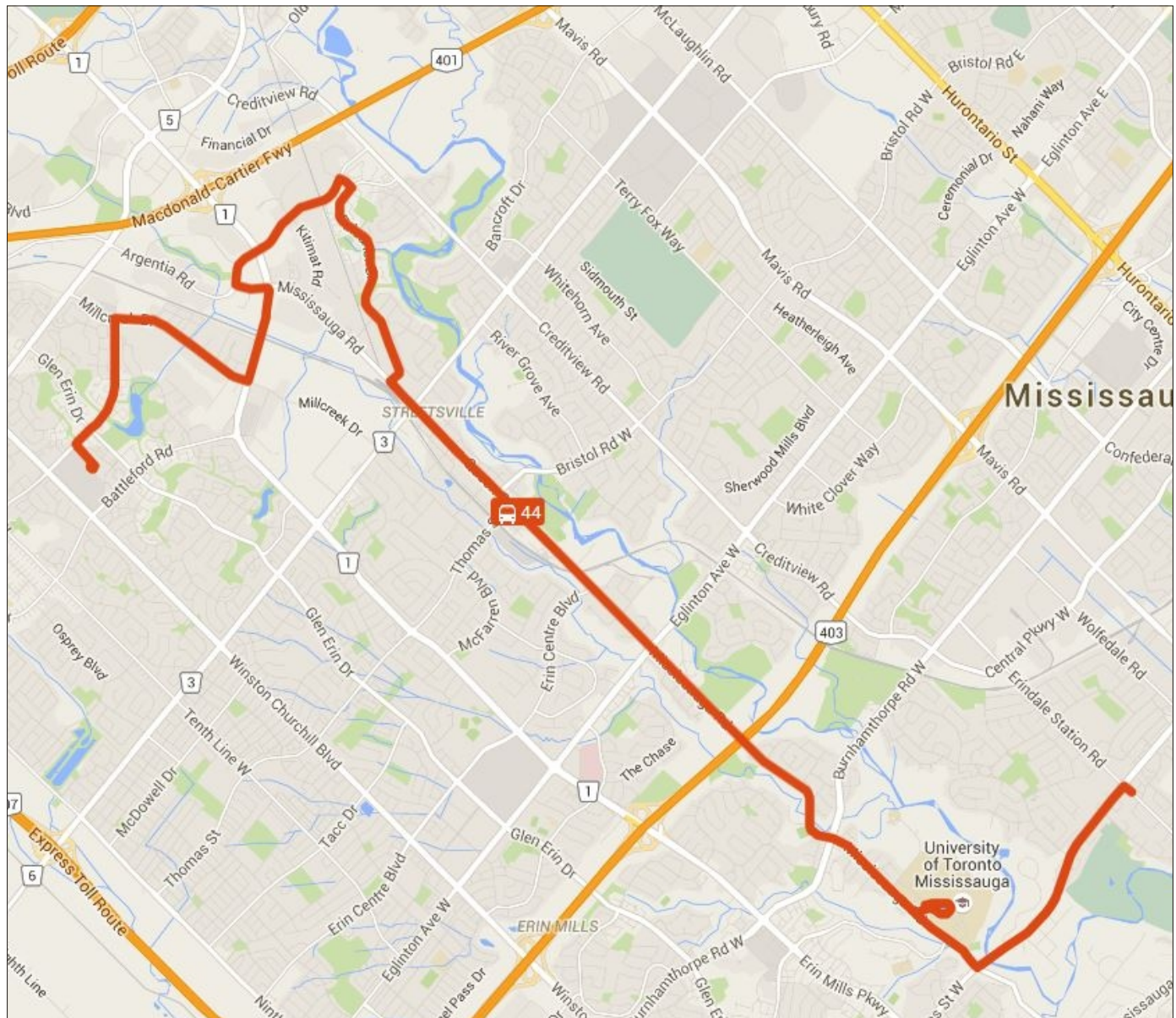
**Figure 6-1**  
**Miway Bus Stops in 500 m Walking Distance**



**Figure 6-2**  
**Miway - Route 9 - Ratburn / Miller Drive**



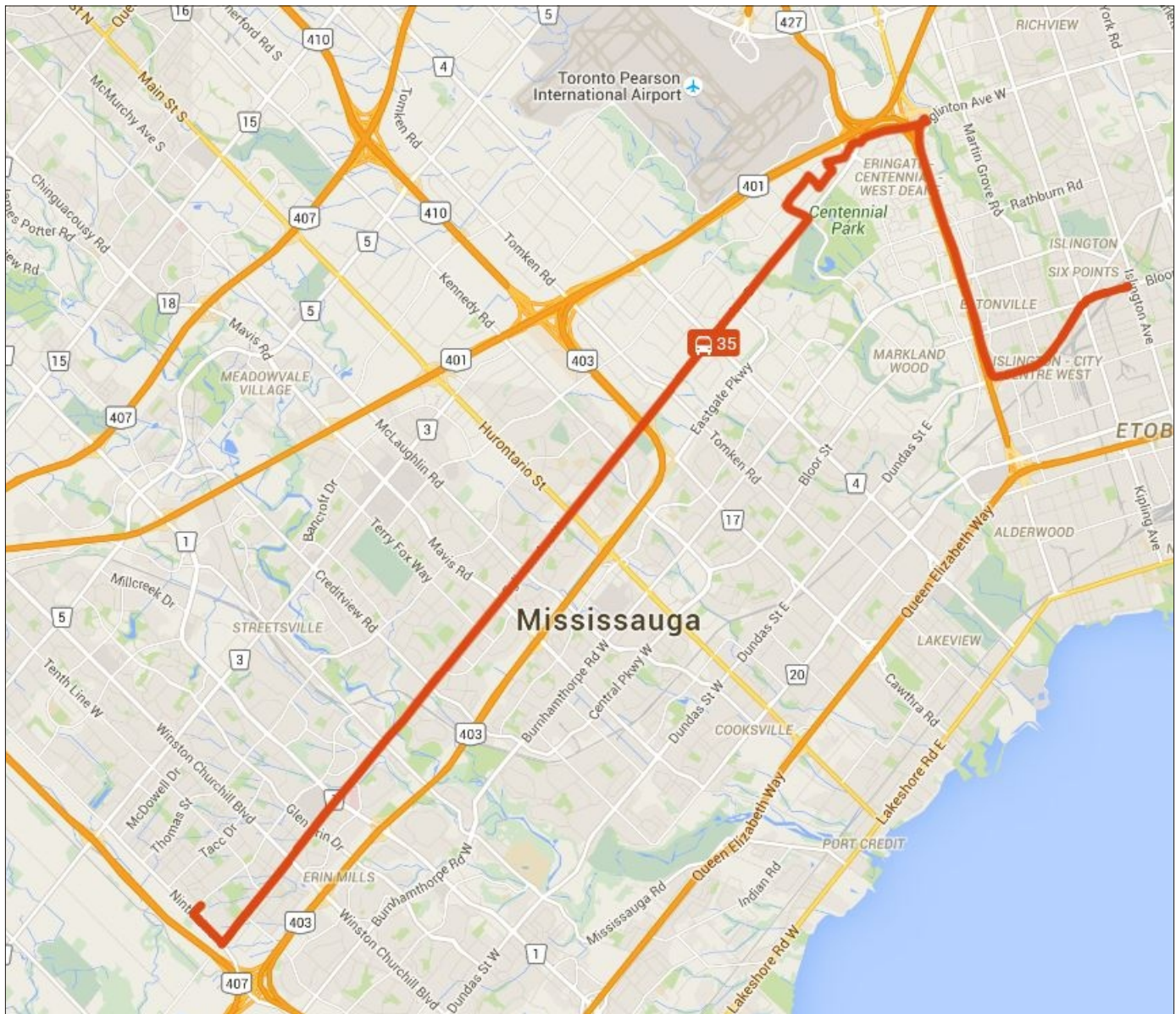
N.T.S.



