LAKEVIEW VILLAGE

TRANSPORTATION CONSIDERATIONS REPORT

TMIG

LAKEVIEW COMMUNITY PARTNERS LIMITED

AUGUST 2019

LAKEVIEW
COMMUNITY PARTNERS LIMITED

TACC CONSTRUCTION

Greenpark™

CCI DEVELOPMENT GROUP OF COMPANIES

BRANTHAVEN HOMES

ARGO LAND DEVELOPMENT

TABLE OF CONTENTS

APPENDICES (provided on the enclosed USB flash drive)

Figures

Tables

Executive Summary

This comprehensive transportation framework aims to promote attractive alternatives to reduce automobile dependency in a stable and sustainable way while promoting the creation of strong, clean, healthy communities.

The Municipal Infrastructure Group Ltd. (TMIG) was retained by the Lakeview Community Partners Limited (LCPL) to provide transportation advisory services in relation to the Ontario Power Generation (OPG) lands located in Mississauga's Lakeview community. The 177-acre site, currently vacant, located east of Port Credit near Lakeshore Road East at Lakefront Promenade, is the former site of the Lakeview Generating Station, a coal-fired power plant that was operational from 1962 to 2005.

The existing Lakeview site and immediate surrounding lands consist of largely light industrial uses on Mississauga's waterfront, including two regional infrastructure facilities. Extensive active and passive recreational parkland exists within and around the development lands. For example, The Great Lakes Waterfront Trail runs through the north end of the site, but it will ultimately be shifted along the water's edge to form a continuous link that will provide cyclists and pedestrians access to Lakeview Village's future amenities and services.

Development Master Plan 3.0

The Lakeview Village Land Use Plan and Development Phasing Concept which has been adopted in this study was developed concurrently with the latest Development Master Plan 'DMP 3.0', recently submitted by LCPL. Due to the evolutionary nature of the DMP process, and the efforts and timeline required to create the traffic model, the build-out land uses for the Lakeview Lands were based on a blending of Master Plan elements previously considered in our original transportation study of January 2019, the Development Master Plan 2.0 (presented to the City, but never submitted) and the latest DMP 3.0.

As a result, the land use plan adopted herein differs slightly from the final proposed distribution of cultural, institutional, retail, housing and unit counts presented in DMP 3.0 submitted to the City. For instance, the land use parameters utilized in the transportation model assumed 9,700 dwelling units, representing an 8% increase over the 8,982 units proposed by DMP 3.0. However, the non-residential components of the latest Lakeview Plan proposed in DMP 3.0 HAVE been incorporated into our traffic model, which has resulted in a higher intensity development than currently presented in the latest DMP. Therefore, our operational assessment represents a highly conservative (i.e., worse case) analysis of the proposed Lakeview transportation network and the broader transportation system.

For reference, the latest DMP 3.0 now proposes approximately 8,982 residential units in the form of townhouses and apartment condominiums within mid/high rise buildings and taller elements, along with approximately 175,577 m^2 of commercial space (including office/institutional uses), 18,049 m^2 of retail space (including hotel), and 26,012 m^2 of civic space (including school/community centre uses) and a significant portion of park land and open space.

The objective of this revised report is to support the Development Master Plan 3.0 and associated Draft Plan of Subdivision application and to provide the framework for the development's ultimate transportation system. It also provides evidence that the planned

transportation system will be able to accommodate the mobility needs of Lakeview Village and fulfills the requirement for an area-wide transportation study, as per the City of Mississauga's Official Plan.

This Revised Lakeview Village Transportation Considerations Report has been developed to be consistent with the DMP 3.0 and in step with general guiding (core) principles set out by other reports referenced herein. The plan is to incorporate existing municipal plans into a comprehensive transportation framework for the Lakeview area to promote attractive multi-mode alternatives to reduce automobile dependency in a stable and sustainable way while promoting the creation of strong, clean, and healthy communities.

This study has been developed in accordance with the terms of reference, policies and guidelines provided by the City of Mississauga. This includes but is not limited to the following:

- A fine grain street pattern created to support all types of users, including transit-riders, cars, bicycles and pedestrians;
- To recognize the importance of cycling and walking as a form of transportation, and to establish bicycle path and walkway systems in conjunction with local municipalities; and
- To achieve higher transit usage by supporting system expansion and improvements in service, convenient access and good urban design.

Transit

Lakeview Village is part of the broader Lakeview Major Node and will accommodate a variety of housing, employment, cultural activities, and an extensive open space network that provides access to Lake Ontario. The land adjacent to Lakeshore Road East (outside of the LCPL ownership) is being planned as a medium-to-high density corridor to be served with higher order transit (see Lakeshore Connecting Communities study by the City of Mississauga), supported by future local transit routes that will ultimately extend into the Lakeview Village site to support this transit-oriented community.

City Council endorsed the Lakeshore Connecting Communities Transportation Master Plan in June 2019, which recommends implementing transit improvements by the year 2030 along the Lakeshore corridor within the study area including dedicated transit lanes from East Avenue to Deta Road for express bus service, protected cycle tracks, corridor improvements, such as wider sidewalks with landscaping, and enhanced express bus service with five minutes headways during peak hours.

The higher average densities, range of mixed-uses, and TDM measures proposed by DMP 3.0 as detailed in this report will help drive higher transit ridership, support more frequent transit headways, and widen the reach of public transit service.

Local transit services provide the greatest opportunity to drive ridership at the neighbourhood level. The future Lakeview transit route will operate at similar levels of service and headways to many of the existing local routes. Transit riders will use this route to access local destinations, such as schools or shopping, and as connections to the corridor routes and facilities for longer trips along Lakeshore Road to the GO Stations (Port Credit & Long Branch), accessing the TTC network, and the future Hurontario-Main LRT. In addition, MiWay has made a commitment to LCPL to investigate how best to deliver transit service in the first Phase of Lakeview development, thus providing early residents with a competitive and attractive transit option.

Lakeview Village Partners plan to continue to work with partners from other levels of government, including Metrolinx and the private sector, to explore sustainable transportation solutions. The area's proximity to existing and expanded all day two-way GO Rail transit service, proposed higher order transit along Lakeshore Road East and future enhanced transit into the site will provide increased levels of service and significant person carrying capacity enhancements.

Active Transportation and Transportation Demand Management

Increasing vehicular traffic and congestion is being experienced across Mississauga and the Greater Golden Horseshoe as intensification occurs. As Mississauga and surrounding municipalities mature, they experience increases in population and employment, but the opportunity to improve/expand roadway corridors or adding new roads to accommodate additional private automobiles becomes less feasible and desirable.

The Lakeview Village road network is constrained by the location of the Lakeview Wastewater Treatment Plant to the east and the lack of parallel crossings to the west. Future growth from surrounding areas will further increase travel demand and congestion levels on the existing road network. The most noticeable congestion will continue to be eastbound in the morning rush hour and westbound during the afternoon rush hour (to and from the Toronto CBD) along portions of Lakeshore Road. In the absence of enhanced transit and active transpiration infrastructure, and without appropriate travel demand strategies (beyond reduced parking provisions), development of Lakeview Village will further increase vehicular congestion levels along the corridor.

The development of Lakeview Village by design shall promote and encourage Active Transportation and higher Transit use. Further, the proximity of the Port Credit & Long Branch GO Stations, future Light Rail Transit on Hurontario Street, and the planned rapid transit service (starting with Bus Rapid Transit, but eventually LRT) on Lakeshore Road, will promote alternatives to the private auto both for Lakeview Village and the surrounding area, which will serve to mitigate the vehicular congestion and operational impacts noted above. Substantial benefit to the existing community will also be provided by the planned Transit and Active Transportation infrastructure both planned by the City and by Lakeview Partnership.

Future Lakeview Village development applications (upcoming Draft Plan of Subdivision and Site Plan Applications) will be accompanied and supported by focused and site-specific transportation, parking and traffic studies. These studies will address, among other things, site specific strategies for limiting impacts on the transportation network, where appropriate, including measures such as:

- Reduced parking standards and shared parking strategies;
- Transportation demand management;
- Transit oriented development;
- Pedestrian / cycling connections; and
- Multi-modal site access management plans.

While it will not be possible to reduce vehicular congestion, key Transportation Demand Management (TDM) Measures will lessen the impacts to the transportation network, including:

- Capping the supply of residential and employee parking spaces;
- Transit incentive programs (e.g. transit fare card provided by developer to residents; buildings include real-time transit schedule information display);
- Creation of compact, walkable, mixed-use development centered around high-quality transit and active transportation;
- Enhanced pedestrian and cycling connections and facilities (including enhanced connections to, and improved facilities along Lakeshore Road);
- Programs (e.g. joining a local Smart Commute transportation management association, Car Share, etc.);
- Limiting access to sites near intersections;
- Intersection improvements – operational and / or physical; and

- The City will encourage Transportation Demand Management measures, where appropriate, in the Lakeshore Corridor and as a part of any significant redevelopment projects outside of the corridor.

Given the sensitivity of the residential trip generation based on the trip generation methodology described herein, particularly the proportion of trips made during each peak hour by residents, the proposed TDM measures inherent in the Lakeview Village Master Plan 3.0 further supports the multi-modal site trip generation methodology and provides justification to the proposed auto-driver trip percentage (i.e. trip reductions) and the estimated total vehicular volume generated by Lakeview Village.

Vehicular Travel Demand

Recognizing the mixed-use nature of Lakeview Village and its provision of a fine-grain transportation network that encourages non-SOV travel and active transportation, a multi-modal site trip generation method was utilized for Lakeview Village and future developments within the immediate vicinity of the site. Future auto drivers in the Lakeview area was assumed to account for 57.5% and 65.0% of a.m. and p.m. peak hour traffic, respectively.

In 2031, with transit and internal capture adjustments taken into consideration, the Lakeview Village development is expected to generate 3,226 new two-way auto-driver trips during the a.m. peak hour consisting of 1,509 inbound and 1,717 outbound trips. During the p.m. peak hour, the development is expected to generate 4,343 new two-way auto-driver trips consisting of 2,028 inbound and 2,315 outbound trips.

In 2041, with transit and internal capture adjustments taken into consideration, the Lakeview Village development is expected to generate 3,231 new two-way auto-driver trips during the a.m. peak hour consisting of 1,512 inbound and 1,719 outbound trips. During the p.m. peak hour, the development is expected to generate 4,355 new two-way auto-driver trips consisting of 2,036 inbound and 2,319 outbound trips.

Vehicular Capacity Analysis

Using Synchro version 10 traffic analysis software, it was determined that intersections within the study area are operating at occasionally congested but acceptable LOS and capacity levels under existing traffic conditions. However, if the road

network remains the same until 2031 and the BRT is not implemented before full build-out of Lakeview Village, motorists traveling along Lakeshore Road East through the study area will experience considerable delays due to capacity issues at multiple intersections. As such, it is recommended that the introduction of the BRT route to the Lakeshore Road corridor be expedited and in operation prior to full build-out of Lakeview.

With one exception, all improvements, lane configurations, and attributes that were included in the City's Lakeshore Connecting Communities preferred corridor design were retained in the traffic model as provided. The one exception is the addition of exclusive westbound right-turn lanes on Lakeshore Road East at Dixie Road and Cawthra Road. The westbound auxiliary lanes are recommended to mitigate queuing and capacity issues observed under all future traffic scenarios (background and total). It is recognized that the decision to implement these improvements comes at a cost (impact) to pedestrian crossing times and land availability. The Region will confirm if turn lanes at these locations are, on balance, preferred over the congestion otherwise predicted.

With the median-running BRT lanes in place, 2031 Future Background analysis indicates that overall signalized intersection operations and individual turning movements will continue to operate with congested, but acceptable LOS and delay throughout the study area road network with one exception. The unsignalized intersection at West Avenue/ Montbeck Crescent at Lakeshore Road East is expected to operate with LOS F for the minor legs during the a.m. and p.m. peak hour. This delay can be attributed to the high volume of vehicles travelling on Lakeshore Road though the intersection providing very little gap to allow turning movements from West Avenue and Montbeck Crescent.

Similarly, the future total capacity analysis for intersections during the a.m. and p.m. peak hour for the 2031 horizon year indicates that overall signalized intersection operations and individual turning movements for all study intersections will operate within design capacity with the vast majority of v/c ratios below 1.0. The lone exception is the eastbound left-turn movement (during the p.m. peak hour) at Dixie Road and Lakeshore Road East, which is expected to operate with a v/c ratio of a little over 1.0. However, this operational characteristic is expected to be short-lived, and within driver expectation for exclusive left-turn movements along congested corridors (especially with BRT implemented).

Capacity analysis of intersections under 2041 Future Total conditions indicates that a number of intersections will operate with overall v/c ratios marginally above 1.0 and individual turning movements at capacity during the p.m. peak hour. However, during the a.m. peak hour less intersections within the study area will experience capacity deficiencies, with the majority of study locations projected to operate well within capacity. Again, these operational characteristics are expected to be short-lived, and within driver expectation along congested, multi-modal corridors.

TMIG sought to determine if these capacity constraints could be rectified by achieving the Region's sustainable mode split of 50% by 2041. The resulting future total capacity analysis for signalized intersections during the a.m. and p.m. peak hour for the 2041 horizon year indicates that overall intersection operations and individual turning movements for all study intersections will operate below capacity with v/c ratios of less than 1.0 when a 50% sustainable transportation modal split is applied.

A number of individual movements at intersections within the study area are approaching or almost at capacity but do not exceed v/c ratios of 1.0. The number of individual movements approaching capacity is significantly lower than the number of movements at, or over, capacity in the Future Total 2041 scenario without a 50% sustainable transportation modal split

Furthermore, with the enhanced transit service expected in the longer-term (potential LRT service with stronger linkages to the GO and TTC systems), the person-carrying capacity of the corridor will be greatly enhanced, providing more attractive and competitive options for auto drivers. We expect a travel demand equilibrium to be achieved as the vehicular carrying capacity of the corridor is reached and greater ridership capacity and transit service is delivered, encouraging more and more travelers to shift modes to transit.

It is important to note that 57.5% and 65.0% of all gross Lakeview Village, Rangeview Estates, and Serson North site trips have been assigned to single occupancy vehicle (auto-driver) traffic during the a.m. and p.m. peak hour respectively. If the Region and City are able to reach their objective of a sustainable mode split of 50% by 2041, this would remove an additional 15.0% of automobile traffic from the study area in the p.m. peak hour and represent a 7.5% reduction in a.m. peak hour traffic. We are of the opinion that these model split targets are achievable with the implementation of the recommendations proposed in the City's Lakeshore Connecting Communities study in conjunction with the densities, fine-grain road system, and multi-modal design approach adopted in the Lakeview Village DMP 3.0.

As mentioned, an equilibrium will be achieved between an acceptable level of vehicular operations along Lakeshore Road and wide-spread adoption of alternative modes of transportation, such as the BRT route, as attractive and viable alternatives to automobile travel.

To this end, and consistent with the Region of Peel's long term transit mode share target, TMIG conducted a 50% sustainable transportation modal split sensitivity analysis of the 2041 road network. The future total capacity analysis for signalized intersections during the a.m. and p.m. peak hour for the 2041 horizon

year indicates when a 50% sustainable transportation modal split is adopted, overall intersection operations and individual turning movements FOR ALL STUDY INTERSECTIONS will operate well within design capacity with v/c ratios below 1.0. Furthermore, the number of individual movements approaching capacity is likewise significantly lower when compared with the Future Total 2041 scenario without a 50% transit mode split.

Recommended Transportation System Upgrades

The following is a summary of the recommended transportation system upgrades in support of Lakeview Village:

The study assumes implementation of the Bus Rapid Transit (BRT) lane configurations along Lakeshore Road East (including physical restrictions to left turns at certain local street intersections), as per the Council-approved Lakeshore Connecting Communities project, but with the following (minor) modifications:

- Extend westbound left-turn (WBL) storage at Lakefront Promenade.
- Westbound right turn lanes (WBR) at Cawthra Road and at Dixie Road.

Beyond the Lakeview Connecting Communities BRT-associated upgrades, the following lane configuration improvements are recommended (itemized by Planning Horizon) to alleviate congestion, delay and/or queueing. It was assumed that all the transportation infrastructure, as per the City approved Official Plan Amendment 89, required to accommodate the full build-out of the original Lakeview Village Master Plan development will be implemented by 2031:

- 2031 Background
  - The southbound shared left/through/right at West Avenue is recommended to be upgraded to provide an exclusive left-turn lane and a shared through/right lane.
  - The northbound shared left/through/right lanes at East Avenue, Lakefront Promenade and Hydro Road should be upgraded with an exclusive left-turn lane and a shared through/right lane.
- 2031 Total
  - Construction of the southern extension of Ogden Avenue was assumed to be completed with a northbound exclusive left-turn lane and a shared through/right lane.
  - Construction of the southern leg of Haig Boulevard was assumed to be completed with a northbound exclusive left-turn lane, a shared through/right lane, and the eastbound curb lane was converted from a through lane to a shared through/right lane. The southbound lane (north leg) was analyzed under its existing shared left/through/right lane configuration. However, it is recommended that the north leg be constructed to mirror the south configuration if land permits.
- 2041 Total
  - If the Region and City are able to reach their objective based upon a sustainable mode split of 50% by 2041, no additional road improvements will be required when compared to the 2031 Total traffic scenario

Future Considerations to be Investigated / Monitored

Although the City's BRT plans currently envision West Avenue/Montbeck Crescent as a full-moves intersection, the possibility of converting the intersection to right-in/right-out operations (or other limited-moves intersection layouts) should be considered for the longer term due to the potential for high delays to left-turning traffic. Left-turns into and out of the residential area south of Lakeshore Road East and Cawthra Road would be able to re-route to other Lakeshore Road connections, such as Aviation Road and Hampton Crescent.

