#### 91 EGLINTON LIMTED PARTNERSHIP

## 91 EGLINTON AVENUE EAST AND 5055 HURONTARIO STREET, MISSISSAUGA TRANSPORTATION STUDY

**SEPTEMBER 11, 2018** 



# wsp



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91 EGLINTON LIMTED PARTNERSHIP

WSP 100 COMMERCE VALLEY DRIVE WEST THORNHILL, ON, CANADA L3T 0A1

WSP.COM

PROJECT NO.: 181-02747-00 DATE: SEPTEMBER 11, 2018



100 COMMERCE VALLEY DRIVE WEST THORNHILL, ON, CANADA L3T 0A1

wsp.com

September 11, 2018

91 EGLINTON LIMTED PARTNERSHIP 1 Steelcase Road West Unit 8 Markham, ON L3R 0T3

Attention: Mr. Mark Liddy

Dear Sir,

Subject: 91 Eglinton Avenue East and 5055 Hurontario Street, Transportation Study

City of Mississauga

WSP is pleased to present this Transportation Study with respect to the development plan of lands at 91 Eglinton Avenue and 5055 Hurontario Street. The subject site is located in the northeast quadrant of Hurontario Street and Eglinton Avenue, in the City of Mississauga.

Based on the findings, the traffic impacts from the proposed high-rise residential development can be accommodated by the existing and planned boundary roadway network. The proposed development will include significant transportation demand management measures to reduce vehicle trips, encourage and support travel by transit, and reduce auto ownership through incentives provided to residents. The planned internal road and active transportation network will allow for easy, convenient and direct access to its existing and planned transportation network for all modes of travel, including transit, cycling, walking and auto. Proposed parking rates are acceptable, will meet site demand, accommodate all parking needs on site and support the significant adjacent transit network.

We thank you for the opportunity to undertake this study. We would be pleased to respond to any questions should they arise.

Yours truly,

Sharon Sterling, MCIP, RPP Manager, Traffic Management and Parking

David Lukezic, M.Eng, LEL, RPP Project Manager

WSP ref.: 181-02747-00

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## **1** INTRODUCTION

WSP was retained to conduct a Traffic Impact Assessment (TIA) as part of an Official Plan Amendment (OPA) and Zoning By-law Amendment (ZBLA) for the residential development proposed by 91 Eglinton Limited Partnership (Owner) at 91 Eglinton Avenue East and 5055 Hurontario Street, here after referred to as 91 Eglinton (Property). The development will consist of 6 high-rise residential towers and related podiums totaling 2,580 units. Five levels of parking are proposed with a total of 2,802 spaces and 2,064 bicycle parking spaces based on the August 2018 site plans provided by Dialog. The findings of the study are detailed within. **Figure 1-1** illustrates the site location and context.



**Figure 1-1: Site Location and Context** 

### 1.1 STUDY SCOPE

The Terms of Reference (TOR) for this study was sent to the City of Mississauga on July 6, 2018 (see **Appendix A**). WSP has not received a reply as of August 31, 2018. Therefore, this report was prepared in accordance with the submitted TOR, which details the study horizon years, the study intersections to assess, traffic data, planned roadway improvements, background developments, future background traffic growth rates, trip generation rates, proposed site trip distribution and assignment, and proposed parking rates.

The City's checklist along with comments on the submission requirements that was provided after the DARC meeting included the following submission requirements related to transportation:

- Comment No. 34: If a parking reduction is proposed please provide a parking utilization study and/or parking justification letter to accompany the proposal.
- Portion of comment No. 40: To further encourage active transportation, the following are recommended:
  - safe and secure visitor and resident bike parking;
  - unbundled parking within the development, with the cost of parking separated from housing costs; and
  - dedicated car share parking spaces.
- Comment No. 43: A Transportation Impact Study representative of the proposed land use and gross floor area is required. The study is to include a Transportation Demand Management component. The traffic consultant should provide a terms of reference to the City's Traffic Section for review and receive confirmation prior to commencing of the study.
- Comment No. 44: The Hurontario-Main Light Rail Transit System Project is scheduled to start construction in 2018. This project will impact right-of-way requirements, property accesses, allowed turning movements and will result in the permanent removal of a general-purpose traffic lane in each direction for many segments of the corridor.
- Comment No. 46: Site circulation will be reviewed in detail once formally submitted plan(s) is received. Turning movement templates will be required to demonstrate how garbage loading will occur and how trucks can enter and exit the site through the proposed access points.
- Comment No. 49: The required Belbin Street extension (connecting to Eglinton Avenue) shall be incorporated into the proposal.
- Comment No. 92: Vehicles exiting/entering the garage conflict with garbage trucks.

This report addresses all the submission requirements. With regards to the TOR (Comment No. 43), WSP has not received a reply as of August 31, 2018 and as mentioned this report was prepared in accordance with the submitted TOR. With regards to the Belbin Street extension (Comment No. 49), WSP has prepared a separate memo dated June 15, 2018, which compared the future total traffic conditions with and without the Belbin Street extension and concluded that the extension is not required. More details are summarized in this report.

### 1.2 REPORT STRUCTURE AND CONTEXT

The report was structured to address all the transportation related requirements and includes the following elements:

1. Existing transportation conditions documents the existing traffic volumes and roadway network, transit and active transportation in the study area. Results of the intersection capacity analysis for the boundary road intersections are documented.

- 2. The future background conditions were assessed based on the future roadway network surrounding the proposed development, including planned improvements to nearby transportation infrastructures, and the future background traffic volume, which includes future background growth traffic and traffic from background developments.
- 3. The future total conditions were assessed based on the future roadway network surrounding the proposed development and at the site accesses by adding site traffic to estimated background traffic volumes. The results were also compared with findings from other reports including the IBI Group assessment of the Hurontario Street and Eglinton Avenue as part of the traffic impact assessment for the Pinnacle development to the northwest of Hurontario Street and Eglinton Avenue and the 2031 VISSIM Models Report produced by Steer Davies Gleave (SDG) as part of the Environment Assessment (EA) for the Hurontario LRT.
- 4. The parking section documents the by-law parking requirements, proposed reduced parking rates for the site and justification for the proposed reduced parking rates.
- 5. A review of the proposed site plan to determine if the design elements conform to applicable standards from the City of Mississauga, Region of Peel Waste Collection and the Geometric Design Guide for Canadian Roads, published by the TAC.
- 6. Transportation Demand Management (TDM) measures proposed for the development. The recommended measures are strategies that increase transportation system efficiency by managing the demand for travel and parking at the site.

## 2 DEVELOPMENT PROPOSAL

## 2.1 LAND USE AND SITE STATISTICS

The development proposed for the 91 Eglinton site will consist of 2,580 residential condominium units, spread across 4 phases. **Table 2.1** summarizes the details of the development.

#### **Table 2.1: Development Statistics**

Development Phases	Units
Phase 1 (Tower A & B)	921 units
Phase 2 (Tower D)	434 units
Phase 3 (Tower E & F)	740 units
Phase 4 (Tower G)	485 units

Figure 2-1 illustrates the proposed site plan.

Up to six levels of underground parking are proposed for the development, providing a total of 2,802 parking spaces for this development. The breakdown is:

- 326 residential visitor parking spaces of which, 4 are car-share spaces; and,
- 2,476 resident parking spaces.

Additionally, 2,064 bicycle spaces are proposed to be provided.

### 2.2 SITE ACCESS

As shown in Figure 2-1, four vehicular access points are proposed for the site. They are:

- 1 Right-in / Right-out driveway located 58m north of Eglinton Avenue East on the future extension of Thornwood Drive.
- 2 Full movement driveway located on future extension of Armdale Road. This access will be aligned with the existing Kencourt Drive.
- 3 Full movement driveway located east of existing commercial driveway on Armdale Road. This access point will be aligned with existing Belbin Street.
- **4** Full movement driveway located at the intersection of the future extension of Armdale Road and the future extension of Thornwood Drive.

### 2.3 ACTIVE TRANSPORTATION NETWORK CONNECTIONS

The proposed development will provide excellent facilities for pedestrians and cyclists with:

- 3.0m Multi-Use Trail/Path located on the western edge of the property connecting Armdale Road to Eglinton Avenue East.
- The internal private roads will have sidewalks connecting to Armdale Road, Thornwood Drive and Eglinton Avenue East.

## 2.4 GARBAGE LOADING FACILITIES

Each phase within the development will have its own enclosed garbage and loading facilities as per City standards. These will be detailed in **Section 8.1**.



Source: 11153T\_91 Eglinton Ave E\_Draft Site\_20180824.dwg and 11153T\_91 Eglinton Ave E\_Level 1 w Landscape\_20180824, from DIALOG, dated August 24, 2018

## Figure 2-1 Site Plan 91 Eglinton Avenue East - Transportation Study

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PROJECTS/2018 Jobs/181-02747-00 91 Eglir

10/:L

WSP\_SitePlanReview\_91 Eglinton Ave E\_Site Plan\_20180911 (landscape).dwg\_Site Plan

Scale: 1:1000



## 3 EXISTING TRANSPORTATION CONDITIONS

### 3.1 EXISTING ROADWAY NETWORK

The existing roadway network in the vicinity of the site is composed of Hurontario Street, Eglinton Avenue East, Forum Drive, Thornwood Drive, Sorrento Drive, Elia Avenue and Armdale Road (See **Figure 1-1**). All of the roadways are under the jurisdiction of the City of Mississauga.

**Hurontario Street** is a six-lane, north-south major arterial roadway located west of the site. It is a major north-south transportation corridor which passes through downtown Brampton to the north and downtown Mississauga to the south.

**Eglinton Avenue East** is a six-lane, east-west major arterial roadway located south of the site. It is a major east-west corridor that passes through the City of Mississauga, continuing east into the City of Toronto and connecting with Lower Base Line in Milton.

**Forum Drive** is a two-lane, east-west minor collector roadway east of the site, extending from Thornwood Drive to Eglinton Avenue East to the east.

**Thornwood Drive** is a two-lane, north-south minor collector roadway northeast of the site, extending from Forum Drive to Trailwood Drive to the north.

**Sorrento Drive** is a two lane, north-south minor collector roadway south of the site, extending from Eglinton Avenue East to Elia Drive to the south.

**Elia Avenue** is a two lane, east-west minor collector roadway south of the site, extending from Sorrento Drive to Hurontario Street.

**Armdale Road** is a two lane, east-west minor collector roadway north of the site. Armdale Road is planned to be extended to Thornwood Drive.

**Preston Meadow Avenue** is a two lane, east-west local roadway north of the site, extending from Thornwood Drive to Hurontario Street. The street will align with Forum Drive at its intersection with Thornwood Drive.

**Kencourt Drive** is a two lane, north-south local roadway north of the site, extending from Armdale Road to Preston Meadow Avenue. As mentioned earlier, the street will align with one of the site access driveways.

Within the study roadway network described above the following intersections were analysed:

- Hurontario Street and Eglinton Avenue (Signalized)
- Hurontario Street and Armdale Road / Watergarden Drive (Signalized)
- Hurontario Street and Elia Avenue / Kingsbridge Garden Circle (Signalized)
- Eglinton Avenue and Sorrento Drive (Signalized)
- Eglinton Avenue and Forum Drive (Signalized)
- Sorrento Drive and Elia Avenue (Non-signalized)
- Thornwood Drive and Forum Drive / Preston Meadow Avenue (Non-signalized)
- Thornwood Drive and Nahani Way (Non-signalized)

The existing lane configuration of these study intersections is shown in Figure 3-1.



## 3.2 TRAFFIC DATA

Intersection turning movement counts for the study area intersections were collected by Accu-Traffic Inc. on behalf of WSP on Wednesday, March 6, 2018. The turning movement counts were collected between 7 A.M. and 9 A.M. and between 4 P.M. and 6 P.M. The current peak hours for the study intersections are shown in **Table 3.1**. Detailed turning movement count summaries and current signal timing plans, which were obtained from the City, are provided in **Appendix B**.

Intersections	Peak Hour Periods	
inter sections	A.M.	Р.М.
Hurontario Street and Eglinton Avenue	8:00 - 9:00	16:45 - 17:45
Hurontario Street and Armdale Road/Watergarden Drive	8:00 - 9:00	16:45 - 17:45
Hurontario Street and Elia Avenue/Kingsbridge Garden Circle	7:45 - 8:45	17:00 - 18:00
Eglinton Avenue and Sorrento Drive	7:45 - 8:45	16:30 - 17:30
Eglinton Avenue and Forum Drive	7:45 - 8:45	16:45 - 17:45
Sorrento Drive and Elia Avenue	8:00 - 9:00	17:00 - 18:00
Thornwood Drive and Forum Drive/Preston Meadow Avenue	8:00 - 9:00	17:00 - 18:00
Thornwood Drive and Nahani Way	8:00 - 9:00	17:00 - 18:00

#### **Table 3.1: Traffic Count Sources**

Existing traffic volumes on the study roadway network during the roadway weekday a.m. and p.m. peak hours are shown in **Figure 3-2**.