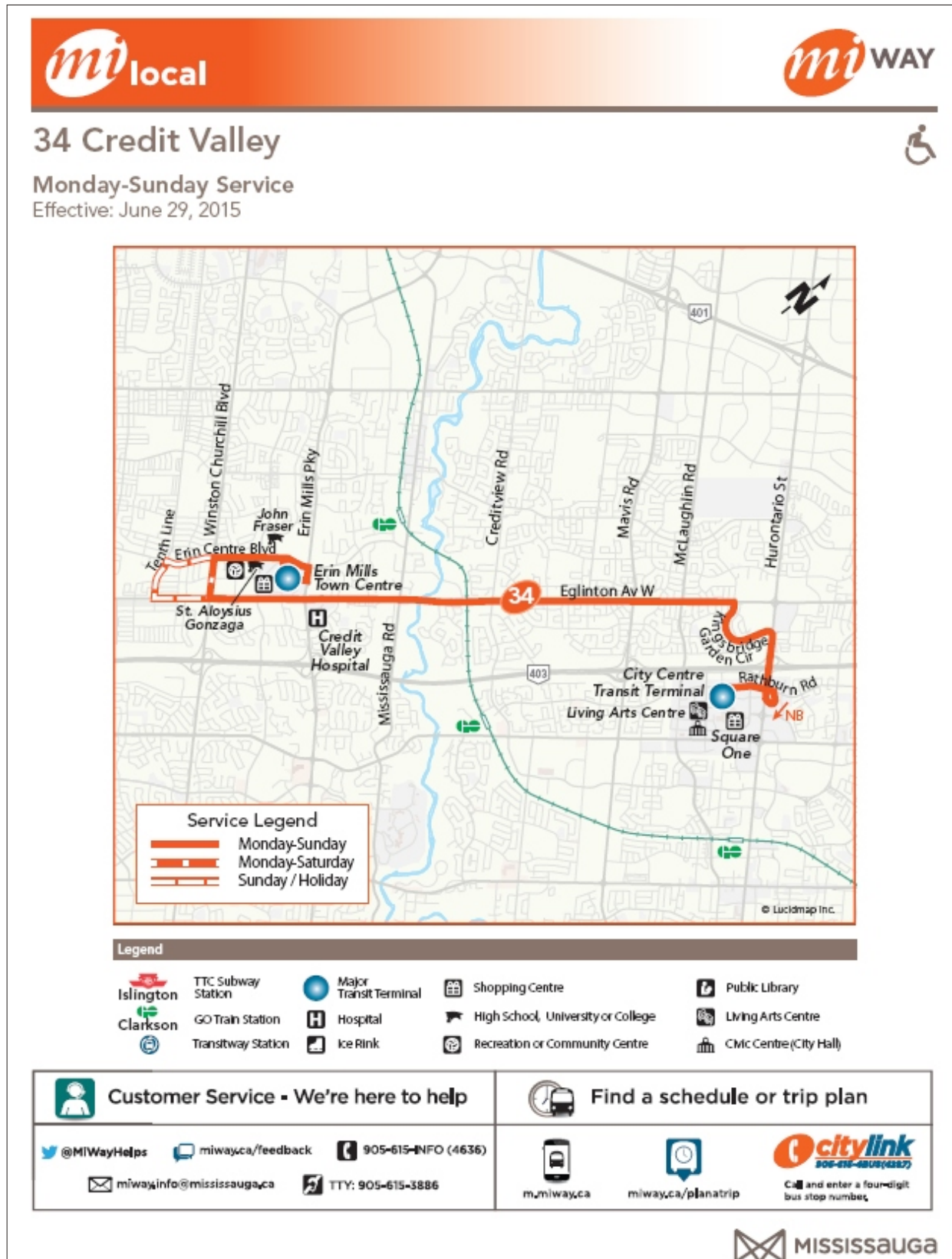
**Figure 6-3**  
**Miway - Route 44 - Mississauga Road**



N.T.S.

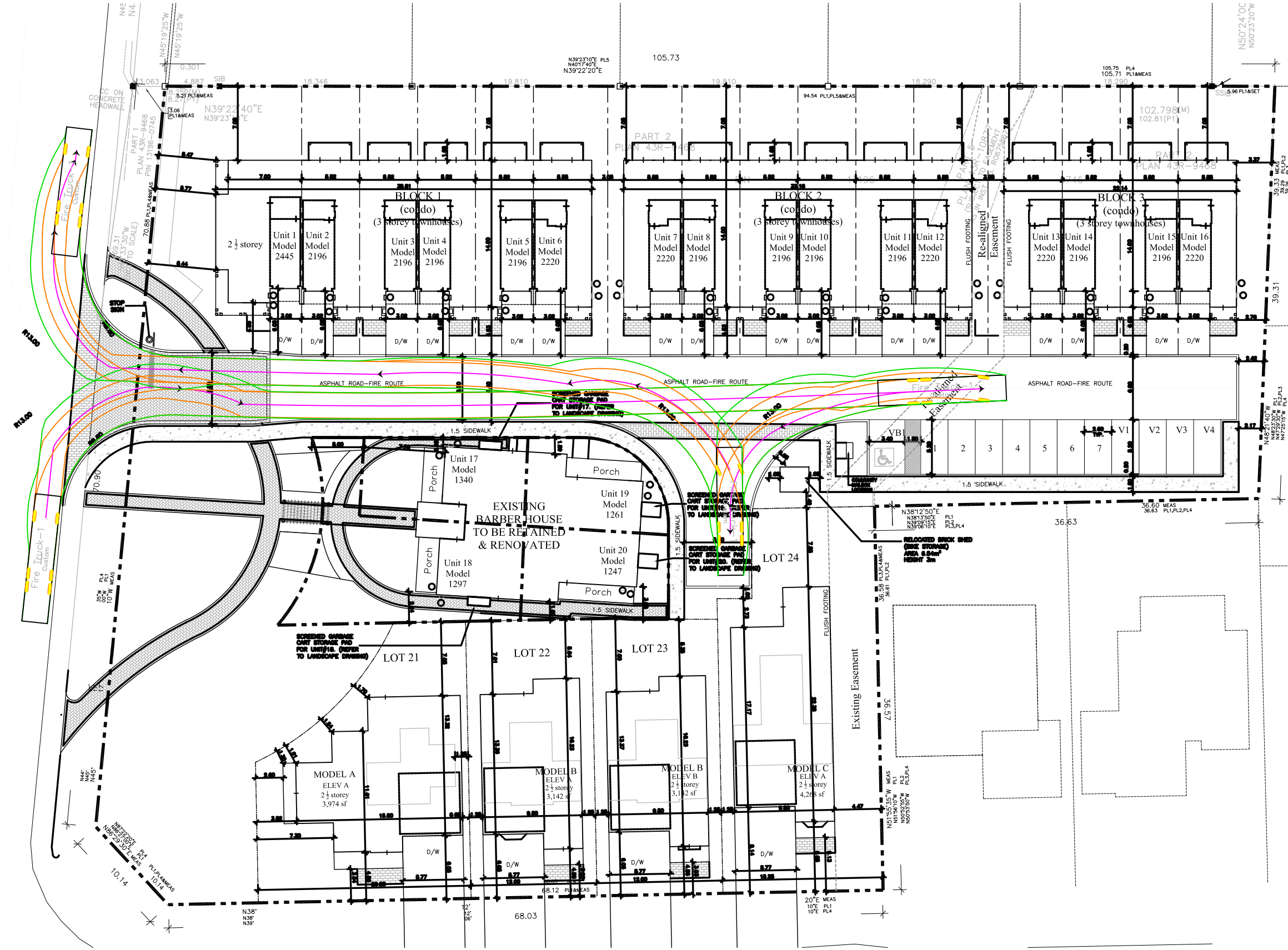


**Figure 6-4**  
**Miway - Route 35/35A - Eglinton Avenue**



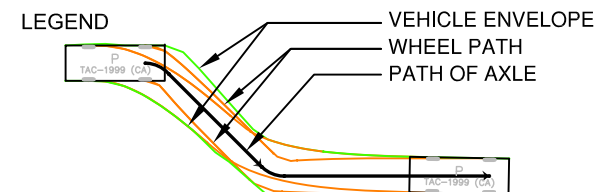
**Figure 6-5**  
**Miway - Route 34 - Credit Valley**