If additional access to Lakeshore Road is requested by residents, the City could investigate the possibility of extending Byngmount Avenue approximately 140 metres to the east in order to connect to East Avenue, and in turn, Lakeshore Road.

Based on TMIG's analysis of existing north-south roads (north of Lakeshore) that have the potential to be most impacted by Lakeview Village traffic (i.e., Alexandra Avenue, Ogden Avenue, and Haig Boulevard), the daily traffic predicted on each of the three roads is not expected to exceed their design capacities. According to TAC road classifications, a residential collector road can be expected to carry up to 8,000 vehicles daily. TMIG has predicted that Ogden Avenue and New Haig Boulevard will see less than 7,000 and 4,000 daily trips by 2041 respectively. Furthermore, TMIG's predicted future total 2041 traffic volumes along these corridors are consistent with the forecasted 2041 traffic volumes found within the Lakeshore Connecting Communities Transportation Master Plan (May 2019).

While traffic is predicted to operate at acceptable levels on these north-south roads through residential areas north of Lakeshore Road East, TMIG acknowledges the dynamic nature of traffic patterns and driver behaviour. Existing and future travel patterns will be greatly influenced (at least temporarily) by the construction of the median-running BRT lanes and its effect on local businesses and overall road network accessibility for residents. TMIG suggests that all north-south roads be monitored to determine the level of infiltration that occurs and if any site-specific or context sensitive traffic calming features might be deployed to address unexpected/unreasonable increases in traffic infiltration.

Notwithstanding the results of the operational analyses and the various transportation system improvements recommended in subsequent chapters herein, it is further recommended that as part of future development approvals (i.e., individual Site Plan Applications), that additional scoped Transportation Impact Studies be prepared to revisit existing traffic flows at a more granular level to assess specific impacts and timing of proposed developments on the existing and future transportation network. It would be appropriate at that time to update baseline traffic volumes to inform those detailed investigations.

Additionally, while this report does not consider the Lakeview Village phasing and implementation planning, at least insofar as the timing and triggers for individual infrastructure improvements are concerned, it is reasonable to expect that such a detailed transportation investigation would be undertaken in the near-term, prior to Site Plan Applications coming forward from LCPL. It might be appropriate at that time to update / augment the baseline conditions traffic data set to inform future infrastructure planning (i.e., triggers and timing) for each major phase of Lakeview development.

Supplemental Vissim Microsimulation Report

TMIG plans to include an update to the VISSIM analysis at a later date as a part of draft plan of subdivision efforts, as a greater level of detailed site statistics and trip generation characteristics will be available. Furthermore, confirmation and general acceptance by City Staff of the assumptions and methods applied to the analysis included in this report will aid in providing a more fulsome VISSIM analysis.

INTRODUCTION

1

Rendering of Lakeview Promenade – Aerial View

Introduction

The Municipal Infrastructure Group Ltd. (TMIG) was retained by the Lakeview Community Partners Limited (LCPL) to provide transportation advisory services in relation to the Ontario Power Generation (OPG) lands located in Mississauga's Lakeview community.

1.1 Site Characteristics

The 177 acre site, currently vacant, located east of Port Credit near Lakeshore Road East and Lakefront Promenade, is the former site of OPG's Lakeview Generating Station, a coal-fired power plant that was operational from 1962 to 2005, as illustrated in Figure 1-1.

The existing areas located north of the property are primarily residential and light industrial, north and south of Lakeshore Road East, respectively, with some commercial land uses fronting onto Lakeshore Road East.

The existing Lakeview site and immediate surrounding lands consist of largely light industrial uses on Mississauga's waterfront, including two regional infrastructure facilities; the Lakeview Water Treatment Facility to the west of the site; and the G.E. Booth Wastewater Treatment Facility abutting the west site boundary.

Extensive active and passive recreational parkland exists within and around the development lands. For example, The Great Lakes Waterfront Trail runs through the north end of the site, but it will ultimately be shifted along the water's edge to form a continuous link that will provide cyclists and pedestrians access to Lakeview Village's future amenities and services.

Prior to the sale of the property to LCPL, the Province, OPG, City, and the local community worked together to develop a shared vision for the former Lakeview Generating Station site, resulting in the Inspiration Lakeview Master Plan. That plan called for the brownfield site and surrounding employment lands to transform into a mixed-use community with a variety of residential building types, parkland, and cultural and employment uses, with considerations for environmentally sustainable site features and designs.

This study details the evolution of the Master Plan and analyzes its transportation impacts and mobility opportunities with respect to the Lakeview site as well as the broader community. The enclosed study also updates TMIG's previous examination of traffic impacts (January 2019) from a prior version of the LCPL Master Plan from 2018, and also responds to City transportation comments on that submission.

Figure 1-1 – Site Context and Location
Source: Fig 3.1b Lakeview Village Develpment Master Plan, October 2018

1.2 Development Master Plan 3.0

The Lakeview Village Land Use Plan and Development Phasing Concept which has been adopted in this study was developed concurrently with the latest Development Master Plan 'DMP 3.0', recently submitted by LCPL. Due to the evolutionary nature of the DMP process, and the efforts and timeline required to create the traffic model, the build-out land uses for the Lakeview Lands were based on a blending of Master Plan elements previously considered in our original transportation study of January 2019, the Development Master Plan 2.0 (presented to the City, but never submitted) and the latest DMP 3.0.

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1.3 Summary of Assumptions and Methods – Responses to City Comments

The objective of this Section is to provide City of Mississauga Transportation and Works Staff further details on the key elements of the City's Lakeview Transportation Consideration Report Comments dated May 14th, 2019 (provided in Appendix P), and subsequent consultations between City Staff and TMIG. Excerpts from the May 14th City comments have been provided for context. The descriptions and rationale for the adoption of the assumptions and methodologies provided below focus on the issues that have the most complexity and/or could be most challenging to resolve. Notwithstanding the additional rational and support provided, the enclosed study attempts to address all comments made by City staff.

City Comment - Page 53, Section 7.3.2:
With respect to the 30% AM Peak Hour transit mode split and the 20% PM Peak Hour transit mode split - this was adopted based on existing mode share from the small downtown Port Credit traffic zone. This may be inappropriate as the zone is centered on the Port Credit GO Station and will likely have better transit access than most of the future Lakeview site. It may be more appropriate to use a blend of the existing Port Credit mode share and the existing Lakeview mode share to come up with a future Lakeview mode share. Identify what existing mode split is in the area so we can see the change from existing to proposed and justify the assumed transit modal splits.

TMIG Response:
The mode split for both Port Credit and Lakeview based on 2011 TTS data is summarized in Table 1-1, along with the average of the two to represent a "blended" Port Credit and Lakeview mode share.

As seen in Table 1-1, comparing the Port Credit mode split to the Lakeview area represents a 15% and 5% increase in transit use during the a.m. and p.m. peak hours, respectively. The existing built form of downtown Port Credit traffic zone (a dense mix of commercial and residential towers with townhouses on the periphery) is similar to the built form imagined for the Lakeview development. Considering the planned increase in transit frequency and infrastructure, and the proposed density of residents and jobs within the development, the application of the existing Port Credit mode split to the estimated 2031 Lakeview Village trips seems appropriate and reasonable.

However, as a conservative measure and as per the City's request, TMIG will apply the "blended rate"/ average of the Port Credit and Lakeview TTS Data sets. This will result in overall lower transit mode splits during both the a.m. and p.m. peak hours.

It is also important to note that while the percentage of trips taken by transit is an important statistic, it is the auto-driver component of the mode split that determines the number of vehicle trips generated through the person-trip generation methodology. From this perspective, the average auto-driver mode split results in a 2.5% decrease during the a.m. peak hour and a 5% increase during the p.m. peak hour compared to the previously used Port Credit auto-driver mode split of 60% during both peak hours.

Based on averaging the Port Credit and Lakeview mode splits, other TTS-based data that is used in the person-based trip generation methodology was also updated to remain consistent. For example, the percentage of residents traveling during the a.m. and p.m. peak hours was determined through TTS data. Based on 2011 TTS Data, 16% of residents traveled during the a.m. peak hour in Port Credit, and 20% in Lakeview for an average of 18%. During the p.m. peak hour, 22% of residents of Port Credit traveled, and 19% of Lakeview residents traveled, resulting in an average of 20.5% of residents traveling.

Table 1-1 – 2011 TTS Modal Splits for Port Credit and Lakeview

Mode of Transportation	Port Credit[1]		Lakeview[2]		Average	
	AM	PM	AM	PM	AM	PM
Transit	30%	20%	15%	15%	22.5%	17.5%
Auto-Driver	60%	60%	55%	70%	57.5%	65.0%
Auto-Passenger	5%	15%	20%	15%	12.5%	15.0%
Walk	3%	3%	10%	0%	6.5%	1.5%
Cycle	2%	2%	0%	0%	1.0%	1.0%
Total	100%	100%	100%	100%	100%	100%

Notes:
1. Based on 2011 TTS Data for home-based trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
2. Based on 2011 TTS Data for home-based trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zones 3642, 3643, 3875, and 3876

City Comment - Page 52, Section 7.3.2:
TTS 2011 data was used; the applicant is required to update the report using the 2016 TTS data.

TMIG Response:
2011 and 2016 TTS data was initially discussed and reviewed during a pre-consultation meeting with City transportation staff on July 27th, 2018. Meeting minutes are provided in Appendix P for reference.

Further to discussions with staff at a recent July 17th, 2019 meeting, clarification was sought with regards to the application / usage of 2011 versus 2016 TTS data. The 2011 and 2016 TTS mode split results for both Port Credit and Lakeview are summarized in Table 1-2 for comparison purposes. The sample size of the data collected (prior to expansion by TTS) and the average of the Port Credit and Lakeview data sets are also provided.

As stated in response to Comment - Page 53, Section 7.3.2 above, it is the percentage of the auto-driver mode share that is directly applied to residential vehicle trip generation for the subject site. This means the remaining percentage of travel assigned to transit and other sustainable modes of transportation are used as a secondary comparison point between data sets.

The auto-driver percentage is 60% in the a.m. and p.m. peak hours for both years of Port Credit data and for the 2016 Lakeview data. The Lakeview 2011 data results in a 55% and 70% auto-driver mode split. Given the similarity between the auto-driver mode split for all four data sets presented in Table 1-2, we believe using the 2011 average results are the most conservative (in total, the a.m. and p.m. auto driver splits are the highest by a small margin) and appropriate for the Lakeview Village analysis.

Table 1-2 – 2011 and 2016 TTS Data Comparison

Mode of Transportation	Port Credit[1]		Lakeview[2]		Average	
	AM	PM	AM	PM	AM	PM
2011 TTS Data						
Sample Size	**25**	**35**	**40**	**39**	**45**	**37**
Transit	30%	20%	15%	15%	22.5%	17.5%
Auto-Driver	60%	60%	55%	70%	57.5%	65.0%
Auto-Passenger	5%	15%	20%	15%	12.5%	15.0%
Walk	3%	3%	10%	0%	6.5%	1.5%
Cycle	2%	2%	0%	0%	1.0%	1.0%
2016 TTS Data						
Sample Size	**44**	**49**	**40**	**34**	**42**	**42**
Transit	30%	30%	10%	20%	20%	25%
Auto-Driver	60%	60%	60%	60%	60%	60%
Auto-Passenger	5%	5%	25%	15%	15%	10%
Walk	5%	3%	3%	3%	4%	3%
Cycle	0%	2%	2%	2%	1%	2%

Notes:
1. Based on 2011 and 2016 TTS Data for home-based trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
2. Based on 2011 and 2016 TTS Data for home-based trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zones 3642, 3643, 3875, and 3876

City Comment - Page 53, Section 7.3.3:
Non-Residential Trip Generation Modal Split, the modal splits used in the analysis have been calculated based on the trip behaviour of residents who live in a household located in the Port Credit area (or Lakeview area), live in a specific dwelling type and complete a specific trip purpose that are home based, considering these assumptions/filters it is not appropriate to assume that the calculated residential related modal splits should be applied for the non-residential uses. For example someone originating from areas outside of the Port Credit area and destined to the Port Credit area for the purpose of employment/ commercial would not be captured in the TTS analysis completed.

TMIG Response:
TMIG acknowledges that the TTS data that was used to develop the mode splits to apply to the residential person-based trip generation may not capture the true mode split of trips entering or exiting Lakeview and Port Credit from external locations. While the residential auto trip generation was based on the residential auto-driver mode split, the transit mode split was applied to the non-residential trips to adjust the gross ITE trip generation numbers. Based on the average transit mode split of Port Credit and Lakeview, 77.5% and 82.5% of non-residential trips will be auto trips during the a.m. and p.m. peak hours, respectively. This represents a larger auto share of trips that originate outside of the Lakeview development, which is to be expected compared to 57.5% and 65% auto share for residents during the a.m. and p.m. peak hours, respectively.

TMIG investigated developing non-residential 'person trip' generation rates instead of more traditional methods of GFA-based trip rates but maintains that using GFA-based ITE trip generation rates for the non-residential component of the Lakeview Village development is the most appropriate course of action at this time based on the minimal amount of non-residential 'person-derived' trip data available (the GFA-based method is represented by many more surveys, and therefore carries more legitimacy and credibility).

Furthermore, many other assumptions and/or data sets would be needed to provide a wholesome trip generation exercise for non-residential uses in addition to using Floor Space per Worker (FSW) rates. Some examples of additional assumptions and information that would need to be determined are:

- Varying shift start and end times for workers that effect the percentage of total employees traveling during the adjacent street peak hours (unpredictable based on current breakdown of land uses)
- Volume of customers and patrons traveling to non-residential uses during the adjacent street peak hours is not determined by the number of employees (customer volumes are highly driven by the type of land use, of which such level of detail is not yet available)
- The percentage of people both living and working within the development, i.e. highly likely to be non-auto based trips
- An employee could make multiple trips to and from, or within the development in a given hour e.g. deliveries, running errands for a company, morning check-in before working off-site, etc.
- A customer could enter and exit the site within a given peak hour.

A greater degree of detail can be applied to non-residential trip generation at a later date, such as at site plan application level when the specific tenant or non-residential use is known with greater certainty.

City Comment - Page ix, Capacity Analysis:
The Region's sustainable mode shift (of 50% as described in the report) includes auto passengers and active transportation. Therefore the assumption that attaining the 50% sustainable mode share would result in a further 30% reduction in auto traffic is incorrect. See page 8- 2.5 Peel Region Sustainable Transportation Strategy which provides more details (in 2011 the sustainable mode split was 37%- so between then and 2041 it's only projected to increase by 13%).

TMIG Response:
The overall effect of the 50% sustainable mode-share target, regardless of whether it is the transit, walking, or cycling percentage of the mode share, is that the auto-driver component will only represent 50% of the overall mode split. This is the percentage that is applied as an adjustment to both the residential and non-residential trip generation calculations in 2041 for the 50% mode split sensitivity scenario.

City Comment - Page 53, Section 7.3.3:
Further justification for using the occupancy rates to determine trip generation is required. The applicant is required to provide a sensitivity analysis comparing the proposed trip generation based on average occupancy rates vs. ITE rates to ensure that the trips generated by the site are not being underestimated.

TMIG Response:
TMIG has updated the average occupancy rates based on person per unit (ppu) numbers used to forecast future populations in the City of Mississauga's 2019 Development Charges Background Study (April 2019). The following PPUs were listed based on housing unit type:

- 4.02 ppu for Singles/semis
- 3.13 ppu for row houses (including "back to back" units)
- 2.74 ppu for apartments (regardless of the number of storeys; includes stacked townhouses)
- 1.49 ppu for small units (all units less than 700 ft2 regardless of built form)

Assuming a total of 9,700 residential units (as directed by LCPL), the 2019 DC Study ppu rates were applied to each unit type and an average ppu rate of approximately 1.96 was calculated. The average ppu was based on the following mix of unit types:

- 416 townhouses
- 3,064 apartments
- 6,220 small units

Based on the updated unit counts and average occupancy rate, Table 1-3 provides a comparison between the number of residential trips generated by the person trip and ITE trip generation methods. The ITE trips have had transit reductions of 22.5% and 17.5% applied to the a.m. and p.m. peak hour, respectively, to provide a more direct comparison to the results of the person trip methodology (which inherently includes reductions to auto trips by taking into account the mode split).

As seen in Table 1-3, the difference between the ITE and person trip methodologies is less than 300-350 trips during either the a.m. or p.m. peak hour, indicating the person-based trip methodology, in our opinion, falls within a reasonable tolerance of the traditional ITE-based trip generation methodology. TMIG believes that the person-based trip approach provides a greater level of accuracy for residential trip generation, as the methodology makes use of local historical data and existing travel behaviours in conjunction with specific site statistics such as expected occupancy rates (based on unit type mix and Mississauga specific ppu rates).

Table 1-3 – Residential ITE and Person Trip Generation Comparison

Trip Generation Methodology	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL
ITE[1]	557	1,704	2,261	1,761	1,120	2,881
Person Trip	491	1,472	1,963	1,541	986	2,527
Difference (ITE-person)	-66	-232	-298	-220	-134	-354

Notes:
1. Based on a combination of ITE LUC 220 (low-rise), 221 (mid-rise), and 222 (high-rise) multifamily home trip generation equations

City Comment - Page 52, Section 7.3.1:
Multi-use adjustment, the analysis has assumed trip behaviour from the Port Credit area to represent the expected trip behaviour for the Lakeview site (in terms of trip generation for the residential sites), considering this assumption has been made in the analysis a multi-use adjustment is not appropriate for the residential trips as this would already be reflected in the trip behaviour captured in the TTS data for the Port Credit area residents

TMIG Response:
TMIG acknowledges that a certain degree of mixed-use interaction would be accounted for through using the mode split captured by the TTS data for Port Credit. However, although Port Credit is the best proxy site available within reasonable proximity to the future Lakeview Village site, the design and layout of the new development will allow for greater interaction between uses.