## 3.3 TRANSIT SERVICES

The site of the proposed development is currently served by several bus routes operated by MiWay and Brampton Transit detailed below:

The **103 Hurontario Express** is an express bus service operated by MiWay serving the Hurontario Street corridor. The line operates between the Brampton Gateway Terminal and the Port Credit GO Station with headways of 12 minutes during peak periods, Monday to Sunday. The line will provide the site with frequent transit service in a general north-south direction between the city centers of Mississauga and Brampton.

The **502 Main Züm** service is an express bus service operated by Brampton Transit serving the Main Street / Hurontario Street corridor. The line operates between the Mississauga City Centre Transit Terminal and the Sandalwood Loop with headways of 8 minutes during peak periods, Monday to Sunday.

The **19 Hurontario** and its branch lines are regular bus services serving the Hurontario Street corridor. The lines operate along various routes on the Hurontario Street corridor between the Port Credit GO Station, and the Highway 407 and Hurontario Park & Ride lot with headways of 6 minutes during peak periods, Monday to Sunday.

The **35 Eglinton-Ninth Line** and **35A Eglinton-Tenth Line** are bus services serving the Eglinton Avenue corridor and connecting with the TTC Islington subway station. The lines operate along a route starting from Islington Station, along Dundas Street, along Highway 427, then along Eglinton Avenue, terminating at the Ninth Line for the 35 or at the Tenth Line for the 35A. The two routes operate with combined average headways of 12 minutes during the a.m. peak and average headways of 10 minutes during the p.m. peak, Monday to Friday. Only route 35 operates during the weekends.

The **7 Airport** is a regular bus service connecting the Toronto Pearson International Airport and the Mississauga City Centre Transit Terminal. The service operates along a route starting from Westwood Square, to Pearson Airport Terminal 1, then terminating at the City Centre Transit Terminal. The service has a headway of 20 minutes during the a.m. peak period and a headway of 25 minutes during the p.m. peak period, Monday to Sunday.

The **87 Meadowvale-Skymark** is a rush-hour only service operating between Meadowvale Town Centre and Renforth Drive and Eglinton Avenue East. The service operates in the with a headway of 22 minutes from 7:00 a.m. to 9:00 a.m. in the eastbound direction and from 4:00 p.m. to 6:00 p.m. in the westbound direction, Monday to Sunday.

**Table 3.2** summarizes the above-noted transit routes, along with their approximate headways throughout thepeak periods.

Figure 3-3 illustrates the routes of theses existing transit services within the study area.

Douto	Transit Service Operating Headways	
Koute	A.M. Peak	P.M. Peak
103 Hurontario Express	12 minutes	12 minutes
502 Main Züm	8 minutes	8 minutes
19 Hurontario (Including A, B & C branches)	6 minutes	6 minutes
35 Eglinton-Ninth Line / 35A Eglinton-Tenth Line	12 minutes	10 minutes
7 Airport	20 minutes	25 minutes
87 Meadowvale-Skymark	22 minutes	22 minutes

#### Table 3.2: Existing Transit Services within the Study Area





Source: MiWay

91 EGLINTON AVENUE EAST AND 5055 HURONTARIO STREET, MISSISSAUGA Project No. 181-02747-00 91 EGLINTON LIMTED PARTNERSHIP WSP September 2018 Page 12

### 3.4 ACTIVE TRANSPORTATION INFRASTRUCTURE

The study area is well served by active transportation infrastructures. All roads in the area have sidewalks along both sides of the roadway, providing access to many local amenities and other residential, commercial, and office developments in the area. Paved multi-use trails are available along Eglinton Avenue East for both pedestrians and cyclists east of Forum Drive. Forum Drive, Nahani Way and Elia Avenue are all Signed Bike Routes available for cyclists. Cyclist will need to share the road with vehicle traffic along those routes as there are no pavement markings or bollards separate the bike traffic. **Figure 3-4** illustrates the active transportation infrastructures noted above. Figure



#### **Figure 3-4: Existing Active Transportation Infrastructure**



**FIGURE 3-5** Connection to Existing Active Transportation Infrastructure

## 3.5 INTERSECTION OPERATIONS

Intersection capacity analysis was completed for the boundary road intersections to establish the existing level of service (LOS) during the weekday A.M. and P.M. peak hours using the Synchro 10 software. Peak hour factors, heavy vehicles and pedestrian volumes were extracted from the existing traffic counts and input into the Synchro files.

#### 3.5.1 SYNCHRO ASSUMPTIONS

Peak hour factors, heavy vehicles and pedestrian volumes were calculated based on TMC data and applied in the analysis to reflect existing operating conditions. Table 3.3 illustrates the peak hour factors utilized in the analysis.

Intersection	A.M. Peak Hour Factor	P.M. Peak Hour Factor
Hurontario St & Watergarden Dr / Armdale Rd	0.93	0.83
Eglinton Ave E & Hurontario St	0.92	0.84
Eglinton Ave E & Sorrento Dr / Thornwood Dr	0.93	0.97
Eglinton Ave E & Forum Dr / Albina Way	0.91	0.95
Hurontario St & Elia Ave / Kingsbridge Garden Cir	0.95	0.89
Thornwood Dr & Nathani Way	0.88	0.88
Thornwood Dr & Preston Meadow Ave / Forum Dr	0.81	0.68
Elia Ave & Sorrento Dr / Acron Pl	0.77	0.86

#### **Table 3.3: Calibrated Peak Hour Factors**

#### 3.5.2 LEVEL OF SERVICE

The LOS for the study intersections is presented in **Table 3.4**. For signalized intersections, only shared movements exceeding V/C ratio of 0.85 and exclusive movements exceeding V/C ratio of 0.9 are shown. For unsignalized intersections, movements with LOS "E" and above are shown. The Synchro output sheets are included in **Appendix C** and level of service definitions are provided in **Appendix D**.

	Weekday A.M. Peak			Weekday P.M. Peak		
Intersections		Delay (sec)	(V/C Ratio)	LOS	Delay (sec)	(V/C Ratio)
	Signal	ized Intersec	tion1,2			
Hurontario St at Watergarden Dr	A	6	0.39	A	7	0.45
Hurontario St at Eglinton Ave E	D	48	0.87	D	53	0.87
EBT	E	68	0.97	-	-	-
WBT	-	-	-	E	72	0.99
Hurontario St at Elia Ave / Kingsbridge Garden Cir	с	22	0.61	с	31	0.93
NBL	-	-	-	F	82	0.93
SBT	-	-	-	с	25	0.92
Eglinton Ave E at Sorrento Dr	с	25	0.84	В	17	0.52
Eglinton Ave E at Forum Dr / Albina Way	В	16	0.57	В	11	0.58
Unsignalized Intersection3						
Thornwood Dr at Nathani Way	A	10	0.42	A	9	0.39
Thornwood Dr at Forum Dr / Preston Meadow Ave	В	11	0.38	В	12	0.4
Sorrento Dr at Elia Ave	В	11	0.48	С	16	0.63

#### **Table 3.4: Existing Intersection Level of Service**

1 Only shared movements with V/C of 0.85 and above are shown

2 Only exclusive movements with V/C of 0.90 and above are shown

3 Only movements with LOS "E" and above are shown

The results from **Table 3.4** show that all signalized intersections operate at LOS "D" or less in both A.M. and P.M. peak hours under existing traffic conditions. All signalized intersections and all individual movements operate within capacity with V/C ratios of 1.00 or less. There are a number of critical movements under the existing

conditions. Notably, the east and west through movements at Eglinton Avenue and Hurontario Street, the northbound left and southbound through movements at Hurontario Street and Elia Road / Watergarden Dr operate above V/C ratio of 0.9. All unsignalized intersections operate at LOS "C" or less in both A.M. and P.M. peak hours under existing traffic conditions.

#### 3.5.3 QUEUE RESULTS

The LOS for the study intersections is presented in **Table 3.5**. Only storage lanes with 95<sup>th</sup> percentile queues exceeding the available storage lengths are shown. The Synchro output sheets are included in **Appendix C**.

Intersections	Available	95th Percentile Queue			
Intersections	Storage (m)	Weekday A.M. Peak	Weekday P.M. Peak		
Signalized Intersection					
Hurontario St at Watergarden Dr					
WBL	25	15	29		
EBL	60	87	56		
Hurontario St at Elia Ave / Kingsbridge Garden Cir					
WBL	53	95	139		
WBL	80	85	101		
NBL	33	15	35		
Eglinton Ave E at Forum Dr / Albina Way					
SBL	28	66	36		

As seen in **Table 3.5**, left-turn queues at four intersections within the area road network already exceeds the available storage lengths – Hurontario Street at Watergaraden Drive, Hurontario Street at Elia Ave/Kingsbridge Garden Circle, Eglinton Avenue at Sorrento Drive, and Eglinton Avenue at Forum Drive/Albina Way. However, it is notable that queues at Hurontario Street and Eglinton Avenue are still within the available storage lengths. Queue results from the future background and future total scenarios will be compared to the results presented here.

# 4 FUTURE BACKGROUND TRAFFIC CONDITIONS

The future background conditions were assessed based on the future roadway network surrounding the proposed development, including any planned improvements to nearby transportation infrastructures, and the future background traffic volume, which will include future background growth traffic and traffic from proposed area developments. As per City of Mississauga guidelines, the traffic assessment was completed for a five-year horizon (2023) and a ten-year horizon (2028). Phase 1 of the subject development, including phase 1 and phase 2, is expected to be in place within the five-year horizon, and phase 2 of the development, including phase 3 and phase 4, is expected to be in place within the ten-year horizon.

## 4.1 PLANNED TRANSPORTATION NETWORK IMPROVEMENTS

#### 4.1.1 TRANSIT IMPROVEMENTS

The Hurontario Light Rail Transit line is a major transit project currently being constructed between Port Credit GO Station and the Gateway Terminal. The future Eglinton Station on the line will be located within the study area, located just north of Eglinton Avenue and approximated 550m from the site. The line is expected to be completed in 2022 and will provide a rapid transit connection from the site to downtown Mississauga and downtown Brampton, reducing the need for automobiles along its corridor.

#### 4.1.2 ROADWAY IMPROVEMENTS

The Hurontario LRT Environment Assessment Report (Hurontario EA) included preliminary design drawings showing the existing cross section of Hurontario Street modified to accommodate the LRT tracks and the following modifications will be made for the segment of Hurontario Street within the study area:

- The narrowing of road pavement on Hurontario Street in order to provide sufficient width in the median for the LRT tracks. Most segments of Hurontario Street in the study area will be narrowed from six to four lanes between Wellington Street and Adelaide Street.
- Exclusive right-turn lanes will be replaced by shared right-turn and through lanes at most intersections, with exception of the northbound right lane at Hurontario Street and Eglinton Avenue. The exclusive northbound right-turn lane at Hurontario Street and Eglinton Avenue will remain.
- All existing left-turn movements will become protected only, with left-turn allowed only during left-turn phases at all intersections to prevent conflict between road vehicles and LRT vehicles.

Detailed drawings of the new cross-sections along Hurontario are included in **Appendix E**. In addition to the changes required by the Hurontario LRT project, other roadway improvements are currently planned or under construction. These would include:

- Extension of Thornwood Drive from Forum Drive to Eglinton Avenue East, connecting with Sorrento Drive. The intersection of Thornwood Drive / Sorrento Drive and Eglinton Avenue East will be full movement with signalized control.

- Extension of Armdale Road from Hurontario Street to the future extension of Thornwood Drive. The intersection of Thornwood Drive and Armadale Road will be stop-controlled for the eastbound movement on Armdale Road, and free flow north-south movements along the future Thornwood Drive Extension. The extension of Armdale Road is currently being constructed.
- As a result of the planned roadway improvements, a portion of the existing traffic volumes were reassigned onto the future road network of the study area.

The future roadway network is shown in **Figure 4-1**. The future lane configurations of the study intersections are shown in **Figure 4-2**.

#### **BELBIN STREET**

Belbin Street is currently being constructed as part of the residential development by Summit Eglinton Inc. to the north of the subject site. Once completed, the street will connect Pedalina Drive and Nahani Way to Armdale Road. The street is classified as a minor collector with a right-of-way (ROW) width of 22m.

At the DARC meeting for this application the City has requested a further extension of Belbin Street from Armdale Road to Eglinton Avenue. The intersection of this extension of Belbin Street at Eglinton Avenue would operate as right-in/right-out due to the median on Eglinton Avenue.