MISSISSAUGA ROAD



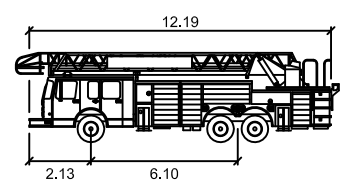
PART 3, PLAN 43R-22000  
PIN 13196-0858

PART 7  
PLAN 43R-20235



**DESIGN VEHICLE**

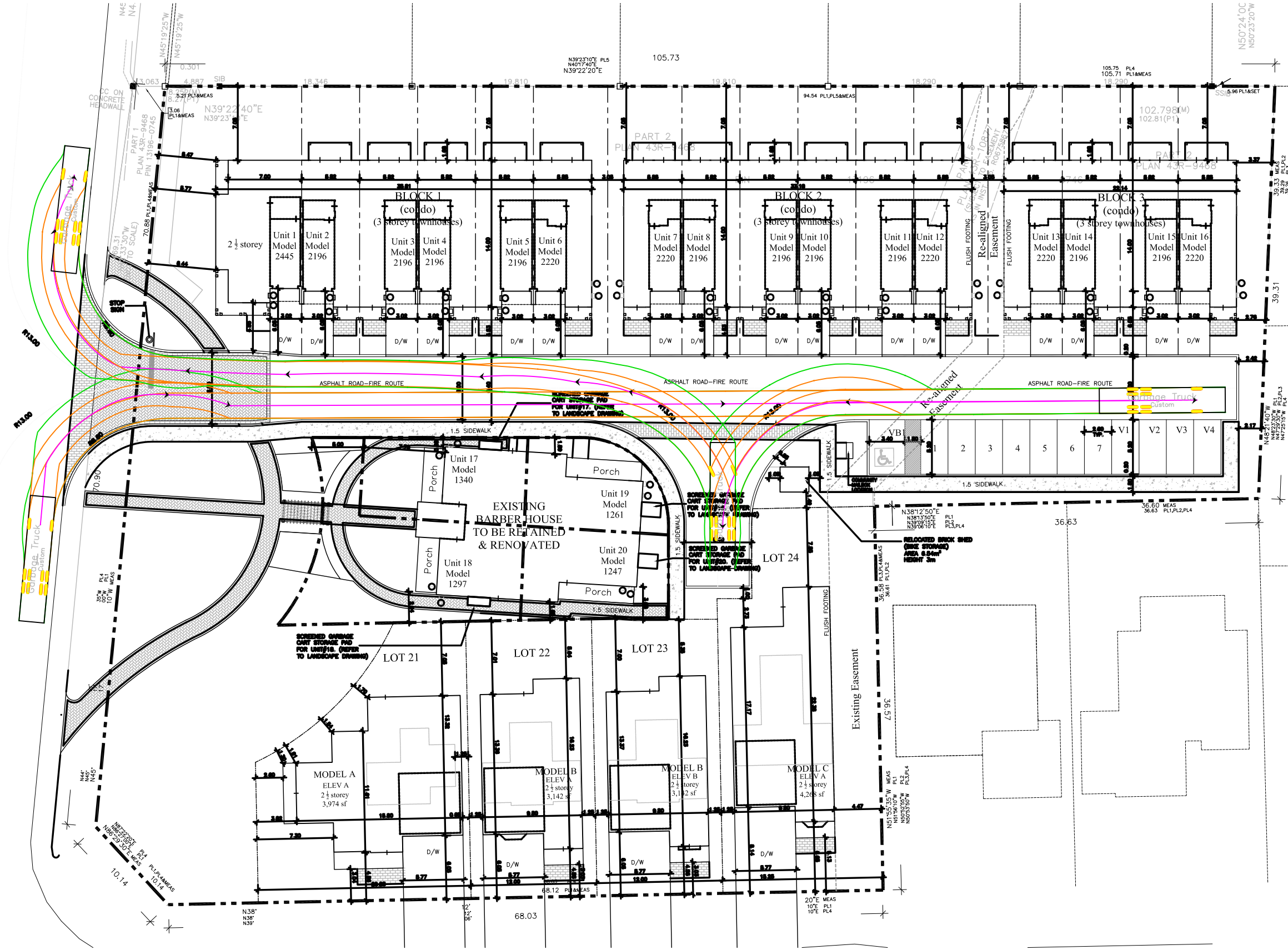
Fire Truck-1	meters
Width	: 2.44
Track	: 2.44
Lock to Lock Time	: 6.0
Steering Angle	: 31.4



**BARBER HOUSE - FIRE TRUCK (12.0 m)**  
PROPOSED RESIDENTIAL DEVELOPMENT  
5155 MISSISSAUGA ROAD  
CITY OF MISSISSAUGA  
REGION OF PEEL

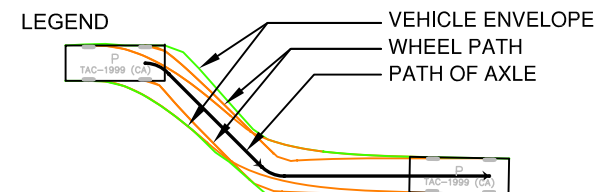
DATE:	OCTOBER 2017	PROJECT No.:	UD16-0022
SCALE:	NTS	FIGURE No.:	7-1

MISSISSAUGA ROAD



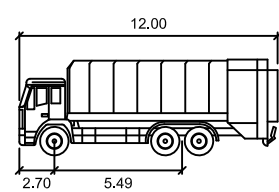
PART 3, PLAN 43R-2233U  
PIN 13196-0858

PART 1, PLAN 43R-20235



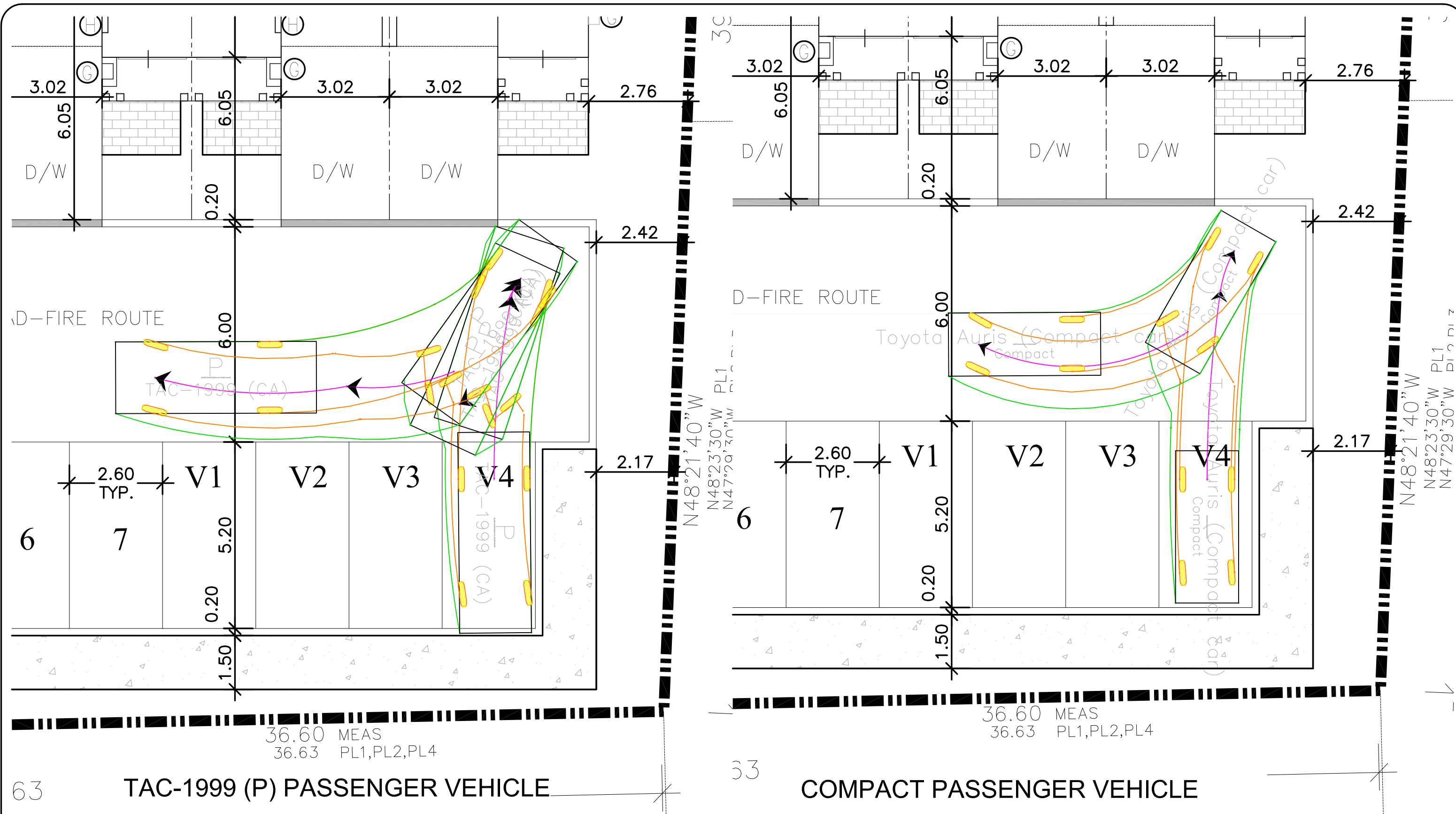
**DESIGN VEHICLE**

Garbage Truck	metres
Width	: 2.40
Track	: 2.40
Lock to Lock Time	: 6.0
Steering Angle	: 27.4