For example, it is anticipated that a high degree of interaction will occur between the Serson Innovation Corridor / Campus and the retail uses and amenities at Lakeview Square. The Lakeview development is also being designed to allow for a high degree of pedestrian permeability throughout the site, which will encourage those who travel within the site to use active transportation and not an automobile.

City Comment - Page 60, Section 7.4.1:
Internal Capture Rates (i.e. Appendix D). why does the internal capture rate analysis utilize the trips pre transit modal split adjustment for office/ commercial while for residential it utilizes trips post transit modal split adjustment?

TMIG Response:
Given that the person-based trip generation methodology employed for the report differs from the general ITE trip generation methodology, some minor inconsistencies may arise when implementing the ITE based mixed-use adjustments. In regards as to whether the mixed-use adjustments should be applied to the residential and non-residential trips prior to or post-modal split adjustments, TMIG has reviewed the application of the ITE Mixed-use adjustment methodology in order to ensure as much consistency as possible between the residential and non-residential adjustments. As a result, the internal capture rate analysis utilized the trips pre transit modal split adjustment for both residential and non-residential land uses.

City Comment - Page 64, Section 7.5.1.2:
What was the process used to remove the existing Rangeview traffic from the study area road network?

TMIG Response:
The process to remove the existing Rangeview traffic from the study area was based on existing traffic volumes and travel patterns along Rangeview Road. The following general assumptions were used to guide the process of removing existing Rangeview Road traffic:

1. Only existing Rangeview Road traffic attributable to the light industrial uses with accesses to Rangeview Road were removed. In theory, additional traffic could have been removed from Lakeshore Road East (due to the light industrial uses with accesses to Lakeshore Road being a part of the Rangeview Estates land as well. However, it would prove difficult to identify all traffic currently associated with these uses from TMCs alone).
2. Traffic accessing Rangeview Road via East Ave was removed, but traffic accessing the Lakeview Water Treatment plant remained and was re-routed as required.
3. Traffic accessing Rangeview Road via Hydro Road was removed, as was the traffic traveling to/from the lands south of Rangeview Road via Hydro
4. Traffic at the Lakefront Promenade intersection was removed or rerouted based on whether it was traveling to/from the Lakefront Promenade recreational uses located south of Rangeview Road.

5. Existing traffic that was removed from Rangeview Road was also removed from Lakeshore Road East to the extents of the study area.

City Comment - Page 72, Section 7.6.3:
Future 2041 background volumes and capacity analysis is required as part of the report.

TMIG Response:
TMIG proposes that the 2041 Future Background analysis is not required, as the assumed full build-out of the Lakeview Village site was assumed to be 2031 for the purposes of analysis. The subject site traffic generated by full build-out in 2031 could be considered as background traffic by the 2041 horizon year.

As such, the only difference between the 2031 Future Total and 2041 Future Total traffic volumes would be an additional 10 years of growth applied to existing traffic and the addition of the two background developments identified for this study: the Rangeview Estates development and the remainder of the Serson Innovation Corridor lands located outside of the Lakeview Village development.

GUIDING PRINCIPLES

2

Rendering of Waterfront Trail

Guiding Principles

2

The Lakeview Village Transportation Considerations Report has been developed to be consistent with the Development Master Plan and in step with general guiding (core) principles set out by other reports and documents as noted in the following sections. The Plan aims to incorporate existing municipal plans into a comprehensive transportation framework for the Lakeview area to promote attractive alternatives to reduce automobile dependency in a stable and sustainable way while promoting the creation of strong, clean, and healthy communities.

The Report has been developed in accordance with policies and guidelines provided by the City of Mississauga. This includes but is not limited to the following:

- A fine grain street pattern created to support all types of users, including transit-riders, cars, bicycles and pedestrians;
- To recognize the importance of cycling and walking as a form of transportation, and to establish bicycle path and walkway systems in conjunction with local municipalities; and
- To achieve higher transit usage by supporting improvements in service, convenient access and good urban design.

Additionally, the Transportation Considerations Report has taken into consideration aspects of the Inspiration Lakeview Master Plan, the City of Mississauga Official Plan (MOPA89), and Lakeshore Connecting Communities Master Transportation Study, that inform the development of an active transportation network and the promotion of alternative modes of transportation. The aspects particularly taken into consideration have been noted in the following sections.

2.1 Inspiration Lakeview Master Plan

The following section was extracted from the City of Mississauga's Inspiration Lakeview Master Plan (ILMP) and embodies our approach to creating and testing the proposed Transportation Considerations Report:

Following the closure of the Lakeview Generating Station and eventual decommission of the site, OPG and the City of Mississauga began to look towards the future and started planning how to best repurpose the lands in the public interest. A community grass-roots initiative conceived by the Lakeview Ratepayer's Association started an effort to envision a future for this area, which became known as the Lakeview Legacy Project.

In 2011, an initial Memorandum of Understanding (MOU) was signed between the City and the Province outlining the common goals of site remediation and the redevelopment of the Lakeview site into the GTA's newest waterfront community. From the initial MOU, a substantial community planning process was launched by OPG and the City to solicit thoughts and ideas for how the new Lakeview community should be created. The engagement process resulted in the 2014 Inspiration Lakeview Master Plan (ILMP) completed by Urban Strategies. With ILMP document in place, the Province committed to assist in the remediation of the shoreline, and future public parkland was secured.

The redevelopment of Inspiration Lakeview is supported by land-use planning policy at all levels. The Master Plan builds on the strengths and overarching policy trends towards the development of mixed-use and transit-supportive urban environments, while protecting and enhancing special waterfront districts. The Master Plan is grounded in the most recent Provincial, Regional and City land-use policies, strategic priorities and local realities – ensuring Inspiration Lakeview is relevant to 2014 and beyond.

The '6 Big Moves' give clear structure to the Master Plan's open space, land use, transportation and built form strategy. The "Big Moves" provide a unique and specifically Lakeview personality that will define how future Lakeview neighbourhoods evolve. These six moves, summarized below, work together to help deliver the richness and complexity of an urban waterfront community with cultural and economic variety, beautiful interconnected landscapes and high-quality living that will make Lakeview a destination and precedent for waterfront renewal.

A Continuous Waterfront

The true "inspiration" for the site is its waterfront location. As one of the missing links to a continuous waterfront park system along the shores of Lake Ontario, Inspiration Lakeview will reconnect Mississauga both to the water and along its shores. The new waterfront will connect to the Waterfront Trail to the east and to the west and dramatically extend outwards into Lake Ontario along the Western Pier. The Lakeview Shoreline is imagined as a destination - a place to walk, cycle and to interact.

A Blue & Green Network

Generous green and water-related open spaces are the organizing strategy for Inspiration Lakeview. Forming east-west and north-south spines, public realms of different sizes and function work together to provide a distinctive cultural and ecological community landscape. The network provides strong north-south linkages to the city, clear east-west connections to the neighbouring parks, important stormwater management functions, and intimate neighbourhood courtyards, gardens and parks. Reinforcing the continuous waterfront, the network is both a practical and inspired mix of community and destination spaces.

A Fine Grain Street Pattern

Created to support all types of users, including transit-riders, cars, bicycles and pedestrians, the new urban street and block pattern connects the various neighbourhood districts of this new community - to the north, east and west. Building off of and connecting to the existing road network north of Lakeshore Road, the new fine grain street pattern creates for safe and efficient transportation and movement. Inspiration Lakeview is imagined as a unique, urban village - where housing, retail, jobs and community amenities are strategically positioned, creating a truly mixed community.

Bringing Transit to the Site

To service this new community, opportunities are presented to bring transit into the site. Bringing residents, employees and visitors into and around Inspiration Lakeview with higher order transit is important to not only encourage transport modes other than the private automobile, but to support the area's long-term sustainability and vitality. A flexible approach to the implementation of this costly infrastructure ensures a Plan that is adaptable – one that can and will be fine-tuned as the redevelopment is phased.

A Cultural Hub at the Head of the Piers

After 120 years of being closed to the public, a prime waterfront address at Inspiration Lakeview is reserved for culture and public use. The Cultural Hub, at the water's edge, provides a rare opportunity to not only commemorate and celebrate the site's history, but also create a long-term legacy. As Mississauga grows, so too does its diversity - the opportunity to incorporate multi-cultural programs, special uses and waterfront attractions is immense. Culture is not imagined as a stand-alone feature, but a place where arts and culture are incubated as both destination and neighbourhood infrastructure, providing unique venues and opportunity for expression.

Employment & Innovation Corridor

Inspired by the area's industrial history, informed by the current stable job base, and prompted by good-planning principles, Inspiration Lakeview plans for the future employment growth for the wider community. In addition to the community's retail, institutional and cultural employment opportunities, an employment and innovation corridor is imagined as a transitional use between the WWTF and the community. As a green technology district, this corridor is intended to attract research and development-type jobs and create affinities with the planned institutional uses.

2.2 City of Mississauga Official Plan

The City of Mississauga Official Plan contains direction and policies which link land use and transportation stressing multi-modal accessibility to support the daily needs of residential and business communities.

Policy 4.5 of the Official Plan puts an emphasis on direction growth towards higher order transit such as Lakeshore Road East.

Policies in the Official Plan set out development criteria for Intensification Areas. Among these are provisions for promoting multi-modal transportation and avoiding excessive car-traffic on the road system within the intensification area. The Intensification Area through Port Credit has its western boundary at Mississauga Road and while the area does not cover the subject lands, it is considered that the policies related to transportation provide relevant guidance for the development of the site.

Policy 8.2.3.8 outlines criteria for decisions on transit planning and investment, which relates to land use planning and development. This policy requires the following:

- using transit infrastructure to shape growth, and planning for high residential and employment densities that ensure the efficiency and viability of existing and planned transit; and
- expanding transit service to areas that plan to achieve transit supportive mixed residential and employment densities.

The proposal for a mixed-use development on the site promotes the viability of a potential future extension of higher order transit by adding residential, office and retail, along with community uses, all in a transit-supportive density.

2.2.1 Official Plan Amendment 89

On July 4, 2018, City of Mississauga Council approved Official Plan Amendment Number 89 to the Mississauga Official Plan. The appeal period for the revisions to the Mississauga Official Plan (MOPA 89) was cleared on July 31, 2018 and the policy revisions are now in full force and effect for the LCPL lands.

The purpose and effect of the Official Plan Amendment ("the Plan") is to add a new Major Node Character Area and to change the land use designation of the subject lands from Utility, Business Employment and Greenlands, to Residential Medium Density, Mixed Used, Public Open Space, Institutional, Business Employment and Greenlands. The Lakefront Waterfront Major Node Character Area ("Lakefront Waterfront") policies elaborate on or provide exceptions to the policies or schedules of the Plan.

2.2.1.1 The Vision

The Vision for the Lakeview Waterfront area is a 'green', sustainable and creative community on the waterfront. It will be planned as a mixed-use community with a vibrant public and private realm including generous open spaces, cultural and recreational amenities, and employment opportunities. The Vision is based on the following Guiding Principles set forth in MOPA89 Policy 13.4.3.1.

- *Link: connect the city and the water, including the provision of a continuous waterfront park system along the shores of Lake Ontario;*
- *Open: open the site with accessible public spaces for all, with a public realm of different sizes and function, working together to provide a distinctive cultural and ecological community landscape. Create green, public open spaces with enhanced streetscapes;*
- *Green: promote a green sustainable innovative model community that may include integrated, water features that provide aesthetic, pedestrian connections and stormwater functions in both the public and private realm (e.g. water themed open spaces, walkways, and stormwater spines).*
- *Vibrant: create a mixed-use community, affordable and welcoming to all, including cultural uses, housing, retail, office and community amenities.*
- *Connect: provide multiple ways to get around - walk, cycle, transit and vehicles. Design a safe, convenient mobility system that encourages all transportation modes and innovative parking solutions. A new street and block pattern including multi-use pathways and mews will connect various neighbourhoods and precincts and create a permeable community. Enhanced transit will bring residents, employees, and visitors into the area and support long term sustainability and vitality;*
- *Destination: create a special place to draw visitors where people can enjoy cultural areas with unique venues, waterfront attractions and opportunities for expression. Provide incubator space to promote cultural and creative industries;*
- *Remember: commemorate history while creating a new legacy; and*
- *Viable: balance public and private investment to be economically sustainable.*

2.2.1.2 Multi-Modal City

The Lakeview Waterfront Multi-modal City policy framework is based on the following Guiding Principles set forth in MOPA89 Policy 13.4.7.

- *The Lakeview Waterfront community is designed to encourage multi-modal transportation with emphasis on transit and active transportation, to reduce traffic delays, congestion, energy consumption and pollution. The community will have a highly connected network of streets and routes for active transportation to support walking and cycling.*
- *As the area develops and site-specific applications are submitted, the City will monitor implementation of the multi-modal network to ensure transit and active transportation are incorporated and the overall network functions efficiently. As development in the Lakeview Waterfront community progresses, increased traffic delays may be experienced if the complementary improvements and/or investments to the overall network are not made.*
- *The City will continue to work with partners from other levels of government, including Metrolinx and the private sector, to explore sustainable transportation solutions. The area's proximity to existing and expanded all day two-way GO Rail transit service, proposed higher order transit along Lakeshore Road East and future enhanced transit into the site will provide increased levels of service in the future.*
- *Future enhanced transit is the provision of a range of transit services and infrastructure based on demand.*
- *As a fully realized community, transit and active transportation are intended to be viable alternatives to vehicular use and will help shape and support the future development of the Lakeview Waterfront area.*
- *A future higher order transit corridor along Lakeshore Road East and a future enhanced transit route extending into the site is identified on Schedule 6: Long Term Transit Network (MOPA89). The Lakeshore Road Transportation Master Plan will examine transportation issues on the corridor including a review of higher order transit needs and any necessary improvements to the transportation system for all modes of travel.*
- *Bringing enhanced transit into the site is considered fundamental to implementing the Vision and Guiding Principles for Lakeview Waterfront. An assessment of the preferred transit solution, including its alignment and overall road network, will be subject to further study.*

2.2.1.3 Lakeview Village Lands – Applicable Policies

Since the Lakeview Village lands are part of the Lakeview Waterfront Major Node Character Area, the following is noted to highlight specific policy context relevant to the site:

- Each precinct in the Major Node has a unit target as well as a built form distribution;
- Of the four-character area precincts in the Major Node, one is partially, and two are exclusively within the limits of the LCPL lands, the City refers to these precincts as: Ogden Village, Cultural Waterfront, and Innovation Corridor;
- Site specific land use policies including built-form height allowances and flexibility for some additional building height, land use compatibility, and overall use provisions are in the MOP;
- Details regarding area-wide and specific precinct study requirements are noted as part of development application review, processing, and approvals. This includes the requirements for this Lakeview Village Development Master Plan, such as an area wide transportation study, as per Policies 13.4.11.6 and 13.4.7.1.2 of the OP . The area-wide transportation study will examine among other things: future enhanced transit including its alignment and design; multi-modal splits between transit, active transportation and vehicle use; TDM; additional roads; and potential traffic infiltration impacts on adjacent neighbourhoods.

With ongoing public and landowner feedback, and technical considerations by internal departments and external agencies, City staff have revised the policies with versions of the document published in January 2018, May 2018, and finally June 2018.

The City's final report including public comments on the proposed Lakeview Waterfront Major Node Character Area Policies was dated June 11, 2018 and was presented to the City's Planning and Development Committee on June 25, 2018. At the Committee meeting, local Councillor Dave Cook brought forward a motion requesting minor changes to some of the policy framework which focused on the mixed-use focal point in the southeast part of the community, development application processing, and community engagement. LCPL deputed at the Committee meeting noting full support for the revised Official Plan framework and content of Councillor Cook's motion. The staff report, including amendments through Councillor Cook's motion, was unanimously approved by the Committee, resulting in approval by City Council on July 4, 2018.

2.3 Lakeview Local Area Plan

Policy framework around the Lakeview Village site is included in the Lakeview Local Area Plan which provides policies for lands located in southeast Mississauga and includes lands identified in the City Structure as a Community Node, Neighbourhood Area and Employment Area. The Vision for Lakeview is a connection of neighbourhoods with views to the lake and public access to the shores and waters of Lake Ontario.

The plan has key goals related to housing options, transit supported by area growth, area employment development of a main street and focus on the environment through conservation, restoration, and natural enhancement.

2.4 Mississauga Moves

The City of Mississauga has developed a Transportation Master Plan (TMP) that will shape how people move within the City from present day to 2041. The plan incorporates the City's vision where everyone and everything has the freedom to easily and efficiently get anywhere at any time.

The plan aims to provide an integrated network with safe, travel options within and beyond the city, with simple and pleasant connections that are accessible regardless of someone's age, ability, income or familiarity with the city.

One of the objectives of the Plan is to envision half of trips to, from, and within Mississauga are taken by sustainable modes (those other than driving a car, such as walking, cycling, transit, ridesharing, and ridehailing in a taxi or TNC).

2.5 Peel Region Sustainable Transportation Strategy

The Region of Peel's Sustainable Transportation Study (STS) published in February 2018 presents the Region's goals and strategies to manage the anticipated effects on the regional transportation system due to a projected 40% population increase by 2041. Region of Peel defines sustainable transportation modes as walking, cycling, carpooling, transit, and teleworking (to name a few), and aims to develop a 2041 regional transportation system where 50% of trips taken during peak periods will be made by sustainable transportation modes.