WSP has prepared a separate memo dated June 15, 2018, which compared the future total traffic conditions with and without the Belbin Street extension. The memo and the detailed analysis are provided in **Appendix F**. The technical analysis has shown the following:

- The Belbin Street extension provides no improvements in the overall operation of the surrounding roadway network and provide no relief to the intersection of Hurontario Street and Eglinton Avenue.
- The Belbin Street extension would accommodate a limited amount of the vehicular traffic destined to or originating from the residential developments north of the site.
- The Belbin Street extension could introduce spacing issue with the neighbouring commercial development, and traffic operation issues on Eglinton Avenue.
- The Belbin Street extension could create unsafe conditions for pedestrians and cyclists and compromise the size and configuration of the proposed public park on the subject site.
- The Belbin Street extension will provide better pedestrian and cycling connectivity between Eglinton Avenue and Armdale Road. However, this can equally be accommodated through the provision of a multi-use pathway.
- The Belbin Street extension will primarily serve the proposed development at the subject site, but the site can also be adequately accessed through a local and private roadway without direct connection to Eglinton Avenue.

Because of the right-in/right-out only access on Eglinton Avenue, Belbin Street would primarily serve the traffic to and from the subject site, and would likely provide limited connectivity to the blocks north of the subject site. Alternatives are available for vehicle traffic attempting to avoid the Hurontario Street and Eglinton Avenue intersection in the form of Forum Drive and the Thornwood Drive extension. Therefore, the Belbin extension to Eglinton Avenue is not included in this development proposal.

#### **Figure 4-1: Future Road Network**



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## 4.2 BACKGROUND TRAFFIC VOLUMES

The future background traffic is estimated by adding the projected background traffic growth, and traffic from other area developments within the study area to the current traffic volume.

#### 4.2.1 CORRIDOR TRAFFIC GROWTH

Annual background traffic growth rates for Hurontario Street and Eglinton Avenue, the two major roadways within the study roadway network, were obtained from the City of Mississauga (See **Appendix G**), and were applied accordingly to the network. The growth rates obtained are summarised in **Table 4.1** and **Table 4.2** below.

#### Table 4.1: Hurontario Street Projected Future Growth Rates

Time	Change from Existing to 2021		Compounded Annual Growth from 2021-2028		
	Northbound	Southbound	Northbound	Southbound	
AM Peak Hour	-26.0%	-19.0%	0.0%	1.0%	
PM Peak Hour	-18.0%	-19.0%	1.0%	0.0%	

#### Table 4.2: Eglinton Avenue Projected Future Growth Rates

Time	Growth from Existing to 2023		Compounded Annual Growth from 2023-2028		
	Eastbound	Westbound	Eastbound	Westbound	
AM Peak Hour	0.0%	2.5%	2.0%	0.0%	
PM Peak Hour	0.5%	1.0%	1.5%	0.5%	

It is important to note that the reduction forecasted on Hurontario Street by the City is a direct result of the reduction the reduction in travel lanes and the introduction of the Hurontario LRT.

#### 4.2.2 BACKGROUND DEVELOPMENTS

Reports and studies of other developments in the study area were obtained via the City of Mississauga Development Application website or City staffs, and are listed in **Table 4.3**. **Figure 4-3** illustrates the location of the background developments, and **Figure 4-4** illustrates the total site traffic generated by all of the listed developments.

BACKGROUND DEVELOPMENT	DESCRIPTION	TIA AVAILABILITY
Pinnacle Uptown Mississauga	2408 Residential Units	IBI Group (2011)
5081 Hurontario Street	1402 Residential Units	Sernas Transtech (2009)
35 & 65 Watergarden Drive	468 Residential Units	No
8 Nahani Way	404 Residential Units	No

#### **Table 4.3: Future Background Developments**

Development specific site traffic volumes were incorporated based on review of available traffic impact studies. For developments where traffic impact studies were not available, Traffic volumes was estimated based on ITE trip generation rates, then adjusted to the local mode split and distributed to the road network based on the 2016 TTS data. The estimated 2023 and 2028 background traffic volumes for the a.m. and p.m. peak hours are shown in **Figure 4-5** and **Figure 4-6**. Detailed site-specific volumes for the individual background developments are available in **Appendix H**.

#### Figure 4-3: Future Background Development Locations





xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes


Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes

Figure 4-5 **Total Future Background Traffic Volumes** 2023



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes

Figure 4-6 **Total Future Background Traffic Volumes** 2028

# 4.3 BACKGROUND TRAFFIC OPERATIONS

Intersection capacity analyses were completed for the study intersections to determine the intersection LOS during the roadway weekday AM and PM peak hours under both 2023 and 2028 future background conditions using the Synchro 10 software. The intersection capacity analysis was completed using the same procedures documented for existing conditions.

The LOS for the intersections analyzed are presented in **Table 4.4** and **Table 4.5**. The Synchro output sheets are included in **Appendix I** and the LOS definitions are provided in **Appendix D**. Wherever required, signal timings at intersections were optimized, but cycle lengths remained the same.

Intersections		Weekday A.M	1. Peak	Weekday P.M. Peak			
	LOS	Delay	(V/C	LOS	Delay	(V/C	
		(sec)	Ratio)		(sec)	Ratio)	
	Signa	lized Interse	ctions				
Hurontario St at Watergarden Dr	C	28	0.73	C	30	0.83	
EBL	F	118	0.96	-	-	-	
SBTR	-	-	-	C	28	0.85	
Hurontario St at Eglinton Ave E	E	73	1.08	F	102	1.19	
EBL	F	92	1.01	F	195	1.24	
EBT	F	95	1.07	-	-	-	
WBT	-	-	-	F	131	1.19	
NBL	F	124	1.05	F	174	1.21	
SBL	-	-	-	F	124	1	
SBTR	E	68	1.06	F	116	1.15	
Hurontario St at Elia Ave /	D	50	0.98	F	88	1.16	
Kingsbridge Garden Cir							
EBR	F	83	0.92	-	-	-	
WBL	-	-	-	F	95	0.96	
NBL	F	112	0.91	F	218	1.28	
NBTR	-	-	-	C	34	0.88	
SBTR	D	50	1.06	F	127	1.23	
Eglinton Ave E at Sorrento Dr /	B	13	0.57	C	22	0.73	
Thornwood Dr							
Eglinton Ave E at Forum Dr / Albina Way	A	10	0.59	C	23	0.74	
Unsignalized Intersections							
Thornwood Dr at Nahani Way	B	11	0.49	B	10	0.46	
Thornwood Dr at Forum Dr	B	19	0.57	B	12	0.54	
/ Preston Meadow Ave							

#### Table 4.4: 2023 Future Background Intersection Level of Service

Intersections	Weekday A.M. Peak			Weekday P.M. Peak		
	LOS	Delay	(v/c	LOS	Delay	(v/c
		(sec)	Ratio)		(sec)	Ratio)
EBLTR	E	37	0.8	-	-	-
Sorrento Dr at Elia Ave	Α	10	0.53	C	23	0.63
SBTR	-	-	-	E	38	0.88

1 Only shared movements with V/C of 0.85 and above are shown

Only exclusive movements with V/C of 0.90 and above are shown Only movements with LOS "E" and above are shown 2

3

#### Table 4.5: 2028 Future Background Intersection Level of Service

Intersections	Weekday A.M. Peak			Weekday P.M. Peak		
	LOS	Delay	(V/C	LOS	Delay	(V/C
		(sec)	Ratio)		(sec)	Ratio)
	Signa	lized Interse	ections			
Hurontario St at Watergarden Dr	C	34	0.76	C	31	0.83
EBL	F	128	0.99	-	-	-
SBTR	-	-	-	C	31	0.87
Hurontario St at Eglinton Ave E	F	80	1.12	F	106	1.2
EBL	E	63	0.92	F	195	1.24
EBT	F	110	1.11	-	-	-
WBT	-	-	-	F	144	1.22
NBL	F	161	1.14	F	172	1.21
NBT	С	31	0.86	E	58	0.88
SBL	E	65	0.91	F	122	1
SBTR	f	98	1.12	F	117	1.15
Hurontario St at Elia Ave	E	68	1.01	F	90	1.16
/ Kingsbridge Garden Cir						
EBR	F	84	0.94	-	-	-
WBL	-	-	-	F	95	0.96
NBL	F	165	1.07	F	199	1.24
NBTR	-	-	-	D	37	0.92
SBTR	F	89	1.07	F	135	1.25
Eglinton Ave E at Sorrento Dr /	С	22	0.61	С	24	0.72
Thornwood Dr						
Eglinton Ave E at Forum Dr	В	10	0.63	С	23	0.75
/ Albina Way						
WBTR	_		-	C	23	0.85
	Uncian	alized Intere	ections		23	0.05
Thomas od Dr at Nathar: Way	D	11	0.40	٨	10	0.46
Thornwood Dr at Nathani Way	в	11	0.49	A	10	0.46

Intersections		Weekday A.M. Peak			Weekday P.M. Peak		
	LOS	Delay	(V/C	LOS	Delay	(V/C	
		(sec)	Ratio)		(sec)	Ratio)	
Thornwood Dr at Forum Dr / Preston Meadow Ave	В	19	0.57	A	12	0.54	
EBLTR	E	37	0.8	-	-	-	
Sorrento Dr at Elia Ave	B	10	0.53	C	23	0.63	
SBTR	-	-	-	E	38	0.88	

1 Only shared movements with V/C of 0.85 and above are shown

- 2 Only exclusive movements with V/C of 0.90 and above are shown
- 3 Only movements with LOS "E" and above are shown

As anticipated and documented in the Hurontario LRT EA, the reduction of two travel lanes on Hurontario Street to accommodate the LRT will reduce the available roadway capacity in the corridor. However, there is also an expectation that over time auto usage on the roadway will be significantly reduced as more trips switch from auto to transit. In that transition period, some intersections are expected to experience long delays and is shown in **Table 4.4** and **Table 4.5**. As a result, the intersections of Hurontario at Eglinton Avenue and Hurontario at Elia Avenue will experience some capacity deficiencies in the interim, but all other intersections will continue to operate within capacity.

Unsignalized intersections sees only marginal changes in operation. Most unsignalized intersections still operate at LOS "C" or better in both A.M. and P.M. peak periods with marginal increases in delays. However, some individual movements, such as the southbound movements at Sorrento Drive at Elia Avenue / Acorn Place, are estimated to operate at LOS "E" in the P.M. peak period.

Under 2028 future background conditions, as shown in **Table 4.5**, traffic conditions see further marginal deterioration from the increase in through traffic along both Hurontario Street and Eglinton Avenue. The intersections of Hurontario Street at Eglinton Avenue, and Hurontario Street at Elia Avenue / Kingsbridge Garden Circle now both operate over capacity during all peak periods, but all other intersections still operate within capacity. Unsignalized intersections within the study network see little to no change in their operating conditions.

### 4.3.1 QUEUE RESULTS

The LOS for the study intersections is presented in **Table 4.6** and **Table 4.7**. Only storage lanes with 95<sup>th</sup> percentile queues exceeding the available storage lengths are shown. The Synchro output sheets are included in **Appendix I**.

Intersections	Available	95th Percentile Queue				
	Storage (m)	Weekday A.M. Peak	Weekday P.M. Peak			
Signalized Intersection						
Hurontario St. at Watergarden Dr.						
EBL	70	92	105			

#### **Table 4.6: 2023 Future Background Intersection Queues**

	Available	95th Percentile Queue		
Intersections	Storage (m)	Weekday A.M. Peak	Weekday P.M. Peak	
WBL	25	53	43	
SBL	36	36	66	
Hurontario St. at Eglinton Ave. E				
EBL	60	111	115	
NBL	85	56	107	
SBL	95	82	99	
Hurontario St. at Elia Ave. / Kingsbridge Garden Cir				
EBL	46	49	43	
WBL	53	83	169	
NBL	171	103	210	
Eglinton Ave. E at Sorrento Dr. / Thornwood Dr.				
WBL	80	28	109	
Eglinton Ave. E at Forum Dr. / Albina Way				
SBL	28	63	34	

#### Table 4.7: 2028 Future Background Intersection Queues

Intersections	Available	95th Percentile Queue				
	Storage (m)	Weekday A.M. Peak	Weekday P.M. Peak			
Signalized Intersection						
Hurontario St. at Watergarden Dr.						
EBL	70	93	102			
WBL	25	53	41			

	Available	95th Percentile Queue		
Intersections	Storage (m)	Weekday A.M. Peak	Weekday P.M. Peak	
SBL	36	36	66	
Hurontario St. at Eglinton Ave. E				
EBL	60	99	115	
NBL	85	58	102	
SBL	95	89	97	
Hurontario St. at Elia Ave. / Kingsbridge Garden Cir				
EBL	46	49	43	
WBL	53	83	169	
NBL	171	107	207	
Eglinton Ave. E at Sorrento Dr. / Thornwood Dr.				
WBL	80	29	111	
Eglinton Ave. E at Forum Dr. / Albina Way				
SBL	28	65	34	

Results presented in **Table 4.7** and **Table 4.8** shows that queues at several more turning movements within the area network now exceeds the available storage lengths. Notably, the eastbound, northbound and southbound left turning movements at Hurontario Street and Eglinton Avenue now have queues exceeding available storage. Movements noted in **Table 3.5** with existing queuing issues now see much longer queues under the future background conditions at both the 2023 and 2028 horizon years. This is largely the result of the projected corridor growth and additional volumes from future area developments, but is also likely further exacerbated by the additional left turn restrictions put in place as part of the Hurontario LRT. As noted earlier, all left turn movements off Hurontario Street will become protected only. Vehicle will no longer be allowed to make left turns on Hurontario Street during the through movement green phase, which will reduce the time available in each cycle to clear the turning queue. We expect future background queuing issues caused by the new left turn restriction be addressed during the redesign of Hurontario Street.