**BARBER HOUSE - TYPICAL GARBAGE TRUCK  
PROPOSED RESIDENTIAL DEVELOPMENT**  
5155 MISSISSAUGA ROAD  
CITY OF MISSISSAUGA  
REGION OF PEEL

DATE:	OCTOBER 2017	PROJECT No.:	UD16-0022
SCALE:	NTS	FIGURE No.:	7-2



## **APPENDIX A**

### **Existing Traffic Data**

# Accu-Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 8:00:00

**To:** 9:00:00

**Municipality:** Mississauga

**Site #:** 1602600001

**Intersection:** Mississauga Rd & Barbertown Rd

**TFR File #:** 1

**Count date:** 10-Feb-16

### Weather conditions:

**Person counted:**

**Person prepared:**

**Person checked:**


### \*\* Non-Signalized Intersection \*\*

**Major Road:** Mississauga Rd runs N/S

North Leg Total: 1114

North Entering: 649

North Peds: 0

Peds Cross: 

Heavys	0	25	2	27
Trucks	0	4	0	4
Cars	3	604	11	618
Totals	3	633	13	

Heavys 10

Trucks 2


Cars 453

Totals 465

East Leg Total: 54

East Entering: 28

East Peds: 1

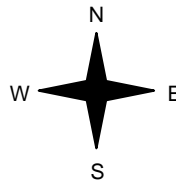
Peds Cross: 

Heavys	0	0	6	6
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Rothsay Ct

Heavys	0	0	7	7
Trucks	0	0	0	0
Cars	0	0	10	10
Totals	0	0	17	



Mississauga Rd




Cars	11	1	0	12
Trucks	0	0	0	0
Heavys	15	0	1	16
Totals	26	1	1	

Barbertown Rd



Cars	20	0	6	26
------	----	---	---	----

Peds Cross: 

West Peds: 4

West Entering: 17

West Leg Total: 23

Cars 629

Trucks 4

Heavys 26

Totals 659




Cars 3 435 9 447

Trucks 0 1 0 1

Heavys 0 10 4 14

Totals 3 446 13

Peds Cross: 

South Peds: 0

South Entering: 462

South Leg Total: 1121

### Comments

# Accu-Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 17:00:00

**To:** 18:00:00

**Municipality:** Mississauga

**Site #:** 1602600001

**Intersection:** Mississauga Rd & Barbertown Rd

**TFR File #:** 1

**Count date:** 10-Feb-16

### Weather conditions:

**Person counted:**

**Person prepared:**

**Person checked:**


### \*\* Non-Signalized Intersection \*\*

**Major Road:** Mississauga Rd runs N/S

North Leg Total: 1176

North Entering: 540

North Peds: 1

Peds Cross: 

Heavys	0	8	0	8
Trucks	0	1	0	1
Cars	7	500	24	531
Totals	7	509	24	

Heavys 8

Trucks 1


Cars 627

Totals 636

East Leg Total: 83

East Entering: 31

East Peds: 3

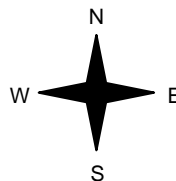
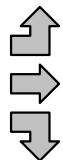
Peds Cross: 

Heavys	Trucks	Cars	Totals
0	0	14	14



Rothersey Ct

Heavys	Trucks	Cars	Totals
0	0	4	4
0	0	0	0
0	0	4	4
0	0	8	



Mississauga Rd




Cars	Trucks	Heavys	Totals
19	0	0	19
0	0	0	0
11	0	1	12
30	0	1	

Barbertown Rd



Cars	Trucks	Heavys	Totals
52	0	0	52

Peds Cross: 

West Peds: 0

West Entering: 8

West Leg Total: 22

Cars 515

Trucks 1

Heavys 9

Totals 525




Cars 7 604 28 639

Trucks 0 1 0 1

Heavys 0 8 0 8

Totals 7 613 28

Peds Cross: 

South Peds: 0

South Entering: 648

South Leg Total: 1173

### Comments

# Accu-Traffic Inc.

## Total Count Diagram

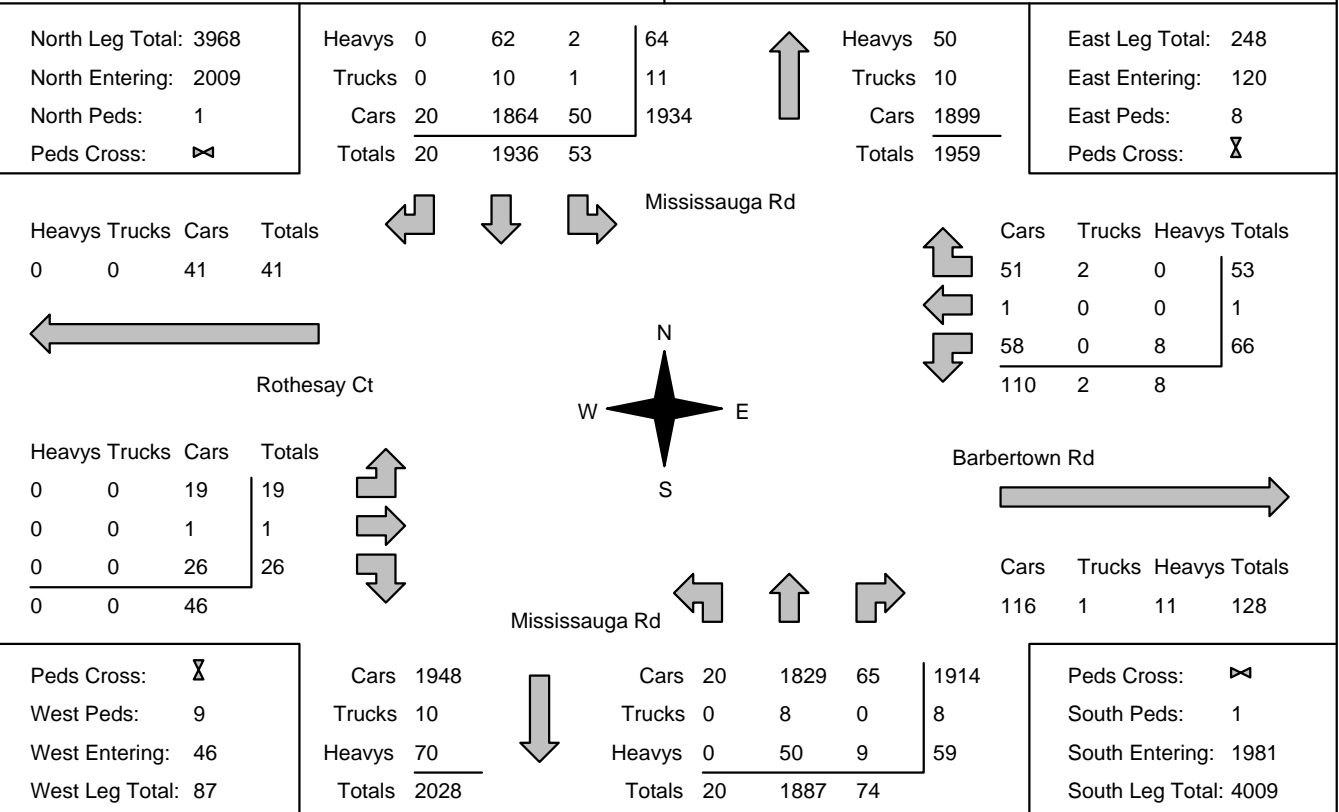
**Municipality:** Mississauga  
**Site #:** 1602600001  
**Intersection:** Mississauga Rd & Barbertown Rd  
**TFR File #:** 1  
**Count date:** 10-Feb-16

**Weather conditions:**

**Person counted:**  
**Person prepared:**  
**Person checked:**

**\*\* Non-Signalized Intersection \*\***

**Major Road:** Mississauga Rd runs N/S



### Comments

# Accu-Traffic Inc.

## Traffic Count Summary

Intersection: Mississauga Rd & Barbertown Rd					Count Date: 10-Feb-16		Municipality: Mississauga					
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		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	7	420	2	429	0	747	8:00:00	4	301	13	318	1
9:00:00	13	633	3	649	0	1111	9:00:00	3	446	13	462	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	9	374	8	391	0	944	17:00:00	6	527	20	553	0
18:00:00	24	509	7	540	1	1188	18:00:00	7	613	28	648	0

[illegible]

[illegible]

[illegible]

[illegible]