Per the STS: "This strategy's overall target for the Region of Peel in 2041 is that 50% of morning peak period person-trips will use sustainable modes of travel, and the remaining 50% will be made by driving. For comparison, the Region's morning peak period mode shares in 2011 were 37% for sustainable travel modes and 63% for driving in the morning peak period. While this strategy does not set targets for trips outside peak periods, it anticipates and supports similar gains in sustainable mode shares at those times."

2.6 Lakeview Connecting Communities

The following section was extracted from the City of Mississauga's Lakeshore Connecting Communities project information, and provides important context for our examination of Lakeview Village transportation effects and requirements:

Lakeshore Connecting Communities is about planning for the future of Lakeshore Road. This master plan study will look at how to best connect the communities of Clarkson, Port Credit and Lakeview while preserving and enhancing the unique character and sense of place of each community. The study will build on recent planning studies to develop a design for the Lakeshore Road corridor from building face to building face that supports all modes of transportation, connects people to places, and moves goods to market. The study will also evaluate rapid transit alternatives east of Hurontario Street as well as extending rapid transit into the Port Credit area.

Lakeshore Connecting Communities will support the following City of Mississauga strategic objectives:

- *Vibrant public spaces*
- *Transportation and land use integration, multi-modal integration*
- *Enhance connections to the waterfront*
- *Prosperity for local businesses*
- *Preserve the natural environment*
- *Improved quality of life*
- *Enhance main street features*
- *Design for all ages and abilities*

A Transportation Master Plan (TMP) is the City's blueprint for addressing the transportation and mobility needs of those living and working in the Lakeshore communities over the next 25 years. Lakeshore Connecting Communities will guide the planning and investing in the transportation network in the Lakeshore Corridor, including decisions about optimizing roadways, improving transit, and enhancing cycling and walking connections.

Purpose: The City of Mississauga is undertaking this study to develop a vision for the Lakeshore Road corridor that recognizes the different character areas and to support all modes of transportation, connect people to places and move goods to market, and support existing and future land uses as well as establish an implementation plan to make the vision a reality.

Scope: The study will deliver a transportation study and conceptual design for Lakeshore Road between Southdown Road and the east City limit and Royal Windsor Drive between the west City limit and Southdown Road.

Benefits: Lakeshore Connecting Communities will result in more ways to walk, cycle and take transit. It will also plan for the better use of existing roads to move people and goods. Clarkson, Port Credit and Lakeview are vibrant neighbourhoods each with a unique character and sense of place. With your input, Lakeshore Connecting Communities will develop a plan for a transportation network along the Lakeshore Corridor to support and enhance community life in each of these communities.

The Lakeview Village Development Master Plan (DMP) 3.0 was submitted to the City of Mississauga August 19th, 2019. This Plan is required by the City of Mississauga as a bridge between the policy planning framework in the City's Mississauga Official Plan (MOP) and the eventual detailed development applications yet to be submitted for review and approval by the City. More specifically, the DMP builds on the legacy

and vision of the Inspiration Lakeview Master Plan (ILMP) and is essentially a continuation of the past planning and design efforts spearheaded by the City and local residents, advancing the project to develop and execute on the City's vision while fulfilling the City's MOP requirements.

DMP 3.0 will provide guidance for future land use planning and development application processes, recognizing that some of today's underlying assumptions may change over time. This does not weaken the content or intent of the Development Master Plan, nor the enclosed Transportation Considerations Report, but rather directs LCPL to consider the broader context and overall area requirements as noted by OPA89 and in other applicable approval authority documents. It is understood that with time, amendments may be pursued or required to the DMP and thus, the Transportation Considerations Report embodies an element of fluidity for flexibility in the future.

2.7 Lakeview Village Development Master Plan

The Lakeview Village Land Use Plan and Development Phasing Concept which has been adopted in this study was developed concurrently with the latest Development Master Plan 'DMP 3.0', recently submitted by LCPL. Due to the evolutionary nature of the DMP process, and the efforts and timeline required to create the traffic model, the build-out land uses for the Lakeview Lands were based on a blending of Master Plan elements previously considered in our original transportation study of January 2019, the Development Master Plan 2.0 (presented to the City, but never submitted) and the latest DMP 3.0.

As a result, the land use plan adopted herein differs slightly from the final proposed distribution of cultural, institutional, retail, housing and unit counts presented in DMP 3.0 submitted to the City. For instance, the land use parameters utilized in the transportation model assumed 9,700 dwelling units, representing an 8% increase over the 8,982 units proposed by DMP 3.0. However, the non-residential components of the latest Lakeview Plan proposed in DMP 3.0 HAVE been incorporated into our traffic model, which has resulted in a high intensity development than currently presented in the latest DMP. Therefore, our operational assessment represents a highly conservative (i.e., worse case) analysis of the proposed Lakeview transportation network and the broader transportation system.

For reference, the latest DMP 3.0 now proposes approximately 8,982 residential units in the form of townhouses and apartment condominiums within mid/high rise buildings and taller elements, along with approximately 175,577 m^2 of commercial space (including office/institutional uses), 18,049 m^2 of retail space (including hotel), and 26,012 m^2 of civic space (including school/community centre uses) and a significant portion of park land and open space.

2.7.1 '6' Big Moves'

The identification of a set of key structuring principles known as the '6 Big Moves' (see **Section 2.1**) was established at the outset of the ILMP development process. These key principles have been adopted to continue to inform the development of Official Plan Amendment 89, and the proposed DMP, providing the structuring framework and organizing elements for the configuration of streets, districts, neighbourhoods, and associated land uses.

The following provides a general description of the '6 Big Moves' and how they have been used to structure the proposed Lakeview Village community.

A Continuous Waterfront

A continuously linked waterfront open space system is at the core of the vision for the Lakeview Village, providing an uninterrupted water's edge connection from east to west, linking with existing park systems on both sides with the new waterfront amenity and the emerging Jim Tovey Lakeview Conservation Area immediately to the east.

A key component of achieving the continuous connection is the linking of the existing Waterfront Trail to the east and west of Lakeview Village, resulting in a complete and improved recreation trail integrated along the shore of Lake Ontario.

The plan conveys 67.31 acres of land to the City of Mississauga. Much of this remediated land will be converted into a new waterfront park, with multimodal trails that will form part of the Waterfront Trail, and active waterfront spaces. The plan protects public access along the waterfront throughout the length of the property.

A Blue & Green Network

In addition to new public spaces along the waterfront, the plan includes a mix of public and open spaces that connect various neighbourhoods throughout Lakeview Village and provide important stormwater management functions.

A comprehensive approach to the layering of parks and open space features provides a robust network of green and water related public and private outdoor spaces that result in significant north-south and east-west linkages throughout Lakeview Village. The integration of low-impact development (LID) stormwater management features will form a key part of the blue network.

Linkages will comprise a variety of open space features and elements, including a hierarchy of park types, neighbourhood courtyard and mews conditions, character streets, and associated stormwater management functions. These will combine to form pedestrian and cycling connections, as well as view corridors, that deliver a network of distinctive cultural, multi-functional open spaces with integrated innovative sustainable (LID) features.

This approach achieves a core principle of the community which is connectivity, particularly north-south connections, linking the entire Lakeview community and beyond to the waterfront and other key character districts and neighbourhoods identified within Lakeview.

A Fine Grain Street Pattern

The proposed street network is designed to allow people using various modes of travel (i.e. pedestrians, cyclists, transit riders, vehicles) to access Lakeview Village and move through the site safely.

Both as a means of structuring the community and providing the building blocks for distinctive districts and neighbourhoods, establishing a fine grain street pattern will appropriately respond to a multitude of users and functions. Ensuring all districts and neighbourhoods are well-interwoven by the street network is fundamental to ensuring pedestrians, cyclists, transit riders, and drivers have appropriate means to make direct, efficient, safe, and memorable connections throughout and to the water's edge.

Achieving street patterns that limit block lengths, reduce vehicular speeds, and adds to the character of Lakeview Village will promote walkability and is an important means of achieving a significant active transportation network that reduces reliance on vehicular travel within the community.

Bringing Transit to the Site

Ensuring efficient and convenient transit options are provided to and from Lakeview Village is a fundamental component of the transportation and sustainability strategy. Lakeview Village is ideally situated in proximity to the Long Branch and Port Credit GO stations, future Hurontario Street LRT, and TTC transit hub, bringing residents, employees, and visitors within easy reach of local and regional destinations.

At this stage, it is anticipated that the transit link into Lakeview Village and the Employment and Innovation

Corridor will bring local bus service along collector streets with direct connections to the two GO stations and a link to the future Lakeshore Road East transit facility.

Bringing transit to the site will be important for ensuring the long-term sustainability of the project. The plan is designed to be flexible, so that transit can be incorporated as the project is phased and as regional transit plans are implemented.

Beyond traditional bus transit methods, new technologies and initiatives are presenting alternative options that focus on first and last mile issues and have recently emerged as real considerations for new community development. These include micro transit options, shared private services (such as uberPool or Lyft), and even autonomous vehicle services. Regardless of the ultimate method, the focus will remain on bringing a transit model that will see a significant increase in the modal split to transit and away from private car use.

A Cultural Hub at the Head of the Piers

Arts, culture, retail, and public space will come together at the head of the piers. The plan concentrates a mix of activity-generating uses together, encouraging visitors to spend more time at Lakeview Village and enjoy many different experiences throughout the year.

The proposed cultural hub will become a dynamic, animated, and activated focus for Lakeview Village. It will combine a multitude of cultural venues and programming, indoor and outdoor, with retail opportunities, residential density, unique open space, and streetscape elements.

Employment & Innovation Corridor

Employment and innovation are an essential part of the mix of uses in Lakeview Village. The Innovation Corridor is designed to support a mix of office, institutional, and innovation (research & development) uses that will complement the planned residential, cultural, and retail uses as well as enhance the complete community in Lakeview Village.

The proposed Employment and Innovation Corridor provides the opportunity to strategically integrate a variety of employment uses (tech industries, office, research and development, light industrial) and potential education facilities within a sustainably focused district. As a transition area between proposed residential neighbourhoods and the existing G.E. Booth Wastewater Treatment Facility, the corridor will be well integrated into the urban fabric of Lakeview Village with a synergistic relationship to Lakeview Square and the surrounding retail and cultural amenities.

2.8 Approved Study Guidelines & Terms of Reference

In consultation with the City of Mississauga's Transportation and Works department July 27, 2018, the following scope has been adopted for this Transportation Considerations Report, hereinafter referred to as the 'Study' or 'Report'.

2.8.1 Summary of Existing Conditions and Assumptions

Many of the methodologies and assumptions adopted by this study are consistent with the guiding principles and modeling work already undertaken in the area by the City. However, TMIG consulted the City prior to proceeding with the enclosed transportation analysis regarding the following:

- Details of the land use scenario that is to be used for the transportation analysis
- Definition of the study area and area of influence
- Existing road network including number of lanes, widths, configuration, type of control, and posted speed limits
- A combination of maps and other documentation which will identify all relevant information
- Trip generation and distribution methodology
- Long-range 'future year' modal split assumptions
- Identify planned transportation improvements in and around the study area, indicating the status and anticipated date of implementation (to be provided by the City)

2.8.2 Transportation Analysis

The study will include a transportation analysis related to the proposed land use scenario for the whole of the subject lands. A Synchro and microsimulation (VissimISSIM) analysis will be conducted on the transportation network within the study area. The study will also evaluate how the long-term road and transportation network creates a permeable and connected community for pedestrian and cyclists that helps achieve the Vision of creating a healthy and sustainable community.

Sensitivity testing of at least two (2) different scenarios of modal split assumptions was conducted for two development horizons (to coincide with the current horizons for the Lakeshore Connecting Communities study).

Ultimately, a progression of development phasing that is timed with the provision of transit and other conditions affecting the modal split in order to maintain acceptable transportation / traffic operations on the local transportation network should be identified and assessed (including measures of how each development phase can be supported, independently from the employment lands). However, the effort and time required to deliver this level of detail is neither practical nor possible at the development master plan stage. The challenge will be to provide a sufficient level of detail in this Study to give comfort to the City that the Lakeview Village Master Plan can be accommodated in the long term.

While we agree that phased infrastructure requirements need to be identified and timed to support each phase of development, this Study shall focus on 2031 as the full build-out year, as per LCPL timeline. Ultimate development impacts for the two long-term horizons in the years 2031 and 2041 will be adopted for the purpose of analysis, with 2041 made up of additional background development and corridor growth, as agreed upon with City staff during pre-consultation. Once these ultimate long-range conditions are examined, and infrastructure needs are identified under the full buildout condition, detailed analysis of development phasing and specific transportation requirements needed to support that phasing can be developed. Such in-depth study would be more appropriate at the Draft Plan of Subdivision stage.

For the proposed land use scenario, the traffic impact assessment will include/consider at least the following items agreed upon with City Transportation Staff:

- An existing conditions analysis (the existing count data used in the analysis shall be no older than two years).
- As per the July 27, 2018 meeting with City staff, it was determined that all relevant developments in the area would be accounted for within the model used to produce the growth rates to be provided by the City. Only Rangeview and the Serson North campus developments were identified by City staff for specific consideration, as they were not included in the Lakeshore Road growth rate and assumed to be built-out by the 2041 horizon but will not be included in the 2031 horizon.
- Background traffic growth rate from City's traffic forecasting model were provided by the City of Mississauga and adopted in the Study.
- Analysis of the following planning horizons assuming full build-out of Lakeview Village:
  - 2031 with implementation of Lakeshore Road BRT including proposed road improvements and shift in non-auto mode splits;

- 2031 sensitivity analysis of Business As Usual (BAU) scenario with existing mode splits and no Lakeshore Road BRT;
- 2041 with implementation of Lakeshore Road BRT, including Rangeview Estates and Serson Corridor background developments; and
- 2041 sensitivity analysis with implementation of Lakeshore Road BRT, background development, and achieving the Region's goal of a 50% sustainable mode share by 2041.

- Generate the expected future total development trips (for the entire Lakeview Village site) including assigning those trips onto the future planning horizon networks/scenarios listed above as a result of the proposed land use scenario and modal split and phasing assumptions.
- Develop and analyze future total traffic / trip demand scenarios based on the results of the above steps.
- Review infiltration of traffic to the neighbourhoods north of the railway corridor showing delay and queuing at the following at grade rail crossings:
  - Lakeshore West Rail Corridor / Alexandra Avenue (at grade rail crossing);
  - Lakeshore West Rail Corridor / Ogden Avenue (at grade rail crossing); and
  - Lakeshore West Rail Corridor / Haig Boulevard (at grade rail crossing)
- Impacts to the adjacent existing stable residential communities, to the north and west .
- Both a.m. and p.m. peak period analysis are to be undertaken.
- A review of the modal split assumptions and the conditions required to achieve said modal splits (in the ultimate condition), including (but not limited to):
  - TDM measures proposed for the site and their potential impacts on the modal split
  - A review of need and justification of enhanced transit into the site with respect to modal split target assumptions used in the study
  - A review of potential higher order transit on Lakeshore with respect to modal split target assumptions used in the study
- Consideration for future connections proposed through the Lakeview Local Area Plan and future roads proposed in the Lakeview Waterfront Major Node Character Area Policies and their connections to the existing area road network.
- Based on the land use scenario, recommend the need and impact of additional multi-modal transportation network improvements in the area (if/as required).

2.8.3 Trip Generation and Distribution

The residential multi-modal trip demand was based on the planned number of residential units and estimated occupancy levels provided to TMIG by LCPL. Transportation Tomorrow Survey (TTS) 2011 data was then used to develop residential travel demand for each travel mode (e.g. auto-driver, transit, walk, cycle, etc.) during both the a.m. and p.m. peak hours using person trip methodology.

- Port Credit was used as a proxy site for Lakeview Village due to its high residential density, variety of dwelling unit types, and mixed-use retail and office buildings. The residential and mixed-use composition of the Port Credit area is similar to what is planned for the Lakeview Village development. Port Credit is located approximately 3 km to the west of the Lakeview site via Lakeshore Road, so is similar in a regional context and exposure to alternative travel modes. Notwithstanding the above, as a conservative measure and as per the City's request, TMIG applied the "blended rate"/average of the Port Credit and Lakeview TTS Data sets. This will result in overall lower transit mode splits during both the a.m. and p.m. peak hours when compared to Port Credit TS Data set only.
- A 'Business as Usual' (BAU) scenario was analyzed at the 2031 planning horizon to determine the potential impacts of development in the area (including full build-out of Lakeview Village) without the planned BRT service along the Lakeshore Road corridor. Therefore, Lakeview Village site trip generation reflected the existing Lakeview area-specific modal splits (based on TTS 2011 data) during a.m. and p.m. peak hours.
- The distribution of site traffic was derived from 2011 TTS data for the Lakeview Village study area.
- A table summarizing findings provided.

2.8.4 Capacity Analysis and Evaluation of Impacts

The report will include capacity analysis (V/C, LOS, queue) completed in Synchro / Sim Traffic (v.10) using the Highway Capacity Manual (HCM) 2000 metrics and a microsimulation analysis (showing delay and queuing) in Vissim (base model provided by the City).

The analysis covers future build out of the entire Lakeview Village development site under the same long-term scenarios adopted by the City in their Inspiration Lakeview Master Plan supporting studies.

The analysis should also include the appropriate truck percentages for each movement and pedestrian volumes.