Queues on the Thornwood Drive extension were not shown as the lane configuration will be designed to accommodate the expected queue lengths. Details on the lane configuration can be found in **Section 8.4**.

# **5 SITE GENERATED TRAFFIC**

# 5.1 MODAL SPLIT

The existing modal split of traffic zones 3832, 3833 and 3841 were obtained from the 2016 Transportation Tomorrow Survey (TTS) data. The subject site is located within zone 3832. Zones 3833 and 3841 are located to the west and southwest of the site location. Mode split from these zones are representative of the proposed development, as 95% respondents surveyed within these three traffic zones reported living in apartments. The mode split obtained are summarized in **Table 5.1** and the detailed TTS data is provided in **Appendix J**.

Mode	A.M. In	A.M. Out	P.M. Out	P.M. In
Auto Driver & Passenger Mode Share	90%	88%	85%	95%
Transit	8%	13%	12%	5%
Non-auto Mode Share Total (Including Transit)	10%	22%	15%	5%

#### **Table 5.1: Existing Mode Share**

These mode shares information formed the basis of the site trip generation

# 5.2 TRIP GENERATION

Trip generation estimates for the site during the weekday A.M. and P.M. peak hours were obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The Trip Generation Manual is an industry standard published by ITE with information based on trip generation studies submitted voluntarily to ITE by public agencies, developers, consulting firms and associations throughout North America. The ITE trip generation equations and rates utilized in this analysis are detailed in **Table 5.2**.

#### **Table 5.2: ITE Trip Generation Rates and Equations**

Land Has	Rate / Equation					
Land Use	A.M. Inbound	A.M. Inbound A.M. Outbound P.M. Inbound		P.M. Outbound		
Multifamily Housing	T = 0.28 Z X = 1	X + 12.86 units	T = 0.34 X + 8.56 X = units			
(Land Use Code 222)	17%	83%	67%	33%		

The 2016 TTS mode split data presented in Table 5.1 shows that up to 22 % of the trips made to and from traffic zones 3832, 3833 and 3841 (zones near the site) are by local transit, school bus and walking. Therefore, mode split reductions were applied to the ITE trip generation rates based on the existing mode split.

Current TTS data indicates that transit trips represent on average 11% of AM peak hour trips and 9% of PM peak hour trips (see **Appendix J**). As per information provided by the City of Mississauga<sup>1</sup> and information available in the 2031 VISSIM Models Report produced by SDG as part of the EA for the Hurontario LRT<sup>2</sup>, it is anticipated that peak hour traffic on Hurontario Street could reduce up to 38% as a result of modal shift to transit and vehicles diversion to alternative routes due to lane reduction on Hurontario Street. The proportion of traffic reduction associated with associated with modal shift to transit is not provided in these documents. However, a significant portion of that reduction would be attributed to the mode shift to transit. Therefore, an additional 15% increase in transit mode share was assumed compared to current levels.

The overall vehicle trips generated are shown in **Table 5.3**. The person trips generated are based on the modal split data presented in **Table 5.1**.

<sup>&</sup>lt;sup>1</sup> growth rates provided by the City of Mississauga indicate traffic reduction on Hurontario Street between 19% to 26% during the peak hours as a result of modal shift to transit and vehicles diversion to alternative routes due to lane reduction on Hurontario Street.

<sup>&</sup>lt;sup>2</sup> Traffic volumes in 2031 along Hurontario Street between Highway 403 and Highway 401 would reduce by 22% to 38% during the peak hours in the LRT scenario compared to the business as usual scenario without the LRT.

		Vehicle Trips					
Land Use	Basis/Parameter	Weekday A.M	1. Peak Hour	Weekday P.M. Peak Hour			
		Inbound	Outbound	Inbound	Outbound		
Residential Phase 1 & 2 (1,355	ITE Land Use 222 (Multifamily Housing)	67	326	314	155		
Units)	Non-Auto Trip Reduction <sup>1</sup>	(13)	(104)	(79)	(23)		
Phase 1 & 2 Subtotal		53	221	236	132		
Residential Phase 3 & 4 (1,225	ITE Land Use 222 (Multifamily Housing)	60	295	285	140		
Units)	Non-Auto Trip Reduction <sup>1</sup>	(12)	(95)	(71)	(21)		
Phase 3 & 4 Subtotal		48	201	214	119		
	Total	101	422	450	251		

#### **Table 5.3: Site Generated Vehicular Trips**

1 As per modal splits described in Table 5.1. with 15% mode shift to transit as a result of the LRT.

As shown in **Table 5.3**, the proposed development is expected to generate a total of 101 inbound auto trips and 422 outbound auto trips during the a.m. peak hour, and 450 inbound auto trips and 251 outbound auto trips during the p.m. peak hour.

## 5.3 TRIP DISTRIBUTION AND ASSIGNMENT

Site trips for the residential land use were distributed based on review of the 2016 TTS data for trips originating from traffic zones 3832, 3833 and 3841 in the A.M. and P.M. peak period. **Table 5.4** outlines the general trip distribution extracted from the 2016 TTS survey data. The detailed distribution information from the 2016 TTS are included in **Appendix K**.

Direction	A.M. Inbound	A.M. Outbound	P.M. Inbound	P.M. Outbound
Northwest	21%	16%	8%	1%
North	0%	10%	11%	4%
Northeast	28%	13%	17%	13%
East	20%	22%	18%	50%
Southeast	6%	8%	25%	10%
South	7%	6%	6%	7%
Southwest	18%	18%	11%	10%
West	0%	6%	4%	5%
Total	100%	100%	100%	100%

#### Table 5.4: Home-Based Trip Distribution for the Study Area

The trips were assigned based on the trip distribution from **Table 5.4**, including local information and factors such as site accesses, ease of turning movements, shortest distances, quickest travel times, existing traffic flow. The final site trip assignment for both phases are shown in **Figure 5-1** and **Figure 5-2**.



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes

Figure 5-1 **Site Generated Traffic** Phase 1



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes

# 6 TOTAL FUTURE TRAFFIC CONDITIONS

Traffic generated by the proposed development was added to the estimated future background traffic volumes to obtain the future total traffic volumes on the future roadway network during the roadway weekday A.M. and P.M. peak hours. The estimated 2023 and 2028 total traffic volumes are shown in **Figure 6-1** and **Figure 6-2**.

The intersection capacity analysis was completed using the same procedures that were documented for future background conditions. Wherever required, signal timings and offsets at intersections were optimized, but cycle lengths remained the same.

The LOS for the intersections analyzed are presented in Table 6.1 and Table 6.2.

The Synchro output sheets are included in Appendix L and LOS definitions are provided in Appendix D.



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes



wsp

Intersections	V	Weekday A.M	. Peak	Weekday P.M. Peak			
	LOS	Delay	(V/C	LOS	Delay	(V/C	
		(sec)	Ratio)		(sec)	Ratio)	
S	ignalize	d Intersectio	ons				
Hurontario St at Watergarden Dr	C	30	0.75	C	30	0.84	
EBL	F	104	0.92	-	-	-	
Hurontario St at Eglinton Ave E	E	78	1.1	F	104	1.23	
EBL	F	106	1.05	F	228	1.33	
EBT	F	105	1.09	-	-	-	
WBT	-	-	-	F	131	1.19	
NBL	F	124	1.05	F	172	1.21	
NBT	-	-	-	E	58	0.87	
SBL	-	-	-	F	126	1	
SBTR	E	78	1.08	F	120	1.16	
Hurontario St at Elia Ave	D	55	1	F	93	1.18	
/ Kingsbridge Garden Cir							
EBR	F	82	0.93	-	-	-	
WBL	-	-	-	F	97	0.98	
NBL	F	113	0.92	F	238	1.33	
NBTR	-	-	-	D	39	0.92	
SBTR	E	61	1.08	F	133	1.25	
Eglinton Ave E at Sorrento Dr /	В	17	0.63	C	25	0.82	
Thornwood Dr							
Eglinton Ave E at Forum Dr	В	10	0.6	C	23	0.76	
/ Albina Way							
WBTR	-	-	-	C	25	0.87	
Ur	nsignaliz	ed Intersect	ions				
Thornwood Dr at Nathani Way	B	12	0.57	B	11	0.53	
Thornwood Dr at Forum Dr	В	30	0.58	В	12	0.56	
/ Preston Meadow Ave							
EBLTR	F	68	0.96	-	-	-	
Sorrento Dr at Elia Ave	В	11	0.54	D	26	0.66	
SBTR	-	-	-	E	46	0.93	
Thornwood Dr at Armdale Rd	Α	7	0.39	A	5	0.39	
/ Site Driveway							
EBLTR	В	12	0.26	В	11	0.09	
WBLTR	В	14	0.18	Α	0	0	
NBLTR	Α	4	0.04	Α	6	0.15	

#### Table 6.1: 2023 Total Future Intersection Operations

Intersections		Weekday A.M. Peak			Weekday P.M. Peak			
	LOS	Delay	(V/C	LOS	Delay	(V/C		
		(sec)	Ratio)		(sec)	Ratio)		
SBLTR	Α	0	0	Α	0	0		
Thornwood Dr at Site Driveway	Α	3	0.32	Α	1	0.27		
EBR	В	11	0.18	В	10	0.09		
Armdale Rd at Site Driveway / Belbin	Α	8	0.35	A	5	0.28		
Street								
EBLTR	Α	1	0	Α	1	0.01		
WBLTR	Α	3	0.03	Α	5	0.07		
NBLTR	В	11	0.21	В	11	0.04		
SBLTR	Α	10	0.13	A	10	0.08		
Armdale Rd at Site Driveway	Α	5	0.22	Α	3	0.29		
EBLTR	Α	0	0	Α	0	0.03		
WBLTR	Α	2	0.2	Α	2	0.03		
NBLTR	Α	9	2	Α	9	0.05		

1

Only shared movements with V/C of 0.85 and above are shown Only exclusive movements with V/C of 0.90 and above are shown Only movements with LOS "E" and above are shown 2

3

#### Table 6.2: 2028 Total Future Intersection Operations

Intersections	V	Weekday A.M	. Peak	Weekday P.M. Peak		
	LOS	Delay	(V/C	LOS	Delay	(v/c
		(sec)	Ratio)		(sec)	Ratio)
S	ignalize	d Intersectio	n		1	1
Hurontario St at Watergarden Dr	D	38	0.79	C	31	0.84
WBL	F	117	0.98	-	-	-
Hurontario St at Eglinton Ave E	F	92	1.17	F	109	1.27
EBL	F	91	1.01	F	256	1.4
EBT	F	122	1.14	-	-	-
WBT	-	-	-	F	142	1.22
NBL	F	201	1.24	F	169	1.21
NBT	С	30	0.86	E	63	0.93
SBL	E	65	0.9	F	126	1
SBTR	F	117	1.17	F	126	1.18
Hurontario St at Elia Ave	E	76	1.04	F	99	1.2
/ Kingsbridge Garden Cir						
EBR	F	84	0.94	-	-	-
WBL	-	-	-	F	106	1.01
NBL	F	165	1.07	F	238	1.33

Intersections	I	Weekday A.M	. Peak	Weekday P.M. Peak			
	LOS	Delay	(V/C	LOS	Delay	(V/C	
		(sec)	Ratio)		(sec)	Ratio)	
NBTR	D	37	0.85	D	51	0.99	
SBTR	F	107	1.12	F	139	1.26	
Eglinton Ave E at Sorrento Dr /	C	29	0.72	C	30	0.91	
Thornwood Dr							
Eglinton Ave E at Forum Dr	B	11	0.66	C	25	0.8	
/ Albina Way							
WBTR	-	-	-	C	28	0.92	
Un	signaliz	ed Intersecti	on				
Thornwood Dr at Nathani Way	B	12	0.57	B	11	0.54	
Thornwood Dr at Forum Dr	В	30	0.58	В	13	0.58	
/ Preston Meadow Ave							
EBLTR	F	68	0.96	-	-	-	
Sorrento Dr at Elia Ave	В	11	0.54	D	30	0.68	
SBTR	-	-	-	F	55	0.97	
Thornwood Dr at Armdale Rd	Α	7	0.39	Α	8	0.54	
/ Site Driveway							
EBLTR	В	12	0.26	С	18	0.3	
WBLTR	В	14	0.18	D	35	0.31	
NBLTR	Α	4	0.04	Α	6	0.21	
SBLTR	Α	0	0	Α	1	0.01	
Thornwood Dr at Site Driveway	Α	3	0.32	Α	1	0.35	
EBR	B	11	0.18	В	10	0.13	
Armdale Rd at Site Driveway / Belbin	Α	8	0.35	Α	6	0.42	
Street							
EBLTR	Α	1	0	Α	1	0	
WBTL	Α	3	0.03	Α	6	0.14	
NBLR	В	11	0.21	В	13	0.13	
SBLTR	Α	10	0.13	В	11	0.1	
Armdale Rd at Site Driveway	Α	3	0.24	Α	2	0.34	
EBLTR	Α	0	0.07	Α	0	0.06	
WBLTR	Α	1	0.01	Α	1	0.03	
NBLTR	Α	10	0.1	Α	10	0.06	

1  $\,$  Only shared movements with V/C of 0.85 and above are shown

2 Only exclusive movements with V/C of 0.90 and above are shown

3 Only movements with LOS "E" and above are shown

The results show that both the 2023 and 2028 future total conditions show marginal change from the 2023 and 2028 future background conditions, as a result of the additional site traffic. The signalized intersections see little

to no change in intersection LOS and a marginal increase in both overall delays and delays for individual movements.