# Accu-Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 17:00:00

**To:** 19:00:00

### One Hour Peak

**From:** 17:00:00

**To:** 18:00:00

**Municipality:** Mississauga

**Site #:** 1620000001

**Intersection:** Mississauga Rd & 5155 Mississaug

**TFR File #:** 1

**Count date:** 16-Dec-16

### Weather conditions:

**Person counted:**

**Person prepared:**

**Person checked:**


### \*\* Non-Signalized Intersection \*\*

**Major Road:** Mississauga Rd runs N/S

North Leg Total: 1045

North Entering: 484

North Peds: 0

Peds Cross: 


Heavys	9	0	9
Trucks	1	0	1
Cars	468	6	474
<b>Totals</b>	<b>478</b>	<b>6</b>	

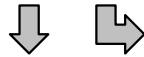
Heavys	8
Trucks	3
Cars	550
<b>Totals</b>	<b>561</b>

East Leg Total: 17

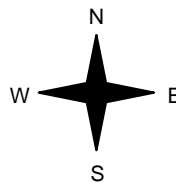
East Entering: 9

East Peds: 3

Peds Cross: 



Mississauga Rd



Cars	Trucks	Heavys	Totals
4	0	0	4
5	0	0	5
<b>9</b>	<b>0</b>	<b>0</b>	


5155 Mississauga Rd West driveway



Mississauga Rd

Cars	473
Trucks	1
Heavys	9
<b>Totals</b>	<b>483</b>

Cars	546	2	548
Trucks	3	0	3
Heavys	8	0	8
<b>Totals</b>	<b>557</b>	<b>2</b>	

Peds Cross: 

South Peds: 0

South Entering: 559

South Leg Total: 1042

### Comments

# Accu-Traffic Inc.

## Total Count Diagram

**Municipality:** Mississauga  
**Site #:** 1620000001  
**Intersection:** Mississauga Rd & 5155 Mississauga  
**TFR File #:** 1  
**Count date:** 16-Dec-16

**Weather conditions:**

**Person counted:**  
**Person prepared:**  
**Person checked:**

**\*\* Non-Signalized Intersection \*\***

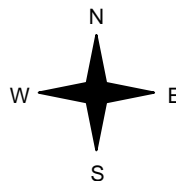
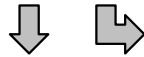
**Major Road:** Mississauga Rd runs N/S

North Leg Total: 1984  
 North Entering: 939  
 North Peds: 0  
 Peds Cross: 

Heavys	16	0	16
Trucks	2	0	2
Cars	909	12	921
Totals	927	12	

Heavys	16
Trucks	4
Cars	1025
Totals	1045

East Leg Total: 37  
 East Entering: 14  
 East Peds: 4  
 Peds Cross: 



Mississauga Rd



Cars	Trucks	Heavys	Totals
6	0	0	6
8	0	0	8
14	0	0	

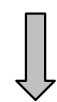
5155 Mississauga Rd West driveway



Mississauga Rd



Cars	917
Trucks	2
Heavys	16
Totals	935



Cars	1019	11	1030
Trucks	4	0	4
Heavys	16	0	16
Totals	1039	11	

Peds Cross:   
 South Peds: 0  
 South Entering: 1050  
 South Leg Total: 1985

## Comments

# Accu-Traffic Inc.

## Traffic Count Summary

Intersection: Mississauga Rd & 5155 Mississau					Count Date: 16-Dec-16		Municipality: Mississauga					
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
17:00:00	0	0	0	0	0	0	17:00:00	0	0	0	0	0
18:00:00	6	478	0	484	0	1043	18:00:00	0	557	2	559	0
19:00:00	6	449	0	455	0	946	19:00:00	0	482	9	491	0

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[illegible]

[illegible]

[illegible]

# Accu-Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 17:00:00

**To:** 19:00:00

### One Hour Peak

**From:** 18:00:00

**To:** 19:00:00

**Municipality:** Mississauga  
**Site #:** 1620000002  
**Intersection:** Barbertown Road & 5155 Mississa  
**TFR File #:** 1  
**Count date:** 16-Dec-16

### Weather conditions:

**Person counted:**  
**Person prepared:**  
**Person checked:**


### \*\* Non-Signalized Intersection \*\*

**Major Road:** Barbertown Road runs W/E

North Leg Total: 17

North Entering: 0

North Peds: 0

Peds Cross: 

Heavys	0	0	0
Trucks	0	0	0
Cars	0	0	0
<b>Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>



Heavys 0

Trucks 0


Cars 17

**Totals 17**

East Leg Total: 69

East Entering: 30

East Peds: 0

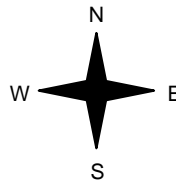
Peds Cross: 

Heavys	Trucks	Cars	Totals
0	0	30	30



Barbertown Road

Heavys	Trucks	Cars	Totals
0	0	17	17
2	0	37	39
2	0	54	



5155 Mississauga Rd South driveway



Cars	Trucks	Heavys	Totals
0	0	0	0
30	0	0	30
30	0	0	

Barbertown Road



Cars	Trucks	Heavys	Totals
37	0	2	39

Peds Cross: 

West Peds: 0

West Entering: 56

West Leg Total: 86

### Comments

# Accu-Traffic Inc.

## Total Count Diagram

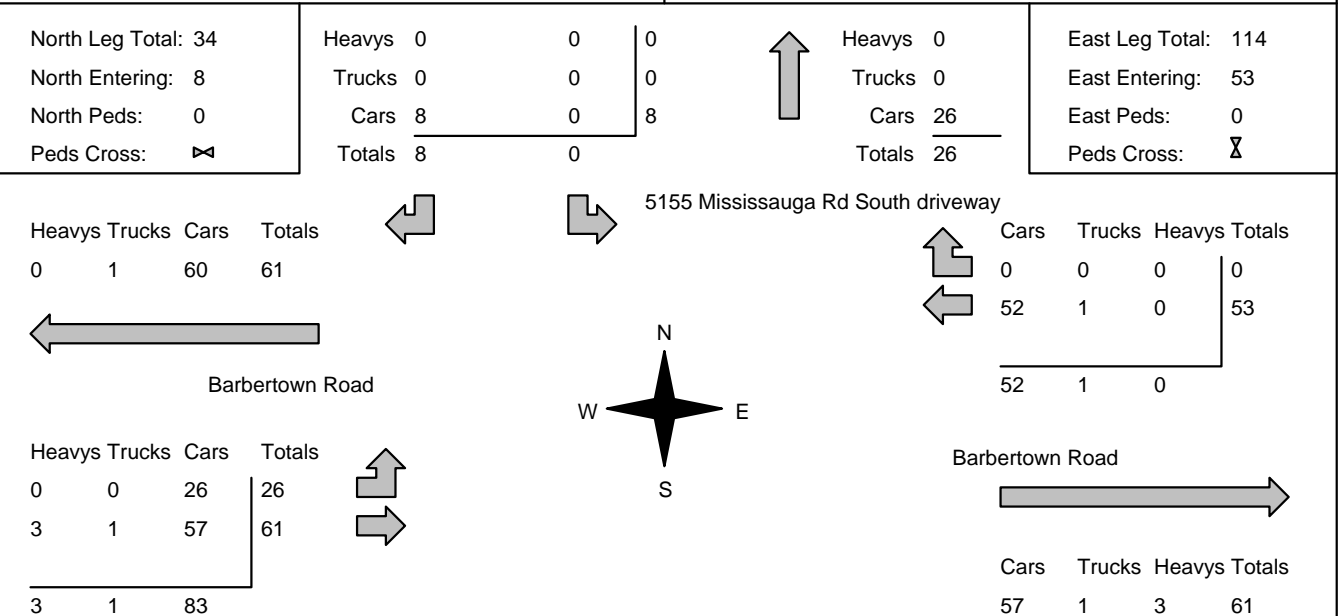
**Municipality:** Mississauga  
**Site #:** 1620000002  
**Intersection:** Barbertown Road & 5155 Mississa  
**TFR File #:** 1  
**Count date:** 16-Dec-16

**Weather conditions:**

**Person counted:**  
**Person prepared:**  
**Person checked:**

**\*\* Non-Signalized Intersection \*\***

**Major Road:** Barbertown Road runs W/E



Peds Cross: ☒  
 West Peds: 0  
 West Entering: 87  
 West Leg Total: 148

**Comments**

# Accu-Traffic Inc.

## Traffic Count Summary

Intersection: Barbertown Road & 5155 Mississa					Count Date: 16-Dec-16		Municipality: Mississauga					
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
17:00:00	0	0	0	0	0	0	17:00:00	0	0	0	0	0
18:00:00	0	0	8	8	0	8	18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0	0	19:00:00	0	0	0	0	0