Key intersections in the wider study area to be analyzed in the transportation analysis will include those identified as follows:

- Lakeshore Road East / Cawthra Road (signalized);
- Lakeshore Road East / West Avenue (unsignalized);
- Lakeshore Road East / East Avenue (signalized);
- Lakeshore Road East / Alexandra Avenue (unsignalized);
- Lakeshore Road East / Lakefront Promenade (signalized);
- Lakeshore Road East / Ogden Avenue (signalized);
- Lakeshore Road East / Hydro Road (unsignalized);
- Lakeshore Road East / Haig Boulevard (signalized);
- Lakeshore Road East / Dixie Road (signalized);
- Rangeview Road / East Avenue (unsignalized);
- Rangeview Road / Lakefront Promenade (unsignalized); and
- Rangeview Road / Hydro Road (unsignalized)

There are several intersections initially proposed by the City that TMIG have eliminated from this study for the following reasons:

- None of the roads at the locations proposed to be eliminated cross the Lakeshore West Rail Line; thus, they are not preferred commuting routes to/from the north and are not expected to attract significant volumes of Lakeview Village derived trips.
- With the long-term introduction of the dedicated transit line along Lakeshore Road East (currently proposed in the median), the following intersections will be converted to right turns only. Therefore, impacts (and infiltration) from Lakeview Village traffic will be substantially mitigated at these locations:

Notwithstanding the above, it was agreed upon with the City to collect existing traffic volumes at the intersections below and redistribute the left turns to the remaining full moves intersections along the Lakeshore corridor. However, due to the elimination of 'critical' left turns at the following right-in/right-out intersections, they were deemed to be not required for future analysis purposes:

- Lakeshore Road East / Greaves Avenue (unsignalized);
- Lakeshore Road East / Westmount Avenue (unsignalized);
- Lakeshore Road East / Meredith Avenue

(unsignalized);

- Lakeshore Road East / Edgeleigh Avenue (unsignalized);
- Lakeshore Road East / Strathy Avenue (unsignalized);
- Lakeshore Road East / Orchard Road (unsignalized); and
- Lakeshore Road East / Fergus Avenue (unsignalized).

2.8.5 Transportation Improvements

All recommended transportation improvements will be summarized including additional new roads and multi-modal connections, physical intersection improvements, operational changes, signal timing changes (and warrants for new signalized intersections), as well as identification of transit routes and stops through the Inspiration Lakeview site (with supporting analysis for same).

2.8.6 Future Focused Transportation Studies

It is noted that this Study represents the first of potentially several transportation studies to be completed in support of Lakeview Village. The broad-based analyses conducted herein focuses on operations at the proposed connections to the adjacent existing municipal streets. This study then combines the requirements for a Transportation Impact Study (TIS), Transportation Demand Management Strategy, and Transportation Operations Study, but also lays the ground work for more focused studies to come in support of the Draft Plan of Subdivision and individual Site Plan Applications.

In consultation with City of Mississauga staff, it was decided that a supplemental Vissim microsimulation analysis of the road network would be undertaken to determine queueing and delay at intersections throughout the study area. The City provided TMIG with a calibrated existing conditions Vissim model of the Lakeshore Road corridor that was developed for the Lakeshore Connecting Communities study.

Vissim Microsimulation analysis will be conducted for the entire transportation impact study area, as defined by City staff. The three at-grade railroad crossings within the study area, located at Alexandra Avenue, Ogden Avenue, and Haig Boulevard, are to be included in TMIG's Vissim models to determine the extent of queueing that occurs when northbound and southbound traffic are required to stop for a train.

Furthermore, TMIG plans to include an update to the VISSIM analysis as part of future phasing and implementation plan analysis efforts, as a greater level of detail regarding land use and individual site statistics becomes available. Confirmation and general acceptance by City Staff of the assumptions and methods applied to the analysis included in this report will inform the fulsome VISSIM analysis.

EXISTING CONDITIONS

3

Existing site conditions of Lakeview Village
Source: Figure 5b Development Master Plan Draft c. October 2018

3 Existing Conditions

3.1 General Road Network Description

The transportation study area for Lakeview Village is made up of the following roadways under the City of Mississauga and Region of Peel jurisdictions.

Lakeshore Road is an east-west arterial roadway that extends through the entirety of the City of Mississauga, providing connections to the Queen Elizabeth Way via Dixie Road and Cawthra Road within the study area. Lakeshore Road turns into Lake Shore Boulevard at the east limits of Mississauga, where it continues east through the City of Toronto. Within the site, Lakeshore Road East forms the northern boundary of the site and operates with four general purpose travel lanes with a posted speed limit of 50 km/h. The roadway includes a median two-way-left-turn-lane providing access to existing commercial and light industrial buildings fronting Lakeshore Road, and auxiliary turn lanes at the public road intersections. Near the site (and running from the east to the west), Lakeshore Road East has signalized intersections with Dixie Road, Haig Boulevard, Ogden Avenue, Lakefront Promenade, East Avenue, and Cawthra Road.

Dixie Road is a regional arterial roadway under the jurisdiction of the Region of Peel (Regional Road 4). Dixie Road extends north from Lakeshore Road East and provides limited access to the Queen Elizabeth Way (QEW) before continuing north through the Region of Peel. Within the study area, Dixie Road is a two-lane urban roadway with on-street bicycle lanes, a southbound left turn lane at Lakeshore Road, and a posted speed limit of 50km/h. Prior to 2017, Dixie Road was a four-lane urban roadway with no bicycle lanes. The current lane layout was a result of a lane configuration study by the Region and was implemented as a part of lane resurfacing work on Dixie Road from Lakeshore Road East to Rometown as a part of the Hanlan Water Project.

Fergus Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East, opposite a private access, terminating at St. Marys Avenue.

Orchard Road is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East, opposite a private access, terminating at the CNR tracks.

Haig Boulevard is a two-lane minor collector road with a statutory speed limit of 50 km/h. It runs north-south and forms a signalized "tee" intersection with Lakeshore Road East and extends north to South Service Road. On street parking is permitted along the east side of Haig Boulevard.

Hydro Road is a two-lane local road with a statutory speed limit of 50 km/h. It runs north-south and forms an unsignalized two-way stop control intersection with Lakeshore Road East opposite a private access.

Strathy Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East, opposite a private access, terminating at the CNR tracks.

Ogden Avenue is a two-lane major collector road with a statutory speed limit of 50 km/h. It runs north-south and forms a signalized intersection with Lakeshore Road East opposite the Oasis Banquet Hall access. Ogden Avenue extends north from Lakeshore Road East, terminating at South Service Road.

Edgeleigh Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East, opposite a private access, terminating at the CNR tracks.

Meredith Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East, terminating at the CNR tracks.

Lakefront Promenade is a north-south two-lane local road with a statutory speed limit of 50 km/h and reduces to 25 km/h south of Rangeview Road. It extends south from a signalized intersection with Lakeshore Road East, terminating at the Lakefront Promenade Marina.

Alexandra Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East, opposite a private access, terminating at the South Service Road via Alexandra Boulevard and Asgard Drive.

Westmount Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East, terminating at the CNR tracks.

East Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. The roadway is signalized at Lakeshore Road East extending north from the Lakeview Water Treatment Plant to 3rd Street.

Greaves Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East terminating at 3rd Street.

West Avenue is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends north from an unsignalized intersection with Lakeshore Road East, opposite Montbeck Crescent, terminating at 3rd Street.

Montbeck Crescent is a north-south two-lane local road with a statutory speed limit of 50 km/h. It extends south from an unsignalized intersection with Lakeshore Road East, opposite West Avenue, terminating at Hampton Crescent west of the study area.

Cawthra Road is a regional arterial roadway under the jurisdiction of Peel Region (Regional Road 17) extending north from Lakeshore Road East to interchanges with Queen Elizabeth Way and Highway 403. Within the study area, Cawthra Road is a four-lane roadway with a posted speed limit of 50 km/h. Cawthra Road runs north-south and forms a signalized "tee" intersection with Lakeshore Road East with southbound auxiliary turn lanes.

3.2 Existing Traffic Volumes

Turning movement counts were collected in November 2017 and June 2018 during the weekday a.m. and p.m. peak periods at all study intersections. Additionally, 24-hour traffic volumes were recorded at the CNR grade crossings at Alexandra Avenue, Ogden Avenue, and Haig Boulevard in June 2018.

Collected traffic data is included in **Appendix A** and an inventory of this data is contained in **Table 3-1**.

There is an expectation that moderate differences between intersections are expected to occur due to variations in traffic flow between survey periods (monthly and daily variations), differing peak periods between intersections, and 'uncounted' private/ commercial access points between intersections. Indeed, our existing conditions data set, which spans several months during 2017 and 2018, reflects such differences in traffic flows between intersections. This is neither surprising, nor something that needs to be 'fixed'; it is simply a reflection of the complexity of activities along this corridor and its sensitivity to broader transportation influences (such as traffic operations along the connected Regional corridors of Cawthra and Dixie, as well as the QEW).

We have therefore elected to leave the existing conditions 'unbalanced' for our reporting and analysis purposes. We believe adjusting traffic flows between intersections to artificially balance the corridor will either 'hide' or 'inflate' current operating conditions, all of which are 'correct' for the day they were counted. For the purposes of this high-level review, we believe this is an appropriate approach to take.

Notwithstanding the results of the operational analyses and the various transportation system improvements recommended in subsequent chapters herein, it is further recommended that as part of future development approvals (i.e., individual Site Plan Applications), that additional scoped Transportation Impact Studies be prepared to revisit existing traffic flows at a more granular level to assess specific impacts and timing of proposed developments on the existing and future transportation network. It would be appropriate at that time to update baseline traffic volumes to inform those detailed investigations.

Additionally, while this report does not consider the Lakeview Village phasing plan, at least insofar as the timing and triggers for individual infrastructure improvements are concerned, it is reasonable to expect that such a detailed transportation investigation would be undertaken in the near-term, prior to Site Plan Applications coming forward from LCPL. It might be appropriate at that time to update / augment the baseline conditions traffic data set to inform future infrastructure planning (i.e., triggers and timing) for each major phase of Lakeview development.

Figure 3-1 presents the existing traffic volumes during each of the weekday a.m. and p.m. peak hours.

Table 3-1 – Traffic Data

Intersection	Date Counted
Lakeshore Road East at:	
Cawthra Road	Jun 12, 2018
West Avenue / Montbeck Crescent	Jun 12, 2018
Greaves Avenue	Jun 13, 2018
East Avenue	Nov 22, 2017
Westmount Avenue	Jun 12, 2018
Alexandra Avenue	Jun 12, 2018
Lakefront Promenade	Nov 22, 2017
Meredith Avenue	Jun 13, 2018
Edgeleigh Avenue	Jun 12, 2018
Ogden Avenue	Nov 22, 2017
Strathy Avenue	Jun 12, 2018
Hydro Road	Nov 22, 2017
Haig Boulevard	Jun 13, 2018
Orchard Road	Jun 14, 2018
Fergus Avenue	Jun 12, 2018
Dixie Road	Jun 13, 2018
Rangeview Road at:	
East Avenue	Jun 12, 2018
Lakefront Promenade	Jun 12, 2018
Hydro Road	Jun 13, 2018
CNR Grade Crossing at:	
Alexandra Avenue	Jun 12, 2018
Ogden Avenue	Jun 12, 2018
Haig Boulevard	Jun 12, 2018

EXISITING
TRAFFIC VOLUMES

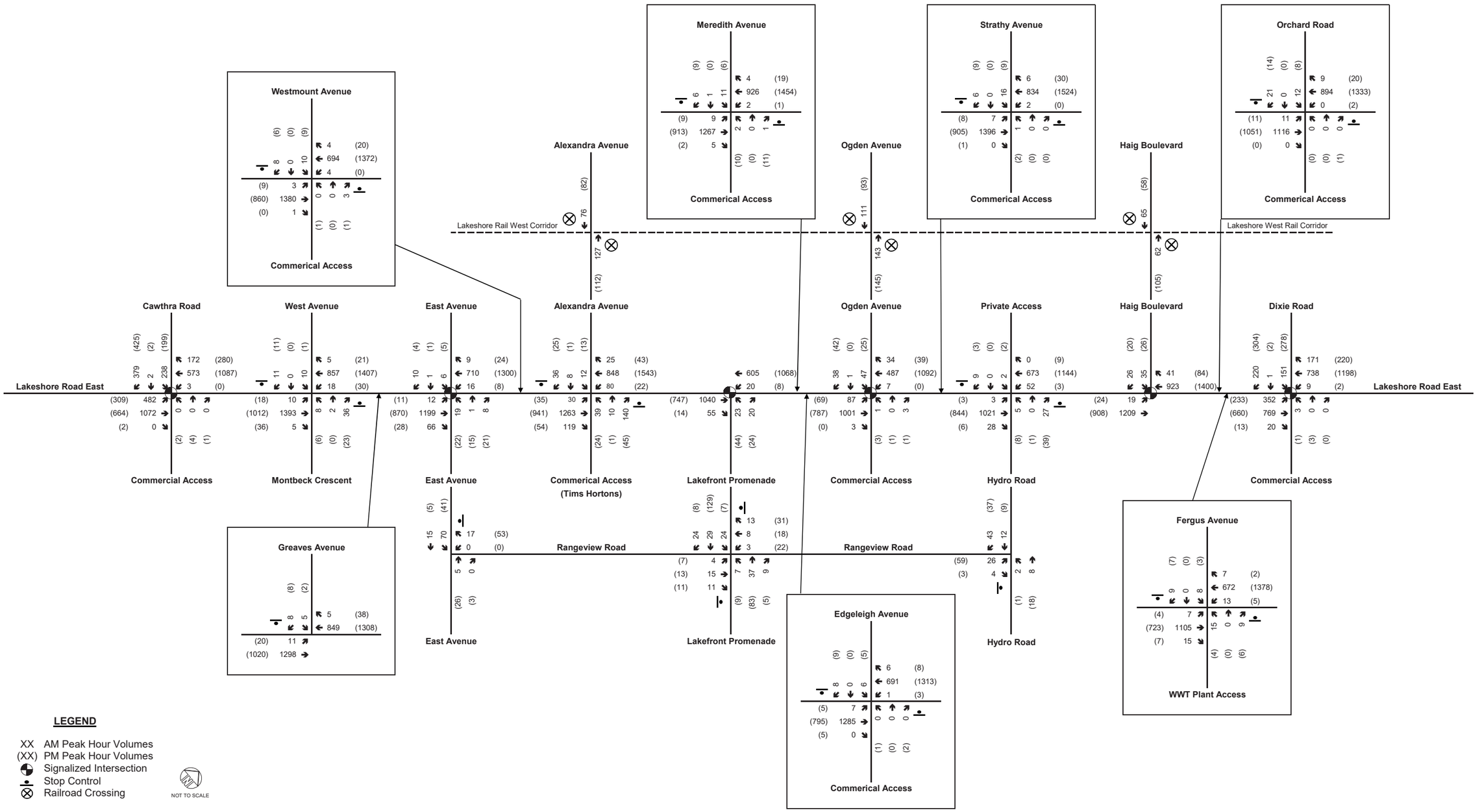


Figure 3-1 – Existing Traffic Volumes

3.3 Transit Service

3.3.1 MiWay Transit

MiWay currently operates two transit routes near the site, serving Lakeshore Road East and Ogden Avenue.

Route #5 (Dixie) provides east-west service along Lakeshore Road East with 10-minute frequency during the weekday peak hours, and 25-minute frequency during the weekend peak hours. The route provides service to/from the Long Branch GO Station and Derry Road at Columbus Road. The route loops through the Lakeview Community using the following roads; Lakeshore Road East, Ogden Avenue, South Service Road and Dixie Road, providing a transfer connection to the Mississauga Transitway.

Route #23 (Lakeshore) provides east-west service along Lakeshore Road East with 12-minute frequency during the weekday peak hours, and 20-minute frequency during the weekend peak hours. The route provides service to/from the Clarkson GO Station.

Bus bays are located at Strathy Avenue, Haig Boulevard, Orchard Road and Dixie Road stops for the eastbound route; and, at Cawthra Road and Orchard Road for the westbound route. Bus shelters are located at the East Avenue, Strathy Avenue, Haig Boulevard and Orchard Road transit stops for eastbound transit service; and, at Alexandra Avenue, Orchard Road, and Dixie Road for westbound transit service. Additional bus stops for Route 5 are located along Ogden Avenue.

The study area specific MiWay weekday system map (Figure 3-2) shows the existing transit routes discussed above.