As discussed in Section 4.2, the Hurontario EA Report projects the 2031 volumes to decrease from current levels and the overall intersection of Eglinton Avenue at Hurontario Street to operate at Level of Service "D", (see **Appendix F**). The analysis from the EA took into account the build out of the land to be occupied by the proposed development of 91 Eglinton.

Therefore, the results shown in **Table 6.1** and **Table 6.2** represent interim conditions (2028) compared to those assessed for long-term conditions in the Hurontario E.A. The report also states that benefit achieved from the LRT will far exceed the impact of the increased delays experienced by some motorists at some intersections along the Hurontario corridor as a result of the reduced travel lanes to accommodate transit. This is consistent with the vision for the Region of Peel and City of Mississauga as documented in planning documents.

The intersection of Eglinton Avenue at Thornwood Drive will experience the largest increase in traffic volumes as a result of the site development. As shown in **Table 6.1** and **Table 6.2**, the intersection will continue to operate with acceptable Level of Service "C" in the a.m. peak hour and p.m. peak hour. All movements at the intersection will be well below capacity with no delay greater than 83 seconds.

The site driveways and internal unsignalized intersection will all operate at excellent Levels of Service "A" or better, with no average delay greater than 8 seconds. The results also indicate that no turning lanes are required on Armdale Road or Thornwood Drive to accommodate the site traffic volumes.

Overall, the results from the analysis has demonstrated that the congestion at Hurontario Street and Eglinton Avenue and at other intersections along Hurontario Street are mostly due to the removal of two through lanes for the Hurontario LRT. This is consistent with previous traffic reports accepted by the City of Mississauga.

The following roadway improvements are required if not in place at the time of phase 1 development:

- Extension of Thornwood Drive from existing terminus to Eglinton Avenue East. The roadway should include:
  - 27.5m ROW
  - 1 travel lane per direction
  - Southbound left-turn lane at Eglinton Avenue East with storage of 95m and taper of 30m
- The existing eastbound left-turn lane on Eglinton Avenue with storage of 80m and taper of 75m is adequate and no changes or advance turning phases are required.
- No westbound right-turn lane is required on Eglinton Avenue East.
- Signal timing adjustments will be required to include:
  - Southbound phase including southbound left turn advance phase
  - No turning lanes are required at its intersection with Armdale Road

#### 6.1.1 QUEUE RESULTS

The queue lengths for the study intersections is presented in **Table 6.3** and **Table 6.4**. Only storage lanes with 95<sup>th</sup> percentile queues exceeding the available storage lengths are shown. The Synchro output sheets are included in **Appendix L**.

	Available	95th Percentile Queue					
Intersections	Storage (m) Weekday A.M. Peak		Weekday P.M. Peak				
Signalized Intersection							
Hurontario St at Watergarden Dr							
EBL	70	88	116				
WBL	25	72	52				
SBL	36	39	75				
Hurontario St at Eglinton Ave E							
EBL	60	122	125				
NBL	85	55	101				
SBL	95	82	105				
Hurontario St at Elia Ave / Kingsbridge Garden Cir							
EBL	46	49	44				
WBL	53	90	178				
NBL	171	103	210				
Eglinton Ave E at Sorrento Dr							
WBL	80	27	96				
Eglinton Ave E at Forum Dr / Albina Way							
SBL	28	64	34				
Queues exceeding available spacing du	e to existing or fut	ure background conditions	s are noted in grev				

#### Table 6.3: 2023 Future Total Intersection Queues

Queues exceeding available spacing due to existing or future background conditions are noted in grey

Queues exceeding available spacing due to site traffic are noted in red.

	Available	95th Percentile Queue					
Intersections	Storage (m)	Weekday A.M. Peak	Weekday P.M. Peak				
	Signalized Inte	ersection	·				
Hurontario St at Watergarden Dr							
EBL	70	73	116				
WBL	25	97	59				
SBL	36	41	84				
Hurontario St at Eglinton Ave E							
EBL	60	116	134				
NBL	85	60	92				
SBL	95	79	105				
Hurontario St at Elia Ave / Kingsbridge Garden Cir							
EBL	46	50	45				
WBL	53	96	185				
NBL	171	110	210				
Eglinton Ave E at Sorrento Dr							
WBL	80	47	114				
Eglinton Ave E at Forum Dr / Albina Way							
SBL	28	67	34				
Queues exceeding available spacing Queues exceeding a	due to existing or vailable spacing du	future background conditi le to site traffic are noted i	ons are noted in grey. n red.				

#### Table 6.4: 2028 Future Total Intersection Queues

Results in **Table 6.3** and **Table 6.4** show that no additional movements will experience queuing issues under the future total conditions. Queues at most movements see only marginal increases with the addition of the site volumes from the proposed development. This demonstrates that site traffic from the proposed development has a very marginal effect on the area road network with regards to queuing.

# 6.2 COMPARISON WITH FINDINGS FROM OTHER STUDIES

The findings from the analysis presented above has shown that the deterioration in traffic conditions in the study area is largely the result of lane reduction along Hurontario Street and the background corridor growth projected by the City's demand forecast model. These findings are corroborated by other traffic reports.

IBI Group conducted assessment of the Hurontario Street and Eglinton Avenue as part of the traffic impact assessment for the Pinnacle development to the northwest of Hurontario Street and Eglinton Avenue. Their assessment included a number of scenarios with up to 2048 residential units, with or without the Hurontario LRT, and assuming various levels of transit mode share. Their findings show the intersection of Hurontario Street and Eglinton Avenue operating over capacity during the p.m. peak period in scenarios without the LRT in place. The findings were the same in scenarios with the LRT in place during the p.m. peak period. However, the intersection was also found to operate over capacity in the a.m. peak period with transit mode shares of less than 30% in scenarios with the LRT.

The Future Year VISSIM Models Report produced by Steer Davies Gleave (SDG) as part of the Environment Assessment (EA) for the Hurontario LRT also examined the operating conditions at Hurontario Street and Eglinton Avenue. The analysis found the intersection to be operating at LOS "D" during both a.m. and p.m. peak periods after construction of the Hurontario LRT. However, the future traffic reduction assumed by SDG on both Hurontario Street and Eglinton Avenue are significant higher than those based on growth rates provided by the City of Mississauga, as shown in **Table 6.5** below.

Link	Direction	Future Year W Models Repor	/ISSIM vt (SDG)1	WSP (Based on City of Mississauga Growth Rates) <sup>2</sup>		
		АМ	РМ	АМ	РМ	
Hurontario N of	NB	-334	-342	-13	139	
Eglinton	SB	Future Year VISSIM Models Report (SDG)1         WSP (Based Mississauga           AM         PM         AM           -334         -342         -13           -209         -500         209           -248         -541         -61           -314         -416         172           -165         -8         230           3         -225         213           -209         52         286           34         -478         393	209	-101		
Hurontario S of	NB	-248	-541	-61	74	
Eglinton	NB-334-342-13SB-209-500209NB-248-541-61SB-314-416172EB-165-8230WB3-225213	172	-35			
Eglinton E of	EB	-165	-8	230	218	
Hurontario	WB	AM         PM         AM         PM           -334         -342         -13         13           -209         -500         209         -1           -248         -541         -61         74           -314         -416         172         -3           -165         -8         230         21           3         -225         213         26           -209         52         286         36	263			
Eglinton W of	EB	-209	52	286	367	
Hurontario	WB	34	-478	393	281	

#### **Table 6.5: Future Total Traffic Reduction Comparison**

1 Difference between 2031 LRT scenario and the 2011 Base scenario

2 Difference between 2028 future total conditions and 2018 existing conditions

In addition to the difference in trip reduction assumptions, there were also differences in the total projected link volumes between the SDG report and the analysis presented in this report, as can be seen in **Table 6.6** below.

Link	Direction	Future Year V Models Repor	/ISSIM rt (SDG)1	WSP (Based on City of Mississauga Growth Rates)²		
		АМ	РМ	АМ	РМ	
Hurontario N of	NB	1462	1505	1339	1502	
Eglinton	SB	1462       1505         1484       1234         1423       1435         1476       1222	1707	1830		
Hurontario S of	NB	1423	1435	1286	1712	
Eglinton	SB	1476	1222	1641	1751	
Eglinton E of	EB	1614	994	1931	1064	
Hurontario	WB	673	1945	790	2068	
Eglinton W of	EB	1613	995	2182	1146	
Hurontario	WB	668	1837	1054	2439	

#### Table 6.6: Future Total Link Traffic Volume Comparison

**1** Difference between 2031 LRT scenario

2 Difference between 2028 future total conditions

# 7 PARKING ASSESSMENT

# 7.1 POLICY CONTEXT

The City Official Plan has a comprehensive set of policies designed to guide the development of transportationrelated infrastructures that is supportive of the future development goals of the City. Among them, the Plan states that "Consideration will be given to reducing off-street parking requirements for development to reflect levels of vehicle ownership and usage, and as a means of encouraging the greater use of transit, cycling and walking.". In addition, the Plan stipulates that parking initiatives should be coordinated "…with transportation demand management (TDM) programs in order to effectively link transit planning, parking and other related issues in a comprehensive manner." Finally, the plan requires that "… access, and parking facilities and other destination amenities, …, are incorporated into the design of all buildings…". To that end, the proposed parking and transport demand strategies enclosed in this memo was designed to meet these requirements of the Official Plan with the intended goal of its policies in mind.

# 7.2 BY-LAW PARKING REQUIREMENTS

The site is subject to the minimum parking requirements set out in the Mississauga Zoning By-law 0225-2007. **Table 7.1** provides the applicable zoning by-law minimum parking requirements.

Zoning By-law	0225-2007:	Prop Develo	oosed opment	Required Parking	Proposed	Parking	Deficit
Dwelli	ng	Unit Mix	No. of Units	No. of Spaces	Ratio	Ratio No. of Spaces	
Bachelor	1.00/unit	5%	129	129	0.8/unit	103	26
1BR	0.9/unit	60%	1,548	1,935	0.9/unit	1,393	542
2BR	1.40/unit	25%	645	903	1.0/unit	645	258
3BR	1.75/unit	10%	258	452	1.3/unit	335	117
Resident Total	1.33/unit		2,580	3,419	0.96/unit	2,476	943
Visitor – Phase 1 & 2	0.20/unit		1,355	271	0.15/unit	203	68
Visitor – Phase 3 & 4	0.20/unit		1,225	245	0.10/unit	123	122
Visitor Total	0.20/unit		2,580	516	0.13/unit	326	190
Total	1.53/unit		2,580	3,935	1.09/unit	2,802	1,133

#### **Table 7.1: Zoning By-law Parking Requirement**

Based on **Table 7.1**, 3,935 parking spaces are required for the entire development, whereas 2,802 parking spaces are proposed resulting in a deficit of 1,133 parking spaces. This will be address in detail in **Section 7.3**.

### 7.2.1 BICYCLE PARKING REQUIREMENTS

Mississauga Zoning By-law 0225-2007 does not specify minimum requirements for bicycle parking. Requirements for bicycle parking were provided by the City through DARC comments, which are summarized in **Table 7.2**.

Bicycle Parking Require	icycle Parking Requirement		Required Bicycle Parking (No. of Spaces)
Residential (Long-term)	0.8/unit	2,580	2,064
Residential (Short-term)	6 (total)	2,580	6
Total	-	2,580	2,070

#### **Table 7.2: Bicycle Parking Requirement**

Based on the input received at the DARC meeting, the bicycle parking requirement for the site is 2,064 long-term spaces plus 6 short-term spaces.