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[illegible]

[illegible]

[illegible]



















## **APPENDIX B**

### **Existing Traffic Analysis**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Mississauga Rd & Rothesay Ct/Barbertown Rd











AM Peak Hour  
Existing Traffic

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	10	16	0	12	3	446	13	13	633	3
Future Volume (Veh/h)	7	0	10	16	0	12	3	446	13	13	633	3
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	8	0	11	17	0	13	3	480	14	14	681	3
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	1210	1210	682	1213	1205	487	684				494	
vC1, stage 1 conf vol	710	710		493	493							
vC2, stage 2 conf vol	499	500		720	712							
vCu, unblocked vol	1210	1210	682	1213	1205	487	684				494	
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1				4.2	
tC, 2 stage (s)	6.1	5.5		6.2	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2				2.3	
p0 queue free %	98	100	98	95	100	98	100				99	
cM capacity (veh/h)	352	366	453	340	368	569	919				1006	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	19	30	3	494	14	684						
Volume Left	8	17	3	0	14	0						
Volume Right	11	13	0	14	0	3						
cSH	404	412	919	1700	1006	1700						
Volume to Capacity	0.05	0.07	0.00	0.29	0.01	0.40						
Queue Length 95th (m)	1.2	1.9	0.1	0.0	0.3	0.0						
Control Delay (s)	14.3	14.4	8.9	0.0	8.6	0.0						
Lane LOS	B	B	A	A								
Approach Delay (s)	14.3	14.4	0.1	0.2								
Approach LOS	B	B										
Intersection Summary												
Average Delay	0.7											
Intersection Capacity Utilization	43.5%			ICU Level of Service				A				
Analysis Period (min)	15											

## HCM Unsignalized Intersection Capacity Analysis

### 2: Mississauga Rd & Site Access



















AM Peak Hour  
Existing Traffic

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	465	0	0	649
Future Volume (Veh/h)	0	0	465	0	0	649
Sign Control	Stop		Free		Free	Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	500	0	0	698
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	1198	500			500	
vC1, stage 1 conf vol	500					
vC2, stage 2 conf vol	698					
vCu, unblocked vol	1198	500			500	
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 %	100	100			100	
cM capacity (veh/h)	420	575			1075	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	0	500	0	698		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.00	0.29	0.00	0.41		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			37.5%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: Mississauga Rd & Rothesay Ct/Barbertown Rd











PM Peak Hour  
Existing Traffic

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	4	12	0	19	7	613	28	24	509	7
Future Volume (Veh/h)	4	0	4	12	0	19	7	613	28	24	509	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	4	0	4	13	0	20	8	659	30	26	547	8
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	1298	1308	551	1293	1297	674	555			689		
vC1, stage 1 conf vol	603	603		690	690							
vC2, stage 2 conf vol	695	705		603	607							
vCu, unblocked vol	1298	1308	551	1293	1297	674	555			689		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.3		
p0 queue free %	99	100	99	96	100	95	99			97		
cM capacity (veh/h)	317	337	538	328	348	444	1026			848		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	8	33	8	689	26	555						
Volume Left	4	13	8	0	26	0						
Volume Right	4	20	0	30	0	8						
cSH	399	390	1026	1700	848	1700						
Volume to Capacity	0.02	0.08	0.01	0.41	0.03	0.33						
Queue Length 95th (m)	0.5	2.2	0.2	0.0	0.8	0.0						
Control Delay (s)	14.2	15.1	8.5	0.0	9.4	0.0						
Lane LOS	B	C	A		A							
Approach Delay (s)	14.2	15.1	0.1		0.4							
Approach LOS	B	C										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			44.0%	ICU Level of Service					A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 2: Mississauga Rd & Site Access

PM Peak Hour  
Existing Traffic

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	636	0	0	540
Future Volume (Veh/h)	0	0	636	0	0	540
Sign Control	Stop		Free		Free	Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	684	0	0	581
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage veh			2		2	
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1265	684			684	
vC1, stage 1 conf vol	684					
vC2, stage 2 conf vol	581					
vCu, unblocked vol	1265	684			684	
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 %	100	100			100	
cM capacity (veh/h)	407	452			919	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	0	684	0	581		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.00	0.40	0.00	0.34		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			36.8%		ICU Level of Service	A
Analysis Period (min)			15			

## **APPENDIX C**

### **Background Developments Trip Generation Calculation**

Land Use	Commercial/Retail Plaza- Shopping Center		
Total	111.9 000 square feet		
Land Use	820 Weekday AM peak Hour		
Equation	$\ln(T)=0.61\ln(x)+2.24$		
In	62%	Avg. Rate	0.96
Out	38%		
Internal Capture	0%		
Pass-by	0%		
		Avg	Eqn
		107	167
Source ITE	IN	OUT	TOTAL
Gross	104	63	167
Gross Rate	0.92	0.57	1.49
Internal	0	0	0
Passby	0	0	0
New	104	63	167
New Rate	0.93	0.56	1.49

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North	Mississauga	58%	41%	61	26	87
South	Mississauga	42%	59%	43	37	80
West						
East						
Total		100%	100%	104	63	167

Check	ok	ok
Difference	0	0
	0	0
	0	0
	0	0

111900 ft2  
1000

Existing Distribution

	IN	
N	649	58%
S	462	42%
Total	1111	100%

AM	5267 Mississauga Rd Residential Development			
Land Use:	Residential			
Variable:	10 Units			
Land Use	210 AM Peak Hour		Avg.Rate	0.75
Eqn	T=0.70(x)+9.74		Pg	297
IN	25%			
Out	75%			
Non-Auto	0%			
Internal Capture	0%			
Pass-by	0%			
Visitor	0%			
	IN	Out	Total	Eqn      Avg Rate
Gross	4	13	17	17      8
Gross Rate	0.40	1.30	1.70	
Transit	0	0	0	
Internal Capture	0	0	0	
Pass-by	0	0	0	
Visitors	0	0	0	
New	4	13	17	
Rate	0.40	1.30	1.70	

To/From		Proportions		Trips			Check	
		Inbound	Outbound	In	Out	Total	OK	OK
North	Mississauga Road	58%	41%	2	5	7		
South	Mississauga Road	42%	59%	2	8	10		
East				0	0	0		
West				0	0	0		
	Total	100%	100%	4	13	17		

Existing Distribution

	IN		OUT	
N	649	58%	465	41%
S	462	42%	659	59%
Total	1111	100%	1124	100%

AM

5267 Mississauga Rd Residential Development

Land Use:Residential

Variable:15 Units

Land Use

Eqn

IN

Out

Non-Auto

Internal Capture

Pass-by

Visitor

210 AM Peak Hour

$T=0.70(x)+9.74$

25%

75%

0%

0%

0%

Avg.Rate

Pg

0.75

297

	IN	Out	Total
Gross	5	15	20
Gross Rate	0.33	1.00	1.33
Transit	0	0	0
Internal Capture	0	0	0
Pass-by	0	0	0
Visitors	0	0	0
New	5	15	20
Rate	0.33	1.00	1.33

Eqn

Avg Rate

20

11

To/From		Proportions		Trips			Check	
		Inbound	Outbound	In	Out	Total	OK	OK
North	Mississauga Road	58%	41%	3	6	9		
South	Mississauga Road	42%	59%	2	9	11		
East				0	0	0		
West				0	0	0		
	Total	100%	100%	5	15	20		

Existing Distribution

	IN		OUT	
N	649	58%	465	41%
S	462	42%	659	59%
Total	1111	100%	1124	100%

Land Use	Commercial/Retail Plaza-Shopping Center		
Total	111.9	000 square feet	
Land Use	820	Weekday PM peak Hour	
Equation	$\ln(T)=0.67\ln(x)+3.31$		
In	48%		
Out	52%		
Internal Capture	0%		
Pass-by	33%		
		Avg. Rate	3.71

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North	Mississauga	45%	55%	59	81	140
South	Mississauga	55%	45%	71	66	137
West						
East						
	Total	100%	100%	130	147	277

	IN		OUT	
N	540	45%	636	55%
S	648	55%	525	45%
Total	1188	100%	1161	100%

PM

5267 Mississauga Rd Residential Development

Land Use: Residential

Variable: 10 Units

Land Use

Eqn

IN

Out

Non-Auto

Internal Capture

Pass-by

Visitor

210 PM Peak Hour

Ln(T)=0.90LN\*(x)+0.51

63%

37%

0%

0%

0%

0%

Avg.Rate

Pg

1

298

	IN	Out	Total
Gross	8	5	13
Gross Rate	0.80	0.50	1.30
Transit	0	0	0
Internal Capture	0	0	0
Pass-by	0	0	0
Visitors	0	0	0
New	8	5	13
Rate	0.80	0.50	1.30