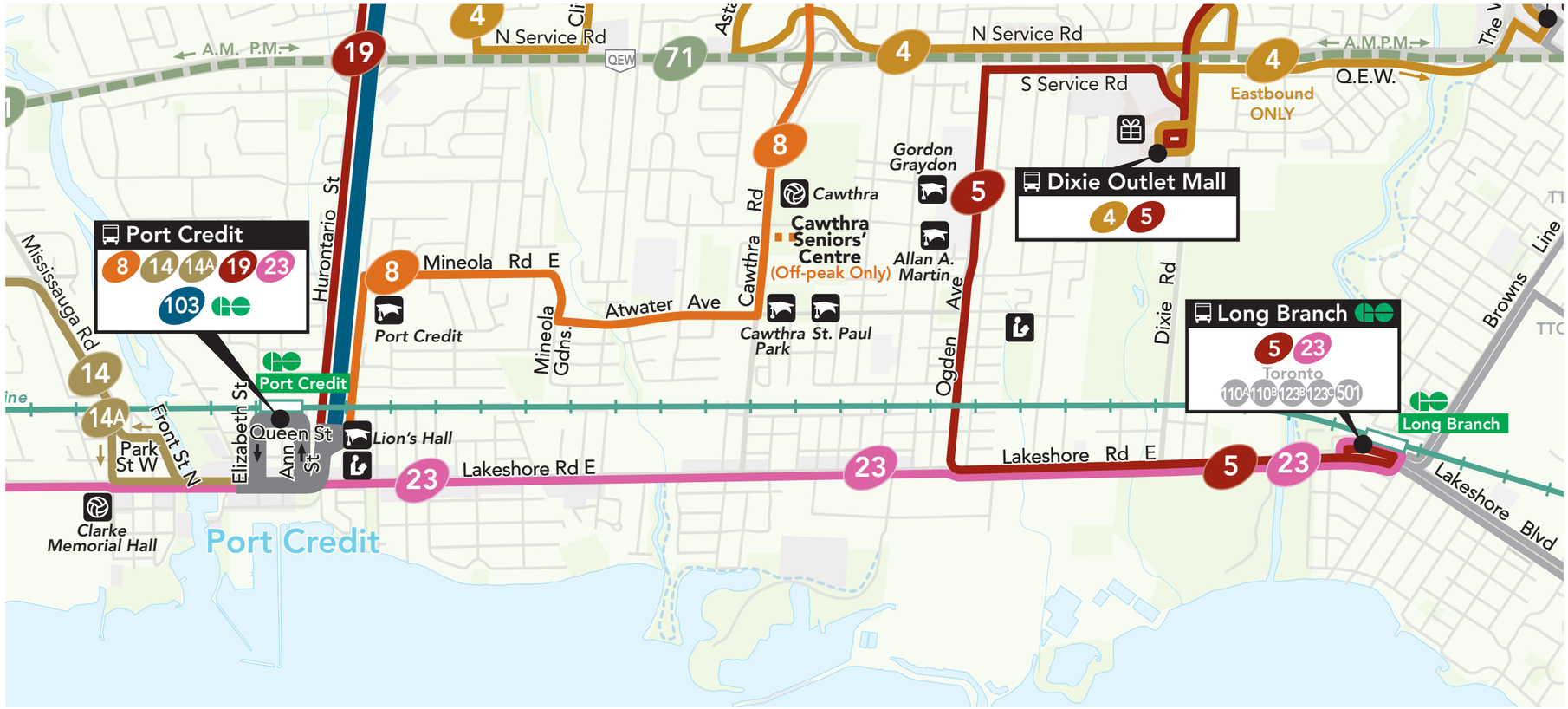


Figure 3-2 – MiWay Study Area Specific Existing Weekday System Map
Source: http://www.mississauga.ca/portal/miway/maps

3.3.2 MiWay Five Year Transit Service Plan

The MiWay Five Year Transit Service Plan (2016-2020) is moving Mississauga's transit system from a design that radiates from the city centre to a grid network that will allow for more frequent buses along main corridors. The MiWay Five plan aligns with the need for continued improvements in the transit network to advance the City's strategic pillar of developing a transit-oriented city.

The MiWay Five Year Transit Service Plan (2016-2020), prepared by IBI Group, identifies the study objectives as follows:

Increased emphasis is being placed on public transit as a core element of the City's future strategic plan, which is to be "transit-oriented". To effectively meet the city's future growth and development projections as well as the changing dynamics of demand and increasingly complex travel patterns within the city, further expansion and a re-shaping of the transit system's route network and enhanced service levels is required.

The purpose of the study was to prepare a five-year service plan for MiWay with associated service standards, route network and service changes, multi-year capital and operating budgets, and ridership and revenue forecasts. The major objectives were to:

- *Create a better network;*
- *Strengthen service, quality and reliability; and*
- *Achieve better service delivery.*

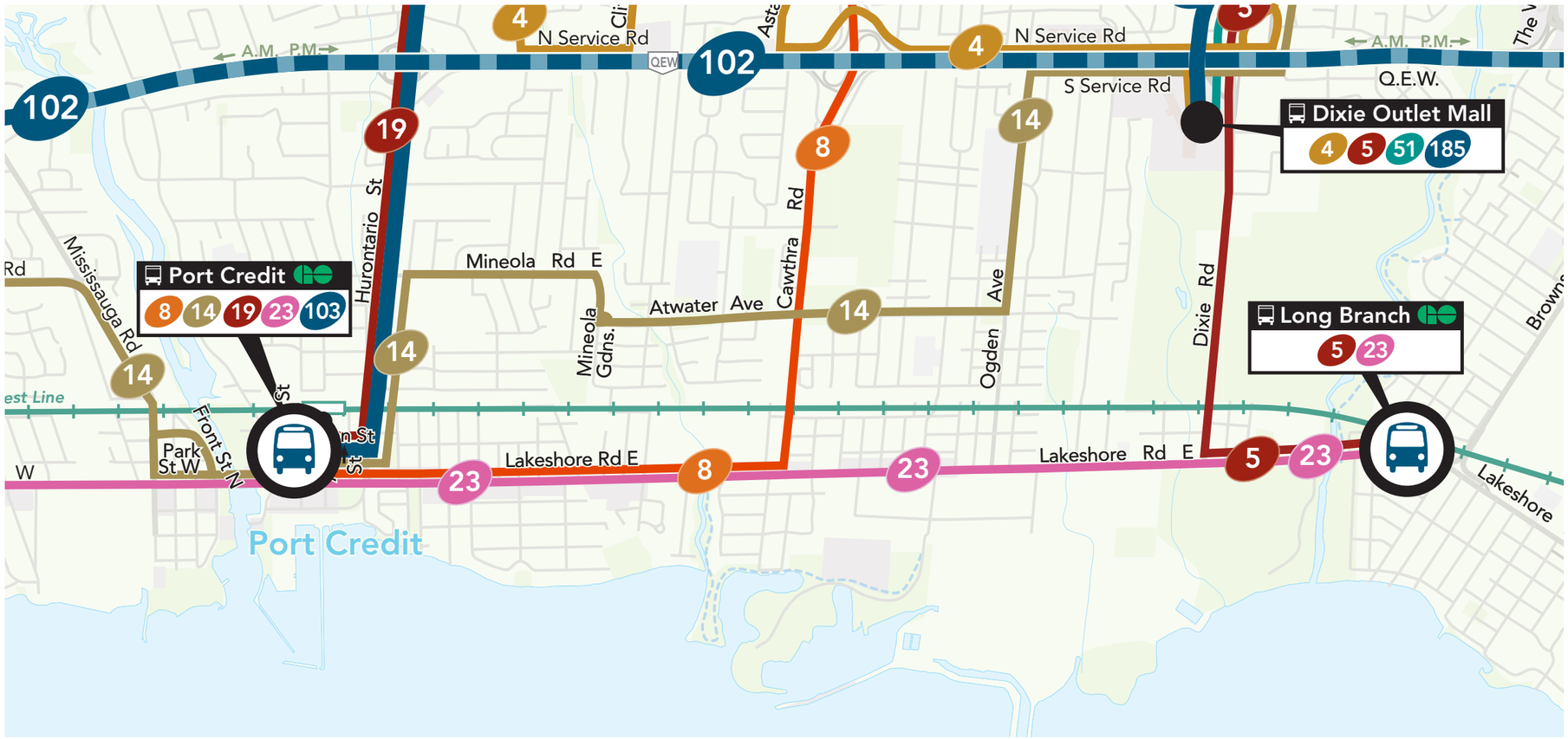


Figure 3-3 – MiWay Five Year Transit Service Plan Proposed Route Network (2020)
Source: http://www.mississauga.ca/portal/miway/miwayfive

The improvements included in MiWay's Five Year Plan include realignment of the existing bus routes to improve travel efficiency and flexibility based on the analysis of travel patterns. Transit routes impacted directly by the proposed realignment envisioned in the year 2020 within the study area include the following:

- Route 5 (Dixie): shifted to the east from Ogden Avenue to Dixie Road to provide a continuous north-south transit connection on Dixie Road from Lakeshore Road East to Derry Road.
- Route 8 (Cawthra): shifted to the south from Mineola Road / Atwater Avenue to Lakeshore Road East to provide a continuous north-south transit connection on Cawthra Road from Lakeshore Road East to the Cawthra Road Transitway Station.
- Route 14 (Lorne Park): Extended east from its current Port Credit GO Station terminus to replace transit service lost due to the realignment of Routes 5 and 8.

Figure 3-3 presents planned 2020 transit service in the Lakeview Community, as per the MiWay Five Year Transit Service Plan.

3.3.3 GO Transit and Toronto Transit Commission

The Long Branch and Port Credit GO Train Stations located to the east and west of the Lakeview Village development, respectively, provide transit users with a high level of connectivity to GO Transit, TTC, and MiWay transit routes. The transit options available at these stations allow for travel to many key destinations in Mississauga and the GTHA.

3.3.3.1 Long Branch GO Train Station

Long Branch Station is a GO Transit train station located in Etobicoke. It is located north of Lake Shore Boulevard and west of Brown's Line. There are two station platforms: one on the north side of the tracks, and another between the southern and middle tracks. The passenger pick-up/drop-off area is located east of the station building, with the parking lot stretching east and south.

The Long Branch GO Transit station operates adjacent to TTC's Long Branch Loop that acts as the western terminal of the 501 Queen Streetcar Route. Bus routes operated by TTC and MiWay that service the Long Branch Loop are:

- TTC Route 110 – Islington South
- TTC Route 123 – Sherway
- MiWay Route 5 - Dixie
- MiWay Route 23 – Lakeshore

TTC Route 110 travels between the Long Branch Loop and Islington Station, providing transit passengers a connection to the TTC's Bloor-Danforth subway line and the wider TTC subway network.

TTC Route 123 provides transit users a connection to the Sherway Gardens Terminal and Kipling Station, providing multiple opportunities to transfer to other TTC buses and Bloor-Danforth subway line. Additional GO Transit routes are also located at Kipling Station.

3.3.3.2 Port Credit GO Train Station

Port Credit GO is a GO Transit train station located in Mississauga. It is located west of Hurontario Street and north of Queen Street. An underground walkway connects the station building to the station platforms, one of which is on the south side of the tracks, and the other is located between the northern and middle tracks. A passenger pick-up/drop-off area is to the east of the station building, and parking lots are located to the north, east, and west of the station.

The Port Credit GO Transit Station is serviced by the Lakeshore West GO train, GO Bus Route 18, and five MiWay bus routes – four local and 1 express route. The bus platforms for both GO Transit and MiWay buses are located south of the Lakeshore West rail corridor and north of Queen Street East. The bus routes that service Port Credit GO are:

- GO Transit Bus Route 18
- MiWay Route 8 – Cawthra
- MiWay Route 14 – Lorne Park
- MiWay Route 19 – Hurontario
- MiWay Route 23 – Lakeshore
- MiWay Route 103 – Hurontario Express

Similar to the Lakeshore West GO Train line, the GO Transit Bus Route 18 travels from Hamilton to Union Station in Toronto. In general, the Route 18 bus travels along the Queen Elizabeth Way and will exit the high-way to provide additional service to GO Rail stations.

The MiWay routes servicing the Port Credit GO Train station provide connections to locations throughout Mississauga, such as the City Centre Transit Terminal and Square One, Clarkson SO Rail Station, GO Park and Ride at Highway 407 and Hurontario, Cooksville GO Rail Station, and the Brampton Gateway Terminal. All of these locations provide transit users ample opportunity to transfer to other bus routes to reach their desired location within Mississauga and beyond.

3.4 Other Modes

3.4.1 Cycling

Cycling is accommodated along the Boulevard Trail from Hydro Road to Dixie Road, providing a connection to the Waterfront Trail which currently serves as the north boundary of Lakeview Village. The Waterfront Trail is a 21.5 km continuous route along Lake Ontario, stretching from Etobicoke Creek to the Oakville border. A multi-use path is located on the west side of Lakefront Promenade providing a secondary connection to the Waterfront Trail from Lakeshore Road East.

3.4.2 Pedestrian

Existing pedestrian access from the waterfront to Lakeshore Road East is provided via sidewalks and multi-use paths as follows:

- Shared pedestrian / cyclist path on south side of Lakeshore Road East between Hydro Road and Dixie Road
- Shared pedestrian / cyclist path on west side of Lakefront Promenade
- Shared pedestrian / cyclist path (Waterfront Trail) on east side of Hydro Road
- Sidewalk on west side of Hydro Road
- Sidewalk on west side of East Avenue
- Sidewalk on north side of Rangeview Road
- Sidewalks on both sides of Lakeshore Road East.
- Signalized crossings located at major intersections

THE MASTER PLAN

4

Rendering of Lakeview Square and the water entry feature

The Master Plan

4.1 Phasing of Development

As per the Development Master Plan 3.0, Lakeview Village has been divided into a series of interconnected precincts that each have their own unique characteristics, but collectively contribute to the overall vision and experience of Lakeview Village.

Figure 4-1 identifies the different Lakeview Village precincts, as envisioned in the Development Master Plan 3.0.

The creation of different Character Area Precincts within the development also aids in the process of determining a conceptual development phasing plan. As per the August 2019 DMP 3.0, the construction of Lakeview Village will be divided into four Character Area Precincts and six Character Area Precinct Subzones.

A summary of residential and commercial land uses planned for the development is provided in Table 4-1, and Figure 4-2 shows the location of each land use as per the development program. The overall Land Use Plan is provided in Figure 4-3.

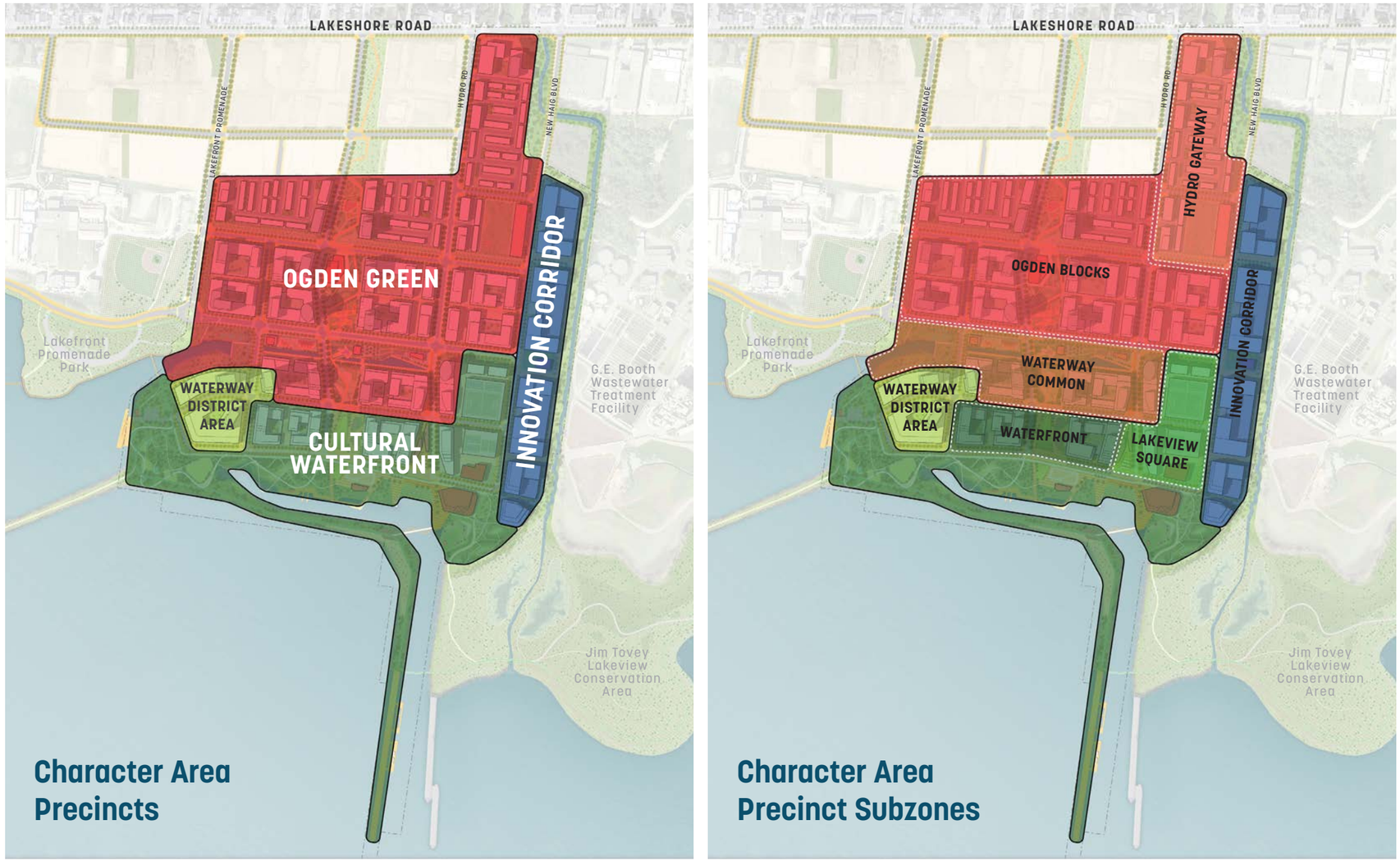
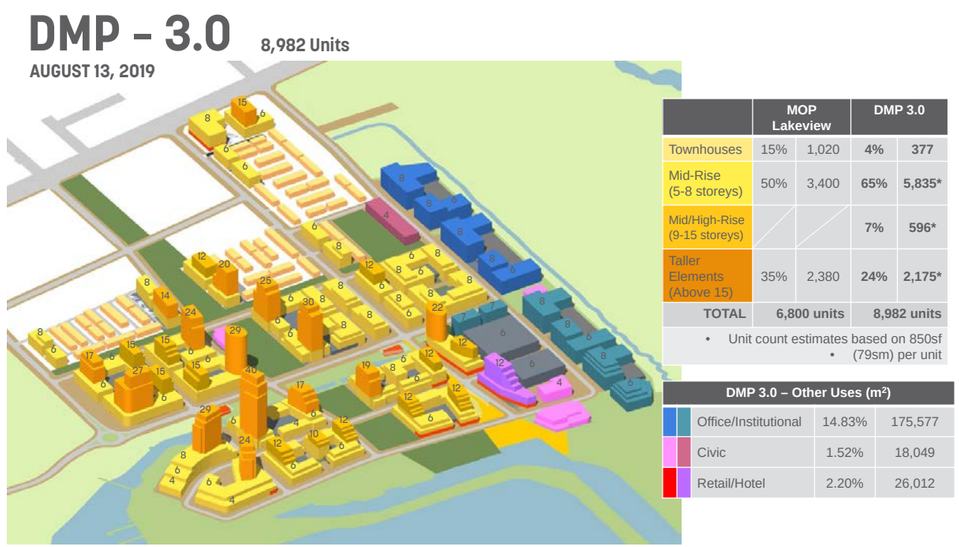