It is noted that the above bicycle parking requirements exceed the standards from the Mississauga Cycling Master Plan. This will contribute to more people using active transportation modes.

## 7.3 PROPOSED REDUCED PARKING REQUIREMENTS

WSP attended a pre-DARC meeting with the City of Mississauga on March 21, 2018, to discuss several key transportation issues concerning the proposed development, including parking. The City expressed that the proposed parking reductions would be considered based on the parking justification provided by WSP as well as the rates supported in the City of Mississauga memorandum, '*Parking Comments on Transportation Impact Assessment (Parking Analysis) for 24-64 Elm Drive (OZ 13/22)*' dated June 12, 2015. The City memorandum recommends the following zoning by-law requirements:

- 0.8 spaces/unit for bachelor units
- 0.9 spaces/unit for one-bedroom units
- 1.0 spaces/unit for two-bedroom units
- 1.3 spaces/unit for three-bedroom units; and
- 0.15 spaces/unit for visitors

As shown in **Table 7.1**, resident parking for the proposed development is provided based on the above reduced ratios. For visitor parking, a further reduction is proposed for phase 2 of the proposed development, resulting in the following overall proposed visitor parking rates:

- 0.15 spaces/unit for visitors for phase 1 (phases 1 and 2)
- 0.10 spaces/unit for visitors for phase 2 (phases 3, and 4)

The lower visitor parking ratio proposed for phase 2 will be subject to adjustments, based on a monitoring study on the visitor parking demands at phase 1, after their occupation.

It is important to note that the reduced visitor parking rate of 0.10 per unit could be achieved earlier than the phase 2 development. As it is anticipated that visitors parking demand to the site will reduce with the introduction of increased transit service and the opening of the Hurontario LRT. Therefore, while the 0.15 per unit rate for visitor parking corresponds to an expected maximum demand, the actual demand could reach as low as 0.10 per unit.

The following section provides the rationale for applying the lower parking ratios.

### 7.3.1 ACCESSIBLE PARKING REQUIREMENTS

According to the Mississauga Zoning By-law 0225-2007, "Accessible parking spaces for residential uses shall only apply to the total number of visitor parking spaces required". Also, "For accessible parking spaces, all numeric fractions shall be rounded up to the nearest whole number."

On the basis of the proposed visitor parking supply of 326 spaces, the accessible parking requirement for the overall development is 9 spaces, determined as follows:

2.0 spaces plus 2% of the total (326 proposed spaces) = 9 accessible spaces

## 7.4 PARKING JUSTIFICATION

Metrolinx's Mobility Hub Guidelines for the Greater Toronto and Hamilton Area (2011) sets out approaches to strategic parking management. Section 4.4.2 states, "Allow for flexibility in parking provisions based on the specific land use and transportation contexts of the mobility hub." The report further suggests the following approaches that are relevant to the subject development:

- Proximity to transit routes allow a reduction in parking supply for developments on transit routes for within a short walking distance of nearest transit stop;
- Provision of carpool/vanpool programs allow a reduction when a carpool program is provided in a development and dedicated spaces for multiple-occupant vehicles are provided;
- Provision of car share spaces allow a reduction when dedicated space is provided for car share program, particularly in residential developments; and
- Provision of transit pass program allows for providing transit passes to development users in return for reduced parking requirements.
- Encourage development to unbundle parking by requiring separate purchase or lease of parking space.

The above-mentioned strategies have been incorporated into the proposed development, or can be incorporated in the future as appropriate. These are discussed in detailed below.

### 7.4.1 WALKABILITY

The proposed development is located in an area where there are existing and planned increases in shopping, dining, employment, and other amenities. The character of the area helps reduce the necessity, especially for residents, to drive in order to meet their everyday needs.

A Walk Score is a quantitative approach to assessing the ability for residents to function in their daily lives without the use of a personal automobile. The website <u>www.walkscore.com</u> defines a walk score as follows:

• Walk Score measures the walkability of any address based on the distance to nearby places and pedestrian friendliness

The resultant score is shown in **Table 7.3** with the corresponding score name and description based on the Walk Score website.

Parameter	Score (out of 100 points)	Score Name	Description				
Walk Score	74	Very Walkable	Most errands can be accomplished on foot.				
Source: www.walkscore.com							

#### Table 7.3: Walk Score, 91 Eglinton Avenue East, Mississauga

The detailed breakdown of the Walk Score, as shown in **Figure 7-1** indicates that the subject site is within walking distance to most amenities including dining and drinking, groceries, shopping, errands, parks and schools. However, the site has limited access to culture and entertainment within walking distance.

#### Figure 7-1: Walk Score Detail, 91 Eglinton Avenue East, Mississauga

categories.

The Walk Score for 91 Eglinton Avenue East is based on the following categories

Note: Amenities within a 5 minute walk are given maximum points. A decay function is used to give points to more distant amenities, with no points given after a 30 minute walk. (Source: <u>www.walkscore.com</u>)

The locations of nearby amenities are shown in Figure 7-2 below.



Figure 7-2: Nearby Amenities, 91 Eglinton Avenue East, Mississauga

#### (Source: www.walkscore.com)

The high walkability of the area and close proximity to most amenities mitigates the necessity, especially for residents, to drive to other locations to meet their daily needs. This in turn reduces the residents' need for auto ownership and parking.

As indicated earlier, as redevelopment occurs within the study area with new amenities and active transportation infrastructure added, the walkability of the community will significantly increase. The Hurontario and Steeles area is currently serviced by BRT, and may be an example of a similar neighborhood that is in a more mature stage of development. That area has a Walkscore of 81. When the Hurontario and Eglinton area matures with further development around the LRT station area, the walkability of the site area can be expected to be even higher.

#### 7.4.2 TRANSIT

Residents and visitors will have access to transit service provided by MiWay along Eglinton Avenue East and Hurontario Street. These transit routes provide access to regional urban centres as well as access to the Toronto Transit Commission (TTC) Islington Station.

The Hurontario Light Rail Transit (LRT) line is a major transit project currently being planned and constructed between Port Credit GO Station and the Gateway Terminal. The future Eglinton Station on the line will be located within the study area, located just north of Eglinton Avenue. The line is expected to be completed in 2022 and will

provide a rapid transit connection from the site to downtown Mississauga and downtown Brampton, reducing the need for automobiles along its corridor.

It is anticipated that residents of the proposed development, at the time of the unit purchase, will consider their needs for auto ownership in the context of having access to bus and LRT service. It is noted that transit improvements generally have a stronger influence on the modal choices of new residents compared to existing residents in an area. Existing residents who already own vehicles are likely to continue their driving habits. New residents may move to the area with the expectation of a more urban lifestyle, in which they would rely on transit without owning a car and parking space.

Ridership on the Hurontario LRT will require some time before reaching a stable mature level. During that transition period, both residents and visitors to the area are expected to slowly shift to higher transit usage as they become familiar with the service and as overall transit connectivity with the LRT improves.

#### PARKING RATES ALONG LRT CORRIDORS IN OTHER MUNICIPALITIES

Currently, the City of Mississauga does not have any parking requirements for transit oriented developments (TOD) similar to the proposed development. Given the expected mode shift following the completion of the Hurontario LRT, implementing minimum parking requirement outlined in the zoning by-law will be an overestimation of parking demand. WSP has reviewed the by-law requirements of several other municipalities and compared them with the reduced parking rate recommended for the site in the City memo as shown in **Table 7.4**. In particular, it is noted that the parking requirements cited from Waterloo and Edmonton are directly related to lands serviced by LRT.

The Region of Waterloo's LRT system is currently under construction and will be in operation by late 2018 in the Cities of Kitchener and Waterloo. The City of Waterloo currently in the process of reviewing comprehensive zoning by-law to update its zoning regulations to conform to the new Official Plan adopted in 2012. In January 2016, the first Draft Zoning By-law was presented to Council and made available for public feedback. Based on the first draft, parking rates will be reduced by 40 percent in Uptown and by 30 percent in Transit Station Areas.

The City of Edmonton has specific parking reductions for developments within 400m of an existing or future LRT station. The reductions vary based on the type of dwelling unit and ranges from 20 percent for 1-bedroom units to 50 percent for 2-bedroom units.

Zoning By-law Jurisdiction		Bachelor	1 BR	2 BR	3+ BR	Resident (Blended)
Ottawa	Inner City, 400-800 walk from Rapid Transit					0.50
Waterloo (Draft)	Uptown and Station Areas (with LRT)					0.78-0.87
Vaughan	VMC	0.70	0.70	0.90	1.00	
Toronto	Policy Area 4	0.70	0.80	0.90	1.10	
Edmonton	TOD (with LRT)	0.70	0.80	1.00	1.25	
Mississauga	Proposed	0.80	0.90	1.00	1.30	0.96
Hamilton	Transit Oriented Corridor					1.00
Markham	Markham Centre/Downtown					1.00
East Gwillimbury	500m of GO Station					1
Ottawa	Suburban, 400-800m walk from Rapid Transit					1-1.2

#### Table 7.4: Parking Requirements for other Municipalities, in Transit Areas

As shown in **Table 7.4**, the proposed resident parking ratios are within the range of requirements in other municipalities for developments along LRT corridors or within close distance to other transit access.

### 7.4.1 VEHICLE OWNERSHIP CHARACTERISTICS

Data extracted from the 2016 Transportation Tomorrow Survey (TTS) show that the current average vehicle ownership of households living in apartment buildings in the City of Mississauga is 1.02 vehicles per unit, which can be broken down as follows:

- 19 percent have 0 vehicles
- 61 percent have 1 vehicle
- 19 percent have 2 vehicles
- 1 percent have 3 vehicles

Based on the expected 15% mode shift to transit (documented in previous sections of this report) and a minor 2% reduction for the proposed TDM measures, the average vehicle ownership could decrease to 0.85 per unit, which is well under the proposed residential parking rate for the site.

### 7.4.2 CYCLING OPPORTUNITIES

There are already a number of existing cycling routes and trails in the vicinity of the proposed development. These include bike routes along, Forum Drive, Nahani Way and Elia Avenue, as well as multiuse trails along Eglinton Avenue East just east of the site. Future improvements to the cycling infrastructure in the area will include dedicated bike lanes along Hurontario Street following the construction of the Hurontario LRT and extension of the multiuse trail along the entirety of Eglinton Avenue. These additions will vastly improve connectivity throughout the immediate area and other areas of the city for cyclists.

### 7.4.3 UNBUNDLING OF PARKING

The cost of purchasing a parking space and owning a vehicle can be prohibitive to many prospective buyers, particularly when compared with the available alternative travel options, including walking and transit, as discussed in the previous sections. For the proposed development, residential parking will be unbundled from the sale of the unit. The unbundling of parking encourages prospective buyers to consider their modal choices, and appeals to prospective buyers who do not wish to purchase a parking space.

It must be noted that the proposed blended rate of 0.96 per unit can only be achieved if parking spaces are unbundled. This allows some units to be sold without parking spaces and other multi-bedroom units to have more than one space per unit. Unbundling provide the true demand for parking spaces and typical do not result in unused spaces at the end of a development. Another benefit of unbundling in phased project such as this is it allows for unpurchased parking spaces to be carried over to future phases thus reducing the amount of new spaces to be constructed. For all these reasons the parking spaces will be sold separately from units for this project.

### 7.4.4 CAR SHARE

As discussed in the previous sections, residents of the proposed development will be able to accomplish most daily errands on foot, and have access to the new Hurontario LRT service. A car share program can further improve the mobility of those who choose not to own a vehicle.

Through a car share program, residents may have convenient and affordable access to a vehicle for the occasional trips that require a car.

The 'Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards' prepared by IBI Group in March 2009, recommends the following parking reduction for a condominium development for the City of Toronto:

- "For any apartment or condominium development, the minimum parking requirement should be reduced by up to 4 spaces for each dedicated car share stall.
- The limit on this parking reduction is calculated as the greater of: 4 \* (Total number of units / 60), rounded down to the nearest whole number; or 1 space."

Accordingly, up to 171 parking spaces can be reduced from the minimum parking requirement through the provision of 43 car shares spaces ( $4 \times 2,576$  units /60 = 43).

For the proposed development, WSP recommends 1 car share space to be provided per phase, for a total of 4 car share spaces. Additional car share spaces can be added in the future should there be a demonstrated demand after occupancy of the development. It should be noted that no car share related parking reduction has been applied in this assessment.

Car share spaces should be located in the visitor parking portion of the garage, such that the car share program is open for residents and those working and living in the area.

The actual number of car share spaces provided on site will depend on the developer (and subsequently the condo board) securing and maintaining service contracts with car share providers. The developer should secure a twoyear membership with guaranteed revenue to the car share company. A two-year membership would encourage residents to establish travel habits that incorporate use of the car share program. This would secure a client base and continued viability of the car share program at this location into the future.