Eqn

Avg Rate

13

10

To/From		Proportions		Trips			Check	
		Inbound	Outbound	In	Out	Total	OK	OK
North	Mississauga Road	58%	41%	5	2	7		
South	Mississauga Road	42%	59%	3	3	6		
East				0	0	0		
West				0	0	0		
	Total	100%	100%	8	5	13		

Existing Distribution

	IN		OUT	
N	649	58%	465	41%
S	462	42%	659	59%
Total	1111	100%	1124	100%

PM	5267 Mississauga Rd Residential Development			
Land Use:	Residential			
Variable:	15 Units			
Land Use	210 AM Peak Hour		Avg.Rate	1
Eqn	$\ln(T)=0.90*\ln(x)+0.51$		Pg	298
IN	63%			
Out	37%			
Non-Auto	0%			
Internal Capture	0%			
Pass-by	0%			
Visitor	0%			
	IN	Out	Total	Eqn Avg Rate
Gross	12	7	19	19 15
Gross Rate	0.80	0.47	1.27	
Transit	0	0	0	
Internal Capture	0	0	0	
Pass-by	0	0	0	
Visitors	0	0	0	
New	12	7	19	
Rate	0.80	0.47	1.27	

To/From		Proportions		Trips			Check	
		Inbound	Outbound	In	Out	Total	OK	OK
North	Mississauga Road	58%	41%	7	3	10		
South	Mississauga Road	42%	59%	5	4	9		
East				0	0	0		
West				0	0	0		
	Total	100%	100%	12	7	19		



















Existing Distribution				
	IN		OUT	
N	649	58%	465	41%
S	462	42%	659	59%
Total	1111	100%	1124	100%

**APPENDIX D**  
**Future Background Traffic Analysis**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Mississauga Rd & Rothesay Ct/Barbertown Rd











AM Peak Hour  
Future Background Traffic

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	7	0	10	16	0	12	3	552	14	14	785	3	
Future Volume (Veh/h)	7	0	10	16	0	12	3	552	14	14	785	3	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Hourly flow rate (vph)	8	0	11	17	0	13	3	594	15	15	844	3	
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	1488	1490	846	1492	1484	602	847				609		
vC1, stage 1 conf vol	876	876		608	608								
vC2, stage 2 conf vol	613	615		885	877								
vCu, unblocked vol	1488	1490	846	1492	1484	602	847				609		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1				4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.5								
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2				2.3		
p0 queue free %	97	100	97	94	100	97	100				98		
cM capacity (veh/h)	282	302	365	270	304	489	799				909		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	19	30	3	609	15	847							
Volume Left	8	17	3	0	15	0							
Volume Right	11	13	0	15	0	3							
cSH	325	335	799	1700	909	1700							
Volume to Capacity	0.06	0.09	0.00	0.36	0.02	0.50							
Queue Length 95th (m)	1.5	2.3	0.1	0.0	0.4	0.0							
Control Delay (s)	16.8	16.8	9.5	0.0	9.0	0.0							
Lane LOS	C	C	A	A									
Approach Delay (s)	16.8	16.8	0.0	0.2									
Approach LOS	C	C											
Intersection Summary													
Average Delay	0.6												
Intersection Capacity Utilization	51.5%			ICU Level of Service				A					
Analysis Period (min)	15												

# HCM Unsignalized Intersection Capacity Analysis

## 2: Mississauga Rd & Site Access



















AM Peak Hour  
Future Background Traffic

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	571	0	0	802
Future Volume (Veh/h)	0	0	571	0	0	802
Sign Control	Stop		Free		Free	Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	614	0	0	862
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	1476	614			614	
vC1, stage 1 conf vol	614					
vC2, stage 2 conf vol	862					
vCu, unblocked vol	1476	614			614	
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 %	100	100			100	
cM capacity (veh/h)	348	496			975	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	0	614	0	862		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.00	0.36	0.00	0.51		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			45.5%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: Mississauga Rd & Rothesay Ct/Barbertown Rd











PM Peak Hour  
Future Background Traffic

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	4	12	0	19	7	809	29	25	678	7
Future Volume (Veh/h)	4	0	4	12	0	19	7	809	29	25	678	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	4	0	4	13	0	20	8	870	31	27	729	8
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	1693	1704	733	1688	1692	886	737			901		
vC1, stage 1 conf vol	787	787		902	902							
vC2, stage 2 conf vol	906	917		787	791							
vCu, unblocked vol	1693	1704	733	1688	1692	886	737			901		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.3		
p0 queue free %	98	100	99	95	100	94	99			96		
cM capacity (veh/h)	229	257	424	242	268	335	878			703		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	8	33	8	901	27	737						
Volume Left	4	13	8	0	27	0						
Volume Right	4	20	0	31	0	8						
cSH	297	291	878	1700	703	1700						
Volume to Capacity	0.03	0.11	0.01	0.53	0.04	0.43						
Queue Length 95th (m)	0.7	3.0	0.2	0.0	1.0	0.0						
Control Delay (s)	17.4	18.9	9.1	0.0	10.3	0.0						
Lane LOS	C	C	A		B							
Approach Delay (s)	17.4	18.9	0.1		0.4							
Approach LOS	C	C										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			54.3%	ICU Level of Service					A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 2: Mississauga Rd & Site Access

PM Peak Hour  
Future Background Traffic

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	832	0	0	710
Future Volume (Veh/h)	0	0	832	0	0	710
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	895	0	0	763
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	1658	895			895	
vC1, stage 1 conf vol	895					
vC2, stage 2 conf vol	763					
vCu, unblocked vol	1658	895			895	
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 %	100	100			100	
cM capacity (veh/h)	315	342			767	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	0	895	0	763		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.00	0.53	0.00	0.45		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			47.1%		ICU Level of Service	A
Analysis Period (min)			15			

**APPENDIX E**  
**Site Trip Generation Calculations**

AM	Mississauga Rd				
Land Use:	Residential-Common Elements Townhouse (Block 1, 2,and 3)				
Variable:	20 Units				
Land Use	230 AM Peak Hour	Avg.Rate	0.44		
Eqn	$\ln(T)=0.80\ln(X)+0.26$	Pg	395		
IN	17%				
Out	83%				
Non-Auto	0%				
Internal Capture	0%				
Pass-by	0%				
Visitor	0%				
	IN	Out	Total	Eqn	Avg Rate
Gross	2	12	14	14	9
Gross Rate	0.10	0.60	0.70		
Transit	0	0	0		
Internal Capture	0	0	0		
Pass-by	0	0	0		
Visitors	0	0	0		
New	2	12	14		
Rate	0.10	0.60	0.70		

AM

Mississauga Rd

Land Use: Residential-Free Hold Townhouse (Block 4 and5)

Variable: 4 Units

Land Use 210 AM Peak Hour Avg.Rate 0.75

Eqn  $T=0.70(x)+9.74$  Pg 395

IN 25%

Out 75%

Non-Auto 0%

Internal Capture 0%

Pass-by 0%

Visitor 0%

	IN	Out	Total	Eqn	Avg Rate
Gross	3	10	13	13	3
Gross Rate	0.75	2.50	3.25		
Transit	0	0	0		
Internal Capture	0	0	0		
Pass-by	0	0	0		
Visitors	0	0	0		
New	3	10	13		
Rate	0.75	2.50	3.25		

To/From		Proportions		Trips			Check	
		Inbound	Outbound	In	Out	Total	OK	OK
North	Mississauga Road	58%	41%	1	5	6		
South	Mississauga Road	42%	59%	1	7	8		
East				0	0	0		
West				0	0	0		
Total		100%	100%	2	12	14		

To/From		Proportions		Trips			Check	
		Inbound	Outbound	In	Out	Total	OK	0
North	Mississauga Road	58%	41%	2	4	6		
South	Mississauga Road	42%	59%	1	6	7		
East				0	0	0		
West				0	0	0		
Total		100%	100%	3	10	13		

Existing Distribution				
	IN		OUT	
N	649	58%	465	41%
S	462	42%	659	59%
Total	1111	100%	1124	100%

PM

Mississauga Rd

Land Use: Residential-Common Elements Townhouse (Block 1, 2, and 3)