Figure 4-1 – Character Area Precinct Zones
Source: Development Master Plan 3.0, August 2019

Table 4-1 – Lakeview Village Site Statistics by Character Area Precinct

Land Use		Proposed G.F.A. (sq. ft.) or # of Units	Character Area Precinct Subzone
Residential	Townhouse	377 Units	Ogden Blocks & Hydro Gateway
	Condominium	8,605 Units	Ogden Blocks, Hydro Gateway, Waterway Common, Waterway District Area, Lakeview Square, & Waterfront
Civic	School	118,285 sq. ft.	Hydro Gateway
	Artscape Building	59,235 sq. ft.	Lakeview Square
	Waterfront Park Building	91,150 sq. ft.	Waterfront Park (South of Lakeview Square)
	Community Center	30,550 sq. ft.	Ogden Blocks
	District Energy	13,350 sq. ft.	Innovation Corridor
Office		937,000 sq. ft.	Innovation Corridor
Institutional (Research & Development)		952,895 sq. ft.	Lakeview Square & Innovation Corridor
Retail		147,080 sq. ft.	Ogden Blocks, Hydro Gateway, Waterway Common, Waterway District Area, Lakeview Square, Waterfront, & Pavilions in Parks
Hotel		132,915 sq. ft.	Lakeview Square



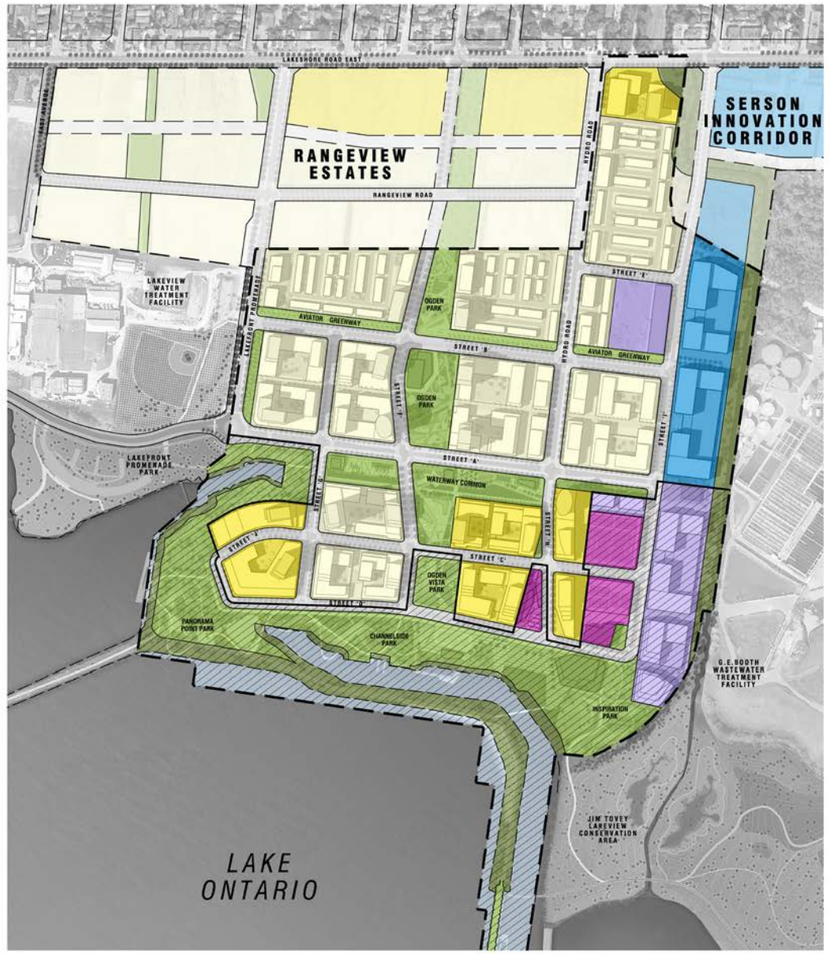
	MOP Lakeview		DMP 3.0	
Townhouses	15%	1,020	4%	377
Mid-Rise (5-8 storeys)	50%	3,400	65%	5,835*
Mid/High-Rise (9-15 storeys)			7%	596*
Taller Elements (Above 15)	35%	2,380	24%	2,175*
TOTAL	6,800 units		8,982 units	

- Unit count estimates based on 850sf
- (79sm) per unit

DMP 3.0 – Other Uses (m^2)		
Office/Institutional	14.83%	175,577
Civic	1.52%	18,049
Retail/Hotel	2.20%	26,012

Figure 4-2 – Development Program

Source: Lakeview Village Development Master Plan 3.0, August 2019



	Development Lands			Conveyed Lands			Total LCPL Property		
Total Site Area	44.02 ha.	108.77 ac.		27.24 ha.	67.31 ac.		71.26 ha.	176.08 ac.	
Greelands	1.12 ha.	2.77 ac.	2.5%	4.15 ha.	10.25 ac.	15.2%	5.27 ha.	13.02 ac.	7.4%
Water (Lake Ontario/Inlets)	0.00 ha.	0.00 ac.	0.0%	7.17 ha.	17.72 ac.	26.3%	7.17 ha.	17.72 ac.	10.1%
Residential Medium Density	18.43 ha.	45.54 ac.	41.9%	0.00 ha.	0.00 ac.	0.0%	18.43 ha.	45.54 ac.	25.9%
Mixed Use	5.75 ha.	14.21 ac.	13.1%	0.00 ha.	0.00 ac.	0.0%	5.75 ha.	14.21 ac.	8.1%
Business Employment	3.19 ha.	7.88 ac.	7.2%	0.00 ha.	0.00 ac.	0.0%	3.19 ha.	7.88 ac.	4.5%
Instituional	1.01 ha.	2.50 ac.	2.3%	3.04 ha.	7.51 ac.	11.2%	4.05 ha.	10.01 ac.	5.7%
Mixed Use Cultural Hub	0.00 ha.	0.00 ac.	0.0%	1.71 ha.	4.23 ac.	6.3%	1.71 ha.	4.23 ac.	2.4%
Public Open Space (incl. water feature)	5.11 ha.	12.63 ac.	11.6%	9.18 ha.	22.68 ac.	33.7%	14.29 ha.	35.31 ac.	20.1%
Right of Way	9.41 ha.	23.25 ac.	21.4%	1.99 ha.	4.92 ac.	7.3%	11.40 ha.	28.17 ac.	16.0%
TOTAL	44.02 ha.	108.77 ac.	100.0%	27.24 ha.	67.31 ac.	100.0%	71.26 ha.	176.08 ac.	100.0%

DRAFT

Conveyed Lands

- All Units In Metric Unless Otherwise Noted and Areas are Approximate.
- Aerial Photo: Google Earth, Approx. Fall 2016

GERRARD DESIGN

LAKEVIEW COMMUNITY PARTNERS LIMITED

LAKEVIEW VILLAGE | Mississauga, Ontario

LAND USE PLAN

AUG 18, 2019

PROJECT 1734

SCALE 1:5000

Figure 4-3 – Land Use Plan

Source: Lakeview Village Land Use Plan,prepared by Gerrard Design, August 15, 2019

4.2 Phasing Principles

Phasing of development within the study area is currently being finalized and is being co-ordinated with the overall Development Program and Servicing/Infrastructure Strategy. The following principles will guide the phasing of development within Lakeview Village:

- Infrastructure and development shall be phased to ensure that growth occurs in a logical and fiscally sustainable manner
- Development will occur in a manner that does not place unnecessary costs on new or existing residents and/or the municipality
- Development should occur in tandem with the provision of appropriate levels of infrastructure

These first three principles emphasize maximizing the use of existing infrastructure. Where possible, new development should make use of the existing roadways and other infrastructure, such as Lakefront Promenade and Hydro Road. Initially, this would include areas with access from the City road network and in close proximity to the existing sanitary sewers and watermains in the study area. As development proceeds, subsequent phases should extend logically from the streets installed in the prior phase.

Large infrastructure projects, such as the north-south Street 'G' connection to Lakeshore Road should be deferred to the latter phases of development, if feasible. Similarly, construction of the Street 'I' connection should coincide with development of the Serson Innovation Centre and Campus.

Road phasing is adaptive to evolving matters such as infrastructure timing and other inputs. Given that it will be at least 10 years from the completion of this Development Master Plan and further development of the Lakeview Village area, the road network phasing plan is flexible to allow development to proceed in response to evolving transportation demands, servicing infrastructure timing, and other inputs.

4.3 Road Network Phasing

Notwithstanding the Phasing Principles discussed in Section 4.2, development of the Lakeview Village, and related adjacent roads, is expected to be phased in general accordance to the Lakeview Village Phasing Plan (see Figure 4-4) as follows, identified by Precinct Subzone:

1. East and west portion of Ogden Blocks, west portion of Waterway Common, south portion of Hydro Gateway, and the south portion of Innovation Corridor.

2. Waterfront lands, centre portion of Waterway Common, south portion of Innovation Corridor, south portion of Lakeview Square, and centre blocks of Ogden blocks.

3. Waterway District Area and all the remaining Precinct parcels.

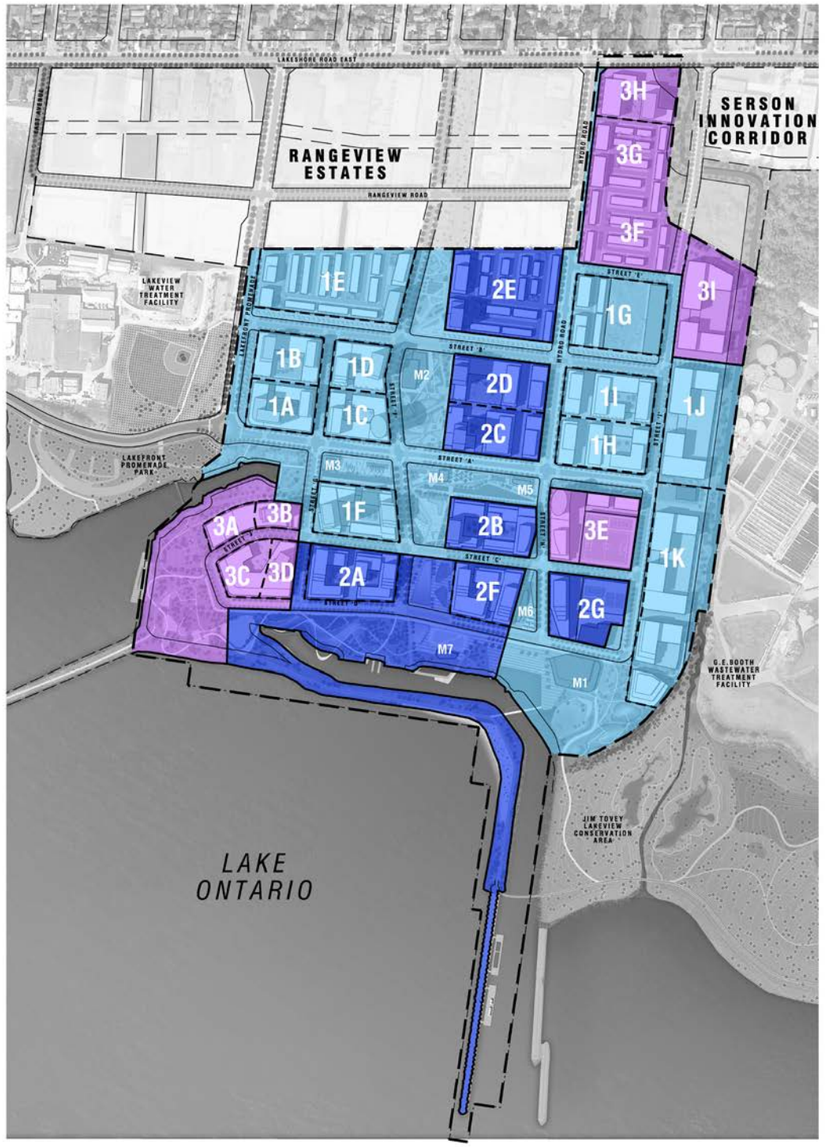


Figure 4-4 – Lakeview Village Phasing Plan
Source: Lakeview Village Land Phasing Plan,prepared by Gerrard Design, August 15, 2019

The improvements to the City road network required by 2031 full build-out are listed below. The improvements to the road networks are recommended to alleviate traffic congestion and capacity issues along the Lakeshore Road corridor and intersections. The initial assessment of required infrastructure to be confirmed through future transportation analyses and confirmation of the broader development phasing program (which is ultimately driven by market forces). It was assumed that all transportation infrastructure, as per the City approved Official Plan Amendment 89, required to accommodate the full build-out of the Lakeview Village development will be implemented by 2031.

- Lakefront Promenade and Hydro Road connections to Lakeshore Road
- Implementation of Lakeshore Connecting Communities BRT on Lakeshore Road
- Dedicated northbound left turn lanes on all collector roads extending from the Lakeview Village to Lakeshore Road East
- Construction of the southern extension of Ogden Avenue was assumed to be completed with a northbound exclusive left-turn lane and a shared through/right lane.
- Construction of the southern leg of Haig Boulevard was assumed to be completed with a northbound exclusive left-turn lane, a shared through/right lane, and the eastbound curb lane was converted from a through lane to a shared through/right lane. The southbound lane (north leg) was analyzed under its existing shared left/through/right lane configuration. However, it is recommended that the north leg be constructed to mirror the south configuration if land permits.

4.4 Parking

Lakeview Village is being planned to mitigate external and internal traffic impacts by controlling the supply of parking in the public realm as well as the site-specific parking supply. Visitor parking will be located within specific developments to satisfy those independent parking rates, but parking will also be provided on many internal collector and local streets. Visitor parking will also be accommodated in a freestanding public parking structure located in Lakeview Square. Any above-grade parking structure will be located to balance accessibility and easily 'intercept' visitors from outside of Lakeview Village with limited visual impact on the public realm. Parking structures will be designed as linear uses wrapping street frontages or will provide screening of parked vehicles with either a façade treatment, graphic panels or landscaping, or some combination of the above. These 'park once' locations are strategically located to serve multiple user groups which will result in higher parking utilization for longer periods and turnover rates that generate multiple vehicles using each space during a 24-hour period.

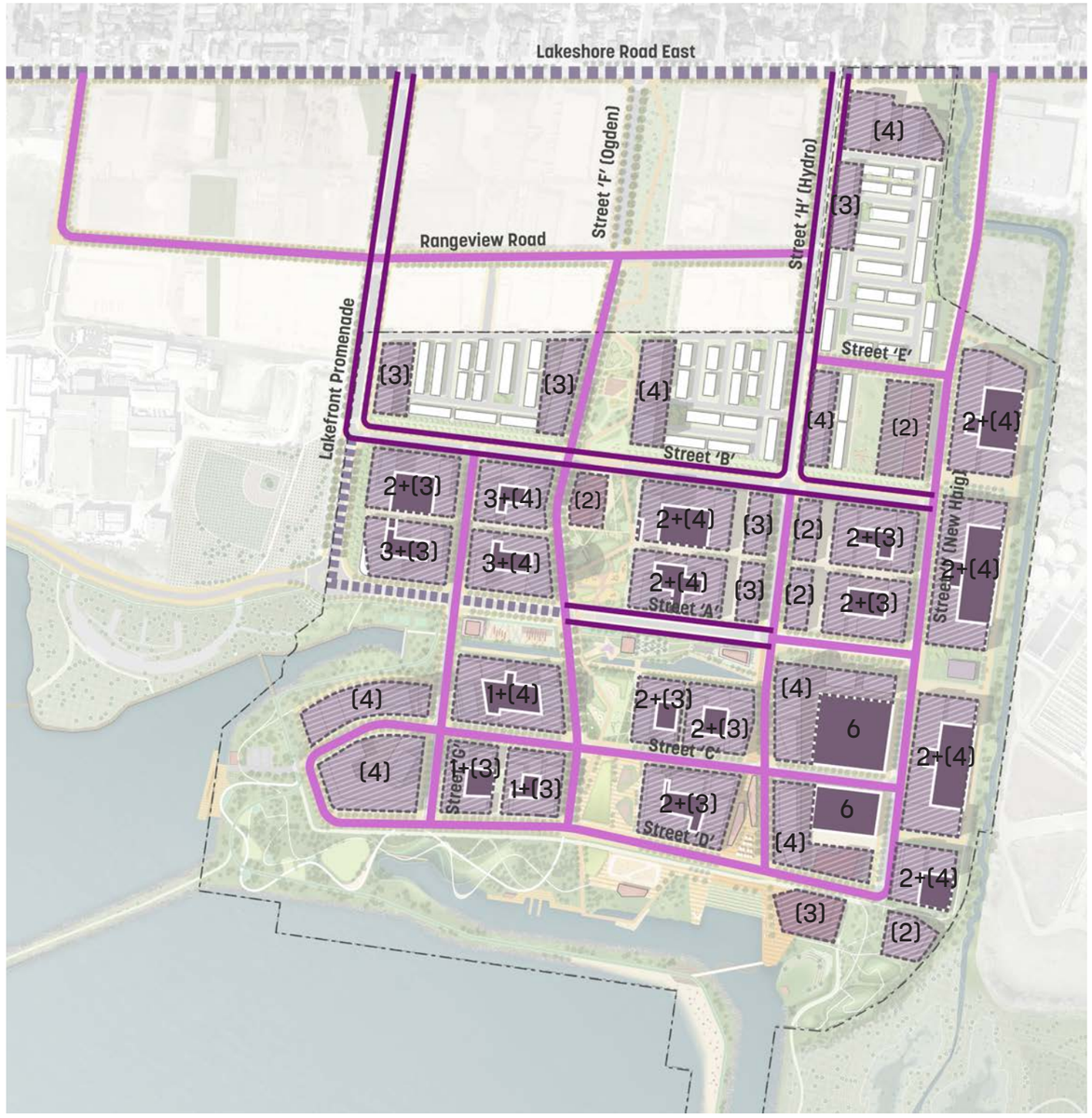


Figure 4-5 – Lakeview Village Parking Strategy
Source: Lakeview Village Development Master Plan 3.0, August 2019

Residential parking will consist of at-grade private garages for ground-related townhouses. For all other building types, surface parking for visitors may be provided, but most resident and visitor parking will be provided below grade. Driveways and ramps to below-grade parking will be strategically located to provide accessibility from a minor street or rear lane with limited visual exposure from the public realm and to minimize impacts on the street system.