### 7.4.5 PARKING SUPPLY AND DEMAND AT COMPARABLE SITES

Proxy sites that are either located near the subject site or share similar site characteristics have been reviewed with respect to parking supply and demand.

#### **RESIDENTIAL AND VISITOR PARKING RATES**

#### 8 NAHANI WAY, MISSISSAUGA

The approved 8 Nahani Way site is located 400m north of the proposed development and shares the same travel characteristics and urban context as the proposed development. According to the City's zoning by-law, the 8 Nahani Way development (referred to as exception RA5-23) is subject to site specific By-law with the following parking rates:

- 0.8 spaces/unit for bachelor units
- 0.9 spaces/unit for one-bedroom units
- 1.0 spaces/unit for two-bedroom units
- 1.3 spaces/unit for three-bedroom units
- 0.10 spaces/unit for visitors

Notably, the approved visitor parking ratio is inline with the proposed ratio for phases 3 and 4 of the proposed development.

#### VISITOR PARKING RATES

#### H&W WEST BLOCK, MARKHAM

The H&W West Block site is located near the intersection of Warden Avenue and Highway 7 along the VIVA bus rapid transit corridor, which means that it shares similar site characteristics with the proposed development. The visitor parking facilities of the H&W West Block development in the City of Markham was surveyed between September 14-16, 2017. The data collected shows a parking demand ratio of 0.09 spaces/unit, below the proposed ratio for phases 3 and 4 of the proposed development, as seen from the table below.

Land Use	Visitor Parking Supply	Observed Peak Visitor Parking Demand		
		No. of Space	Utilization	Parking Demand Ratio
H&W West Block: 692 dwelling units	90 spaces	61 spaces	68%	0.09 spaces/ unit

#### Table 7.5: Parking Utilization Survey, H&W West Block, Markham

### DOWNTOWN MARKHAM

A number of residential developments in the Downtown Markham area were surveyed on November 13 and 14, 2015. The area is served by the VIVA bus rapid transit service as well as being in close proximity to the Unionville GO station, meaning that they should share some site characteristics with the proposed development. As shown in the table below, the data collected shows an overall peak parking demand ratio of 0.12 spaces/unit across the three sites surveyed, which is inline with the overall proposed visitor parking ratio for the proposed development.

	Visitor Parking Supply	Observed Peak Visitor Parking Demand			
Land Use		Peak no. of Spaces Utilized	Peak Utilization	Parking Demand Ratio	
Rouge C/D: 244 dwelling units	49 spaces	30 spaces	61%	0.12 spaces/ unit	
Verdale: 450 dwelling units	90 spaces	38 spaces	42%	0.08 spaces/ unit	
Nexus North & Nexus South: 378 dwelling units	76 spaces	61 spaces	80%	0.16 spaces/ unit	
Combined: 1072 dwelling units	215	129 spaces	60%	0.12 spaces / unit	

#### Table 7.6: Parking Utilization Survey, Downtown Markham Area

# 7.5 SUMMARY

Given the site's walkability to nearby amenities, proximity to the future Hurontario LRT and other transit routes, access to cycling opportunities, unbundling of parking from the sale of units, the provision of car share services, as well as trends in vehicle ownership, parking requirements in other municipalities, and approved or observed parking ratios elsewhere, it is WSP's opinion that the proposed blended parking ratios of 0.96 per unit, with a visitor rate of 0.10 to 0.15 per unit, are appropriate for the proposed development. The resulting resident parking ratios and visitor parking ratio meet the reduced parking requirements provided by the City at the Pre-DARC meeting.

As discussed in Section 7.4.3, the unbundling of parking from the sale of units is required for the proposed parking ratios to be supportable. The Hurontario LRT will provide new residents with an attractive option to auto travel and car ownership. Given the societal trend toward sustainable modes, the availability of the Hurontario LRT and future transit network improvements, and an implementation of an aggressive TDM strategy, it is possible that car ownership and parking demand rates will continue to decrease. WSP recommends a monitoring study following the completion of phases 1 and 2 to collect field data and to confirm the appropriateness of the resident and visitor parking ratios for phases 3 and 4.
## 8 SITE PLAN REVIEW

WSP has reviewed the proposed concept plan to determine if the design elements conform to the City of Mississauga By-law 0225-2007, Region of Peel Waste Collection Design Standard Manual, June 2007 and the Geometric Design Guide for Canadian Roads, published by the Transportation Association of Canada (TAC.). AutoTURN 10.0 software was also used to simulate vehicle paths of design vehicles to ensure adequate space for vehicle circulation in critical locations.

#### 8.1 LOADING ASSESSMENT

The City of Mississauga By-law 0225-2007 requires that all apartments buildings with 30 dwelling units or more to provide a minimum of one loading space. The proposed site plan will provide a total of 6 loading spaces, one for each of the proposed buildings. Four of the proposed loading spaces will also function as garbage collection areas, and are thus required to meet the minimum dimensions for garbage collection areas outlined in the Region of Peel Waste Collection Design Standard Manual. The minimum loading space dimension requirements are outlined in **Table 8.1**.

Dimension	Loading Space (By-Law 0225-1007)	Garbage Collection Area (Peel Waste Collection Design Standard)
Minimum Length	9.0 metres	-
Minimum Width	3.5 metres	-
Minimum Vertical Clearance	-	7.5 metres

#### **Table 8.1: Loading Space Dimensions**

Review of the proposed site plan has found all proposed loading spaces meet the City By-law requirements and all designated garbage collection areas meet the Peel Region Waste Collection Design Standards.

#### 8.2 DAYLIGHT TRIANGLES

The City of Mississauga does not have standards for daylight triangles and informed WSP at the pre-DARC meeting held on March 21<sup>st</sup>, 2018, that the daylight triangles should be reviewed based on TAC standards.

In lieu of any applicable municipal standards, the Transportation Association of Canada (TAC) guidelines were used for the review of the dimensions of daylighting triangles at two intersections - Eglinton Avenue at Thornwood Drive / Sorrento Drive, and Thornwood Drive at Armdale Road.

As per TAC 2017 Signalized Intersection (Case D), the first vehicle stopped on one approach require visibility of the first vehicle stopped on each of the other approaches. Proposed daylight triangles at Eglinton Avenue East and the proposed Thornwood Drive meet this requirement, as shown in **Figure 8-1**.

As per TAC 2017 Table 9.9.4 and 9.9.6 for a design speed of 50 km/h, the required sight distance for left and right turning from stop is 130 m and 110 m, respectively. The proposed daylight triangles at the proposed Armdale Road and Thornwood Drive meet this requirement, as shown in **Figure 8-1**.

#### 8.3 DRIVEWAY WIDTHS AND CORNER CLEARANCE

The City of Mississauga Zoning By-Law, the Region of Peel waste collection design standards and TAC geometric design guidelines were used for the review of the site driveway dimensions. Section 3.1.1.5 of the City of Mississauga By-law 0225-2007 requires that the minimum drive aisle width to be 7.0m. Section 2.0 c) of the Region of Peel Waste Collection Design Standard Manual requires that all roads have a minimum width of 6.0m. According to TAC Table 3.2.9.1 for a residential property, acceptable curb radii for these driveways range from 3.0m to 4.5m.

The proposed development driveway width is 7.0m and meets both City by-law and Region standards. The curb radii at all site access locations and all internal curb radii are 13m or greater, both meet the TAC requirements

Based on TAC guidelines Figure 3.2.8.2, it is suggested that a minimum corner clearance of 55m should be provided between a signalized intersection and a driveway for collector roads, except when there is a median in which case the minimum corner clearance should be 25m. The provided corner clearance between Eglinton Avenue/Thornwood Drive and the site driveway is approximately 58.0m and meets the TAC requirements and no median is required.

The driveway dimensions and corner clearance are shown in Figure 8-2.

#### 8.4 LEFT TURN STORAGE AT EGLINTON AVENUE

The predicted 95<sup>th</sup> percentile queues for the southbound left turn movement on Thornwood Drive at Eglinton Avenue are expected to reach a maximum of 91.7m during peak periods. To provide sufficient storage the southbound left-turn storage lane Eglinton Avenue and Thornwood Drive / Sorrento Drive is proposed to be 95m in length plus a further 30m of tapering length. In addition, the southbound left turn lane will be aligned with the existing opposite northbound left turn lane on Sorrento Drive in accordance with TAC guideline 9.1.2.3 to avoid movement conflicts. A function sketch of the lane configuration is illustrated in **Figure 8-3**.

## 8.5 SITE TURNING RADII AND WASTE COLLECTION REVIEW

Section 2.0 d) of the 2007 Region of Peel Waste Collection Design Standard Manual requires that turning radii along the centre line of the site driveway be a minimum of 13m. Review of the site plan confirms that the centre line turning radii of all curves along the site driveways have turning radii of 13m or more, with the exception of the loop in phase 4, as shown in **Figure 8-4**. However, as shown in **Figure 8-5d**, a Peel Region front loading garbage truck can enter and exit the loading space without conflict and the shortage in centreline radius is acceptable.

#### 8.6 PARKING SPACE AND DRIVE AISLE DIMENSIONS

Section 3.1.1.4 of the City of Mississauga By-law 0225-2007 requires that all parking spaces with a parking angle of less than 15° shall have a minimum width of 2.6m and a minimum length of 5.2m. The By-law also require all type "A" accessible parking spaces to have a minimum width of 3.4m with a minimum length of 5.2m, and all type "B"

accessible parking spaces to have a minimum width of 2.4m with a minimum length of 5.2m. Section 3.1.1.5 of the City of Mississauga By-law 0225-2007 requires that the minimum drive aisle width to be 7.0m. Review of the site underground parking plans has found all parking spaces and accessible parking provided meet the City By-law requirements, and a drive aisle width of 7.0m has been maintained throughout. See **Figures 8-6a** through **8-6g**.

#### 8.7 LOADING OPERATIONS

The adequacy of the vehicular maneuvers in and out of the site has been assessed using AutoTURN software. Garbage truck maneuvers for the combined garbage collection and loading space have been conducted using a Peel Region Front Loader garbage truck and are illustrated in **Figure 8-5a through 8-5d**.

The simulations show that the waste collection vehicle can enter and exit the site and the waste collection areas without encroaching onto the curbs or opposing traffic.

WSP recommends implementation of a warning system to caution vehicles exiting the parking garage and above ground parking of the loading operations at the west end of Building A, as shown in **Figure 8-5b**. The warning system would include signage and a flashing light system.

Vehicle loading and unloading operations for a TAC MSU truck (10m x 2.6m) was reviewed. TAC MSU can accessing the moving loading areas without any conflict as shown in **Figure 8-5e to 8.5f**.

#### 8.8 PARKING CIRCULATION

Passenger vehicles were reviewed accessing and egressing the ramps to the parking and the critical parking spaces as shown in **Figure 8-6a to 8.6g** and **Figure 8-7a to 8.7i**, respectively.

Overall, the site circulation assessments demonstrate that the site and parking level layouts provide adequate maneuverability for the necessary vehicles to access / egress all designated loading spaces, that the underground parking levels can accommodate simultaneous access and egress throughout and that all parking spaces are accessible.

#### NOTE:

- AS PER TAC DECISION POINT OF THE SIGHT TRIANGLE IS TAKEN 2.4m FROM THE BACK OF THE ASSUMED STOP BAR LOCATION. STOP • BAR IS ASSUMED TO BE LOCATED 1m FROM THE BACK OF THE SIDEWALK.
- AS PER TAC 2017 TABLE 2.5.2 FOR A DESIGN SPEED OF 60Km/h THE REQUIRED STOPPING SIGHT DISTANCE IS 85m. THE PROPOSED ٠ SIGHT TRIANGLES AT THE INTERSECTION OF PROPOSED ARMDALE ROAD AND PROPOSED THORNWOOD DRIVE DOES NOT MAINTAIN THE MINIMUM STOPPING DISTANCE SIGHT LINE REQUIREMENTS.
- AS PER TAC 2017 TABLE 9.9.4 AND 9.9.6 FOR A DESIGN SPEED OF 60Km/h THE REQUIRED SIGHT DISTANCE FOR LEFT AND RIGHT TURNING FROM STOP IS 130m AND 110m RESPECTIVELY. PROPOSED SIGHT TRIANGLE AT THE INTERSECTION OF PROPOSED ARMDALE ROAD AND PROPOSED THORNWOOD DRIVE DOES NOT MAINTAIN THE MINIMUM RIGHT TURN MOVEMENT SIGHT LINE REQUIREMENTS.
- AS PER TAC 2017 SIGNALIZED INTERSECTION (CASE D) THE FIRST VEHICLE STOPPED ON ONE APPROACH REQUIRE VISIBILITY OF ٠ FIRST VEHICLE STOPPED ON EACH OF THE OTHER APPROACHES. PROPOSED SIGHT TRIANGLES AT THE INTERSECTION OF PROPOSED THORNWOOD DRIVE AND EGLINTON AVENUE EAST MEETS THIS REQUIREMENT.