Variable: 20 Units

Land Use 230 PM Peak Hour

Eqn  $\ln(T)=0.82\ln(X)+0.32$

IN 67%

Out 33%

Non-Auto 0%

Internal Capture 0%

Pass-by 0%

Visitor 0%

Avg.Rate 0.52

Pg 396

	IN	Out	Total	Eqn	Avg Rate
Gross	11	5	16		
Gross Rate	0.55	0.25	0.80	16	10
Transit	0	0	0		
Internal Capture	0	0	0		
Pass-by	0	0	0		
Visitors	0	0	0		
New	11	5	16		
Rate	0.55	0.25	0.80		

PM

Mississauga Rd

Land Use: Residential-Free Hold Townhouse (Block 4 and 5)

Variable: 4 Units

Land Use 210 PM Peak Hour Avg. Rate 1

Eqn  $\ln(T)=0.90\ln(X)+0.51$  Pg 298

IN 63%

Out 37%

Non-Auto 0%

Internal Capture 0%

Pass-by 0%

Visitor 0%

	IN	Out	Total	Eqn	Avg Rate
Gross	4	2	6		
Gross Rate	1.00	0.50	1.50	6	4
Transit	0	0	0		
Internal Capture	0	0	0		
Pass-by	0	0	0		
Visitors	0	0	0		
New	4	2	6		
Rate	1.00	0.50	1.50		

To/From		Proportions		Trips			Check	
		Inbound	Outbound	In	Out	Total	OK	OK
North	Mississauga Road	45%	55%	5	3	8		
South	Mississauga Road	55%	45%	6	2	8		
East				0	0	0		
West				0	0	0		
Total		100%	100%	11	5	16		

To/From		Proportions		Trips			Check	
		Inbound	Outbound	In	Out	Total	OK	0
North	Mississauga Road	45%	55%	2	1	3		
South	Mississauga Road	55%	45%	2	1	3		
East				0	0	0		
West				0	0	0		
Total		100%	100%	4	2	6		

#### Existing Distribution

	IN		OUT	
N	540	45%	636	55%
S	648	55%	525	45%
Total	1188	100%	1161	100%



















**APPENDIX F**  
**Future Total Traffic Analysis**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Mississauga Rd & Rothesay Ct/Barbertown Rd

AM Peak Hour











FT

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	7	0	10	22	0	16	3	553	15	16	792	3	
Future Volume (Veh/h)	7	0	10	22	0	16	3	553	15	16	792	3	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Hourly flow rate (vph)	8	0	11	24	0	17	3	595	16	17	852	3	
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	1506	1504	854	1506	1498	603	855				611		
vC1, stage 1 conf vol	888	888		609	609								
vC2, stage 2 conf vol	618	617		897	889								
vCu, unblocked vol	1506	1504	854	1506	1498	603	855				611		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1				4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.5								
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2				2.3		
p0 queue free %	97	100	97	91	100	97	100				98		
cM capacity (veh/h)	276	298	362	266	301	488	793				908		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	19	41	3	611	17	855							
Volume Left	8	24	3	0	17	0							
Volume Right	11	17	0	16	0	3							
cSH	320	328	793	1700	908	1700							
Volume to Capacity	0.06	0.12	0.00	0.36	0.02	0.50							
Queue Length 95th (m)	1.5	3.4	0.1	0.0	0.5	0.0							
Control Delay (s)	17.0	17.5	9.6	0.0	9.0	0.0							
Lane LOS	C	C	A		A								
Approach Delay (s)	17.0	17.5	0.0		0.2								
Approach LOS	C	C											
Intersection Summary													
Average Delay			0.8										
Intersection Capacity Utilization			51.9%	ICU Level of Service				A					
Analysis Period (min)			15										

# HCM Unsignalized Intersection Capacity Analysis

## 2: Mississauga Rd & Site Access



















AM Peak Hour  
FT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	5	575	1	1	804
Future Volume (Veh/h)	7	5	575	1	1	804
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	8	5	618	1	1	865
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	1486	618			619	
vC1, stage 1 conf vol	618					
vC2, stage 2 conf vol	867					
vCu, unblocked vol	1486	618			619	
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	99			100	
cM capacity (veh/h)	346	493			971	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	13	619	1	865		
Volume Left	8	0	1	0		
Volume Right	5	1	0	0		
cSH	391	1700	971	1700		
Volume to Capacity	0.03	0.36	0.00	0.51		
Queue Length 95th (m)	0.8	0.0	0.0	0.0		
Control Delay (s)	14.5	0.0	8.7	0.0		
Lane LOS	B		A			
Approach Delay (s)	14.5	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			52.3%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: Mississauga Rd & Rothesay Ct/Barbertown Rd











PM Peak Hour  
FT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	4	13	0	20	7	815	31	27	680	7
Future Volume (Veh/h)	4	0	4	13	0	20	7	815	31	27	680	7
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	4	0	4	14	0	22	8	876	33	29	731	8
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	1707	1718	735	1702	1706	892	739				909	
vC1, stage 1 conf vol	793	793		908	908							
vC2, stage 2 conf vol	914	925		793	797							
vCu, unblocked vol	1707	1718	735	1702	1706	892	739				909	
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1				4.2	
tC, 2 stage (s)	6.1	5.5		6.2	5.5							
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2				2.3	
p0 queue free %	98	100	99	94	100	93	99				96	
cM capacity (veh/h)	224	254	423	239	266	332	876				698	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	8	36	8	909	29	739						
Volume Left	4	14	8	0	29	0						
Volume Right	4	22	0	33	0	8						
cSH	293	289	876	1700	698	1700						
Volume to Capacity	0.03	0.12	0.01	0.53	0.04	0.43						
Queue Length 95th (m)	0.7	3.4	0.2	0.0	1.0	0.0						
Control Delay (s)	17.6	19.2	9.1	0.0	10.4	0.0						
Lane LOS	C	C	A		B							
Approach Delay (s)	17.6	19.2	0.1		0.4							
Approach LOS	C	C										
Intersection Summary												
Average Delay	0.7											
Intersection Capacity Utilization	54.8%			ICU Level of Service			A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 2: Mississauga Rd & Site Access

PM Peak Hour  
FT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	3	833	6	5	712
Future Volume (Veh/h)	2	3	833	6	5	712
Sign Control	Stop		Free		Free	Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2	3	896	6	5	766
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	1675	899			902	
vC1, stage 1 conf vol	899					
vC2, stage 2 conf vol	776					
vCu, unblocked vol	1675	899			902	
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 %	99	99			99	
cM capacity (veh/h)	311	340			762	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	5	902	5	766		
Volume Left	2	0	5	0		
Volume Right	3	6	0	0		
cSH	328	1700	762	1700		
Volume to Capacity	0.02	0.53	0.01	0.45		
Queue Length 95th (m)	0.4	0.0	0.2	0.0		
Control Delay (s)	16.2	0.0	9.8	0.0		
Lane LOS	C		A			
Approach Delay (s)	16.2	0.0	0.1			
Approach LOS	C					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			54.2%		ICU Level of Service	A
Analysis Period (min)			15			

## **APPENDIX G**

### **Corresponding from Region of Peel Regarding Garbage Collection**

**From:** Martino, Alex [<mailto:alex.martino@peelregion.ca>]  
**Sent:** September-25-17 11:36 AM  
**To:** Jim Levac <[jiml@gsai.ca](mailto:jiml@gsai.ca)>  
**Cc:** Ahmad, Munir <[munir.ahmad@peelregion.ca](mailto:munir.ahmad@peelregion.ca)>; Stephanie Segreti <[Stephanie.Segreti@mississauga.ca](mailto:Stephanie.Segreti@mississauga.ca)>; Evan Perlman <[Evanp@gsai.ca](mailto:Evanp@gsai.ca)>  
**Subject:** OZ 16/011 W11: 5155 Mississauga Road (Old Barber House Lands)

Good morning Jim,

The Region has reviewed the attached site plan and feels that, given the constraints of the site, the Region will allow exceptions to the backup distance requirement. We will provide curbside collection subject to the following conditions:

Unit 17-20

- Applicant to provide space for storage of waste carts for units 17-20 on respective units.
- On the day of collection, carts to be set out close to curb for collection
- Applicant is responsible for meeting City of Mississauga requirements, if any, for setting out waste carts on the sidewalk

Units 11-16

Region will provide curbside collection of waste. A common collection pad will not be allowed. Waste collection vehicle driver will backup for approximately 15m for automated collection from some units, and for the remaining units he will manoeuvre the carts manually for collection.

If you have any questions or concerns let me know.

Thanks,

**Alex Martino**

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Region of Peel  
Development Services – Planning  
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