#### Figure 8-1 Sightline Analysis 91 Eglinton Avenue East - Transportation Study



WSP\_SitePlanReview\_91 Eglinton Ave E\_Site Plan\_20180824.dwg\_Sightline



### Figure 8-2 Driveway Dimensions and Corner Clearance 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_Site Plan\_20180824.dwg\_Spacing





Source: 11153T\_91 Eglinton Ave E\_Draft Site\_20180824.dwg, from DIALOG, dated August 24, 2018

#### Figure 8-3 Thornwood Drive Extension Lane Configuration Concept 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_Site Plan\_20180824.dwg\_Thornwood

Scale: 1:1000





#### Figure 8-4 Centreline Radii of Private Driveways 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_Site Plan\_20180824.dwg\_Radius





#### Figure 8-5a Peel Region Front Loading Garbage Accessing Loading/Garbage Pick-Up Area 1 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180810 (GF).dwg\_Garbage (1)





#### Figure 8-5b Peel Region Front Loading Garbage Accessing Loading/Garbage Pick-Up Area 2 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180810 (GF).dwg\_Garbage (2)



Source: 11153T\_91 Eglinton Ave E\_Ground Floor Plan\_20180810.dwg, from DIALOG, dated August 10, 2018

#### Figure 8-5c Peel Region Front Loading Garbage Accessing Loading/Garbage Pick-Up Area 3 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180810 (GF).dwg\_Garbage (3)

Scale: 1:250





#### Figure 8-5d Peel Region Front Loading Garbage Accessing Loading/Garbage Pick-Up Area 4 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180810 (GF).dwg\_Garbage (4)



#### Figure 8-5e MSU Truck Accessing Loading Area 1 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180810 (GF).dwg\_MSU (1)





## MSU Truck Accessing Loading Area 2 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180810 (GF).dwg\_MSU (2)



#### Figure 8-6a Underground Parking Ramp Circulation, Lot 1 P1 Level 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180824 (P1).dwg\_Lot 1 P1 Ramp Circ (2)





WSP\_SitePlanReview\_91 Eglinton Ave E\_20180824 (P1).dwg\_Lot 3 P1 Ramp Circ

olot I

B

Md





### Figure 8-6d Underground Parking Ramp Circulation, Lot 1 P2 Level 91 Eglinton Avenue East - Transportation Study



WSP\_SitePlanReview\_91 Eglinton Ave E\_20180824 (P2) dwg\_Lot 2 P2 Ramp Circ

Plot D

4.42 PM By



1.101 PROJECTS/2018 Jobs/181-02747-00 91 Eglinton Ave E/3.0 Technical/3.4 Calculations or Computer Models/CAD/Site Plan Review

lot





### Figure 8-7a Critical Parking Maneuvers, Lot 1 P1 Level 91 Eglinton Avenue East - Transportation Study



#### Figure 8-7b Critical Parking Maneuvers, Lot 1 P1 Level 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180824 (P1).dwg\_8-7b P2 Lot 1 Parking (2)





#### Figure 8-7c Critical Parking Maneuvers, Lot 1 P1 Level 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180824 (P1).dwg\_8-7c P2 Lot 1 Parking (3)











### Figure 8-7g Critical Parking Maneuvers, Lot 3 P2 Level 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180824 (P2).dwg\_8-7g P2 Lot 3 Parking





# 91 Eglinton Avenue East - Transportation Study



#### Figure 8-7i Critical Parking Maneuvers, Lot 3 P2 Level 91 Eglinton Avenue East - Transportation Study

WSP\_SitePlanReview\_91 Eglinton Ave E\_20180824 (P2).dwg\_8-7i P2 Lot 3 Parking (3)

# 9 TRANSPORTATION DEMAND MANAGEMENT

#### 9.1 RATIONALE

Transportation Demand Management (TDM) is a general term for various strategies that increase transportation system efficiency by managing the demand for travel. TDM treats mobility as a means to an end, rather than an end in itself, and emphasizes the movement of people and goods rather than vehicles. Generally speaking, TDM initiatives discourage single-occupant vehicle travel and encourage more efficient modes such as walking, cycling, ridesharing, public transit and teleworking, particularly under congested conditions. In the context of an already congested road network, TDM elements are an essential part of any progressive transportation and traffic plan for a proposed development.

The objective of the proposed TDM strategy is to inform, encourage and facilitate the utilization of the nonautomobile travel opportunities within the study area. In order to achieve this, it is recommended that the marketing strategy for the proposed residential component highlight key characteristics based on the below items via knowledgeable sales staff and visually attractive information packages to ensure that buyers are well aware of the various opportunities prior to purchasing their unit. This will help to target and encourage nondriver modes of transportation from the earliest point in the process.

Described herein are two major categories of TDM measures. The first measures are soft measures, which involve the utilization of technology or encourage the use of existing information technology infrastructure and networks. The second set of measures are hard measures, which require the implementation of physical infrastructure, such as cycling facilities or walkways.

#### 9.2 SOFT TDM INITIATIVES

Soft TDM initiatives refer to activities that engage and educate people on their travel options to change their travel behaviours.

**Encouraging the Use of Transit** Services – Residents and visitors will have access to transit service provided by Miway along Eglinton Avenue West and Hurontario Street. These transit routes provide access to regional urban centres as well as access to the Toronto Transit Commission (TTC) Islington Station.

Additionally, the Hurontario Light Rail Transit (LRT) project will provide frequent transit service between the Port Credit GO station in Mississauga and the Gateway Terminal in Brampton. The Hurontario LRT is to be completed in 2022.

Given the existing and proposed future transit infrastructure, additional steps can be taken to better educate and outreach future residents to promote sustainable transportation practices:

**Transit Outreach and Education** – Further information about Miway Transit's existing and future routes and services, future GO transit routes and services, reach of the transit network, and future transit expansion can be marketed using visually attractive materials to future owners/tenants of units, who may not be aware of the transit options available to them.

**Pre-Loaded PRESTO Cards** – Pre-loaded PRESTO cards can be made available to residents with a customized preload amount. The minimum cost to provide a pre-loaded PRESTO card would be \$100 per card. One card per unit will be provided to those who do not purchase a parking space per unit closing. **Local Amenity Maps** – Information about existing public infrastructure such as parks, locations of public schools and amenities such as grocery, shopping or entertainment, can be provided to future residents using visually attractive materials.

#### 9.3 HARD TDM INITIATIVES

Additional TDM measures are proposed below through infrastructure improvements.

Pedestrian Connectivity – Sidewalks and multi-use paths will be provided to connect the internal roadways to the public road network. These will provide good access to transit services, amenities and public infrastructure.

**Cycling Opportunities** – The surrounding area provides a vast network of bicycle networks and trails including signed bicycle routes, multi-use trails and dedicated bicycle lanes with further expansions in the future. Within the site, dedicated bicycle storage will be available for residential use.

The provision of pedestrian and cycling facilities will be included within the development costs.

**Car Share** – As noted in the sections above, WSP recommends the implementation of car share programs with provision of dedicated car share space. 1 dedicated car share space is recommended per development phase, for a total of 4 car share spaces for the overall proposed development. Additional car share spaces can be designated in the future should there be demonstrated demand after occupancy of the units. The actual number of car share spaces to be provided and the total cost will depend on the service contracts between the developer (and subsequently the condo board) and the car share providers.

The above-noted TDM measures are part of any progressive development as they promote the use of sustainable modes of transportation such as transit and active transportation, and thus help minimize traffic congestion. The proposed parking supply is in line with today's progressive goal of reducing dependency on single-occupant automobiles for transportation.

#### 9.4 TDM COMMUNICATIONS STRATEGY

To facilitate the implementation of TDM programs, it is vital that the information and initiatives be clearly communicated to the residents.

It is recommended that the owner contact the City and Region to receive the latest transit and active transportation information and resources such as maps, schedules and other programs.

It is also recommended that pre-loaded Presto cards and an information brochure, containing maps, websites and other transit resources, be made available to residents at the time of unit closing. The estimated cost to compiling this information is \$500 in time and material.

#### 9.5 PROJECTED TDM PROGRAM COST

The estimated costs to implement the TDM program components are outlined in **Table 9.1**.

TDM Measure	Unit Price	Quantity / Number of Units	Product Cost
Pre-Loaded PRESTO Cards	\$100	645 <sup>1</sup>	\$64,500
Information Brochure	\$10	2,576	\$25,760
Total Cost	-	-	\$90,160

#### Table 9.1: Projected TDM Program Cost

1 Quantity estimated for the expected number of car-free households. TTS data indicates 19% of all households in apartment dwellings have 0 vehicles. WSP assumes this would increase to 25% for the proposed development due to the proposed Hurontario LRT.

The overall cost to prepare the recommended TDM program is estimated at \$90,160. TDM programs and initiatives do not work in isolation, but rather are most effective when working together as one integrated plan with a specific focus to the study area. The effect of TDM measures on the community will promote a cultural shift away from single occupant vehicles and vehicle ownership, and further promote healthier and more efficient forms of travel such as active transportation and public transit. Additionally, as TDM measures are strengthened, reliance on vehicle ownership and single occupant vehicles will be reduced.

# 10 CONCLUSIONS AND RECOMMENDATIONS

91 Eglinton Limited Partnership is proposing to develop the greenfield site located at 91 Eglinton Avenue East and 5055 Hurontario Street, in the City of Mississauga, for a high-rise residential development. The site is located on the northeast corner of Hurontario Street and Eglinton Avenue. The proposed development will consist of 2580 residential units supported by up to five levels of underground parking with a total of 2802 vehicle parking spaces and 2580 bicycle parking spaces.

The proposed development is expected to generate 101 inbound auto trips and 422 outbound auto trips during the a.m. peak hour, and 450 inbound auto trips and 251 outbound auto trips during the p.m. peak hour. The analysis indicates that the traffic impact from the site traffic associated with this development are marginal and can generally be accommodated within the existing roadway infrastructure. We also expect the completion of the Hurontario LRT and other major future improvements in transit services and pedestrian and cycling infrastructure to gradually change the travel characteristics of future residents of the development. The series of Transportation Demand Management measures outlined in this report, which encourage the use of transit, active transportation, and other amenities available to future residents in the area, will further mitigate the traffic impact of the proposed development in the future.

The City's Zoning By-law 0225-2007 requires a total of 3,929 parking spaces to be provided, while a total of 2,802 parking spaces are proposed which would result in a technical deficiency of 1133 parking spaces. However, given the site's walkability to nearby amenities, proximity to the future Hurontario LRT and other transit routes, access to cycling opportunities, unbundling of parking from the sale of units, potential for the provision of car share services, as well as trends in vehicle ownership, parking requirements in other municipalities, and approved or observed parking ratios elsewhere, it is WSP's opinion that the proposed parking ratios are appropriate for the proposed development.

The proposed site plan meets the required loading supply as per the City's Zoning By-law. The site plan review and site circulation review have demonstrated that the site provides adequate maneuverability for the necessary vehicles to access / egress their defined loading spaces and that the underground parking levels can accommodate simultaneous access and egress throughout without issues.

Several specific recommendations have been made in the report to reduce the transportation impact and support the proposed development:

- Reduced parking rates as follows:
  - 0.8 spaces/unit for bachelor units
  - 0.9 spaces/unit for one-bedroom units
  - 1.0 spaces/unit for two-bedroom units
  - 1.3 spaces/unit for three-bedroom units; and
  - 0.15 spaces/unit for visitors for phases 1 and 2
  - 0.10 spaces/unit for visitors for phases 3, and 4
- Implementation of the following specific TDM measures:
  - Pre-loaded Presto cards for households that do not purchase a parking space
  - Information brochures for all new residents
  - 1 car share space to be provided per phase, for a total of 4 car share spaces. Additional car share spaces
    can be added in the future should there be a demonstrated demand after occupancy of the development
    Car share program with dedicated car-share spaces
- Lane configuration of the north leg of Thornwood Drive and Eglinton Avenue as shown in **Figure 8-3**.

 Implementation of warning system alerting vehicles to loading operations and maneuvers at the west end of Building A, as shown in Figure 8-5b.



# A TERMS OF REFERENCE



# **B** TRAFFIC DATA


### C EXISTING INTERSECTION OPERATIONS



## D LEVEL OF SERVICE DEFINITIONS



## E HURONTARIO STREET PRELIMINARY DRAWINGS



#### TECHNICAL MEMORANDUM



## G CITY OF MISSISSAUGA CORRESPOND ENCE



# FUTURE AREA DEVELOPMENT VOLUMES

#### FUTURE BACKGROUND INTERSECTION OPERATIONS





## J TTS MODE SPLIT DATA



# K TTS TRIP DISTRIBUTION DATA



#### TOTAL FUTURE INTERSECTION OPERATIONS