Obtaining zoning by-law permissions for reduced parking rates and / or adopt maximum parking standards should and will be considered throughout the development at the Draft Plan of Subdivision and/or Site Plan Application stage, in conjunction with the provision of enhanced transit and active transportation facilities. The extent of the parking reductions shall be considered through specific zoning applications and site-specific parking demand proposals.

Figure 4-5 summarizes the proposed Lakeview Village DMP 3.0 parking strategy and preliminary structures parking study.

4.4.1 Mississauga Official Plan Amendment 89

MOPA89 Policy 13.4.7.3.1 states that Parking will be provided within the Lakeview Waterfront Major Node Character Area (Lakeview Waterfront) as follows:

- *On-street parking will be provided as appropriate and integrated into the streetscape design, balancing the needs of all modes of transportation and the public realm that share the right-of-way;*
- *Underground parking will be encouraged on all sites; however, a limited amount of surface parking may be considered on a site by site basis;*
- *Underground and/or integrated above grade structured parking will be required for residential development exceeding four storeys and all mixed-use developments;*
- *Surface parking may be considered for:*
  - *Townhouse dwellings;*
  - *Low rise apartment dwellings not exceeding four storeys;*
  - *Cultural, recreational and institutional uses; and*
  - *Innovation Corridor Precinct.*
- *Freestanding and above grade structured parking will incorporate elevated design elements (e.g., façade wraps, integrated into buildings). Structures will be compatible with the surrounding area and will be encouraged to incorporate active uses at ground level in order to reduce negative impacts on the public realm.*

Furthermore, MOPA89 confirms the following:

Policy 13.4.7.1.8: Development applications will be accompanied by traffic impact studies and/or parking utilization studies that will address, among other things, strategies for limiting impacts on the transportation network such as reduced parking standards.

Policy 13.4.7.3.2: Reduced and/or maximum parking standards may be considered throughout the area, in conjunction with the provision of mixed-use developments, enhanced transit and active transportation facilities. The extent of the reduction may be considered through a parking utilization study.

4.4.2 Parking By-law Considerations

The City should consider establishing the following appropriate parking standards for Lakeview Waterfront in the Zoning By-law. Parking requirements will seek to reduce the parking standards in order to encourage a shift toward non-auto modes of transportation and reflect the walking distance to transit and complementary uses.

- Parking facilities shall be designed to accommodate bicycle parking as well as reserved spaces for drivers of car-share or car pool vehicles and electric cars.
- Shared parking encouraged between adjacent developments, where feasible.
- All commercial, office, institutional, mixed use and multi-unit residential buildings, excluding townhouses and stacked townhouses, shall include secure bicycle parking and storage facilities, preferably indoors.
- The implementing by-law shall establish minimum requirements for bicycle parking. Major office developments and major institutional employers shall be encouraged to include change rooms, showers and lockers for bicycle commuters.

4.4.3 Public Parking Strategy

The City shall consider monitoring the need for public parking in the Lakeview Waterfront area and may prepare a public parking strategy that considers:

- The amount of parking required to support planned commercial, entertainment and institutional uses;
- The amount of on-street parking that can be provided to support planned commercial, entertainment and institutional uses;
- The amount of office parking that could be made available through shared parking arrangements to the public in the evenings and on weekends;
- Appropriate locations and sizes for off-street public parking facilities;
- The potential role for the municipal parking authority; and
- Appropriate cash-in-lieu of parking amounts for development in Lakefront Waterfront, in accordance with Policy 8.4.4 of the Mississauga Official Plan, including any special conditions wherein reductions in cash-in-lieu requirements would be considered.

4.4.4 Parking Facility Design

Entrances to above and below-ground parking structures generally shall be proposed from a private street or lane as the first priority and may be permitted from a rear or side public street where it can be demonstrated to the City's satisfaction that access from a private street or lane is not feasible or necessary.

Parking structures may be permitted beneath private streets and pedestrian mews and under private squares designed for public access and public parks, provided the surface function and character is not materially or qualitatively compromised. Where permitted, agreements with the City may be entered into to establish terms, including such matters as applicable easements, to ensure public access to surface uses are maintained in accordance with Mississauga Official Plan Policy 8.4.9.

It is recommended that parking facilities will be designed to incorporate the following design policies, where feasible and appropriate:

- Integration of walkways, traffic islands, pedestrian refuges and pedestrian scale lighting as integral components;
- Minimizing driveway access points to the public street as well as driveway crossings of the sidewalk, and include shared driveway access with adjacent sites;
- Provision of visual screening of parking areas or structures that are visible from the street, sidewalk or public spaces;
- Incorporate landscaping within surface parking areas and on the upper decks of outdoor parking structures to create shade, reduce heat island effect and provide a pleasant and attractive environment for pedestrians;
- Incorporate innovative stormwater management features, including Low Impact Development (LID) measures;
- Integration of secure bicycle parking;

- Priority parking for accessibility (vehicular and scooters), car share and electric or hybrid vehicles, and including electrical charging stations;
- Providing at least one pedestrian route between the main building entrance and the public sidewalk that is uninterrupted by parking and driveways;
- In larger parking structures or where parking facilities serve more than one building or destination, providing logical, well-marked pedestrian routes for safe travel through the parking facility; and
- Where parking facilities or accesses are located at the rear of buildings, provide rear entrances and pedestrian walk-throughs in order to facilitate pedestrian access to the street and clear way finding.

Parking structures fronting on a public street or parkland shall generally contain street related active commercial, residential or institutional uses on the ground floor subject to technical considerations and the entire façade shall be designed to appear as a fenestrated building, with a regular articulation of openings and materials that are generally consistent in type and quality with those of surrounding buildings.

Vehicular entrances to above or below-ground parking structures on public streets are encouraged to be integrated into the design of the building and located to reduce conflict with pedestrians. Pedestrian entrances to parking structures shall be clearly identified and well lit.

LAKEVIEW VILLAGE COLLECTOR / LOCAL ROAD SYSTEM

5

Rendering of Waterway Common in summer

Lakeview Village Collector / Local Road System

Lakeview Village's proposed interconnected street/block layout follows a modified grid pattern and is designed to facilitate multi-modal movement and permeability throughout the pedestrian-scaled village.

A primary emphasis on pedestrian comfort, smaller block lengths and convenient, direct pedestrian linkages reinforce a walkable, urban village environment.

Neighbourhood amenities such as parks and greenways are located within a reasonable walking distance of transit stops, within an approximate four to five-minute (or 300-metre) walking radius. With an emphasis on permeability for pedestrians, the modified grid layout reduces travel distance, and increases the opportunity for a variety of travel modes.

5.1 Network and Hierarchy

A well-defined and logically connected hierarchy of streets forms the main structure of Lakeview Village. It will provide for the safe and convenient movement of pedestrians, cyclists, goods and private vehicles and help establish the character and visible impression of the community.

Designed as a fine-grained street pattern, the street network established for Lakeview Village responds to the existing surrounding road network, the site's topography, water's edge constraints and existing uses found along the community's edges. The proposed road layout is intended to facilitate convenient and efficient movement and circulation, support accessibility and transit ridership, and promote safe pedestrian and cycling oriented lifestyles. Plan views of the proposed active transportation facilities are provided in Section 9.

A particular structural emphasis will be connections to the waterfront, ensuring linkages and view corridors to the water's edge are reinforced through street orientation and connecting opportunities.

The streets are designed to minimize block lengths for easier navigation and walkability, and to create terminating views, vistas and other focal points to achieve an attractive public realm.

Figure 5-1 defines the proposed street network consisting of collector roads, minor collector roads, local streets and character streets (pedestrian priority), in addition to the existing Lakeshore Road East arterial road.

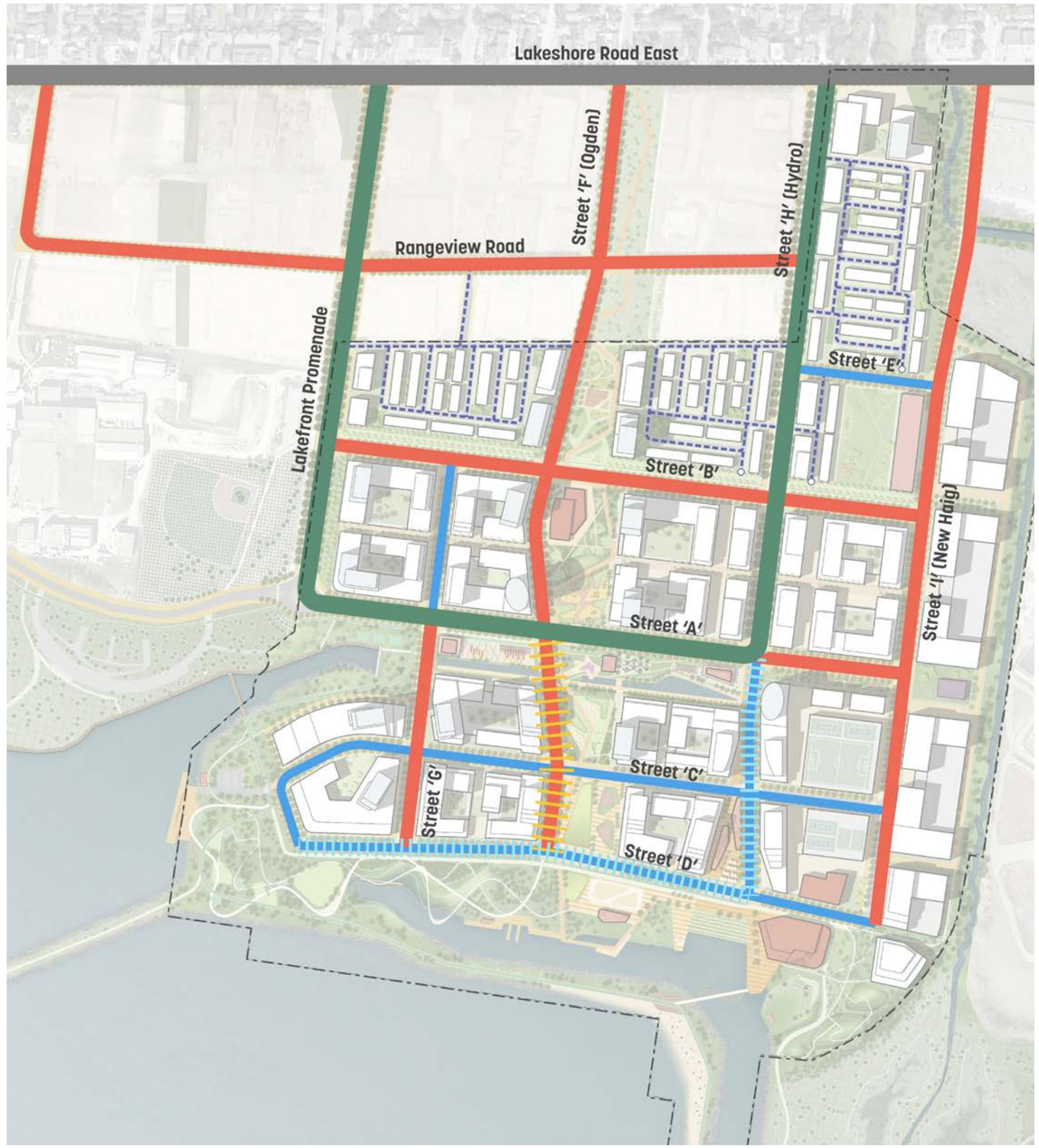


Figure 5-1 – Street Hierarchy

Source: Lakeview Village Development Master Plan 3.0, August 2019

5.2 Typical Cross-section Elements

The street typologies proposed for Lakeview Village are represented within four general categories:

5.2.1 Major Collector Roads

Major collector roads provide important connections between Lakeview Village districts and community functions, such as parks, recreation centres, and other facilities. They largely define the community structure, serve as the primary inter-district circulation routes, and accommodate transit.

The major collector road right-of-way width is 26.0 metres. Streetscape character varies according to land uses, which range from high-rise residential, mid-rise residential, rear lane townhomes, Lakefront Promenade Park, Waterway Common, and mixed-use mid-rise buildings.

Lakefront Promenade, Hydro Road and Street 'A' (Street 'A') will incorporate urban streetscape treatments characterized by enhanced paving, sidewalks, cycle tracks, street furniture as appropriate to adjacent uses, and urban street tree conditions in bioswale boulevards and in raised curb stormwater management planter boulevards.

Typical roadway cross-section details shown in **Figure 5-2** include:

- Sidewalks on both sides of the street;
- One 3.35m vehicle travel lane in each direction;
- On-street parking on both sides of the street;
- Cycle tracks in each direction; and
- Boulevards with tree plantings and LID features.

5.2.2 Minor Collector Roads

Minor collector roads also provide important connections between Lakeview Village districts. They further define the community structure and serve as the primary circulation routes.

The minor collector road right-of-way width is 22.0 metres. Streetscape character varies according to land uses, which range from townhomes, Aviator Greenway, Ogden Green, and Serson Campus.

5.2.2.1 Street 'B' (New Aviator Avenue)

Street 'B' will incorporate urban streetscape treatments characterized by enhanced paving, sidewalks, street furniture as appropriate to adjacent uses, and urban street tree conditions in grass boulevards.

Typical roadway cross-section details shown in **Figure 5-3** include:

- Sidewalks on both sides of the street;
- One 3.3m vehicle travel lane in each direction;
- On-street parking on both sides of the street;
- Boulevards with tree plantings and LID features; and
- A multi-use path within adjacent Aviator Greenway.

5.2.2.2 Street 'F' (New Ogden)

Street 'F' will incorporate urban streetscape treatments characterized by enhanced paving, sidewalks, street furniture as appropriate to adjacent uses, and urban street tree conditions in grass boulevards.

Typical roadway cross-section details shown in **Figure 5-4** include:

- Sidewalks on both sides of the street;
- One 3.3m travel lane in each direction;
- On-street parking on one sides of the street;

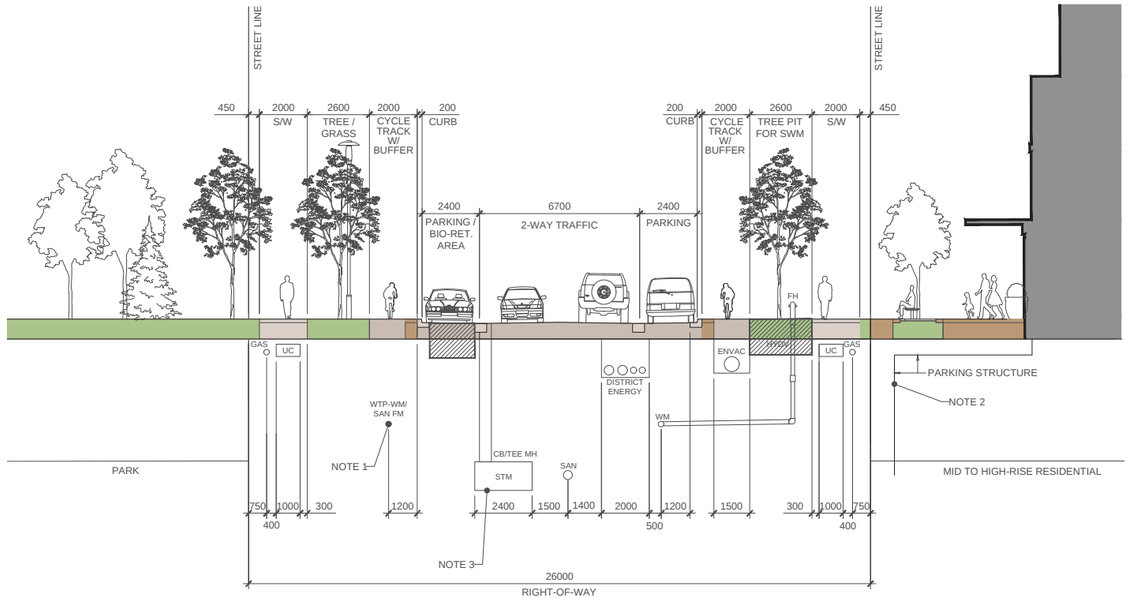


Figure 5-2 – Major Collector 26.0m R.O.W.

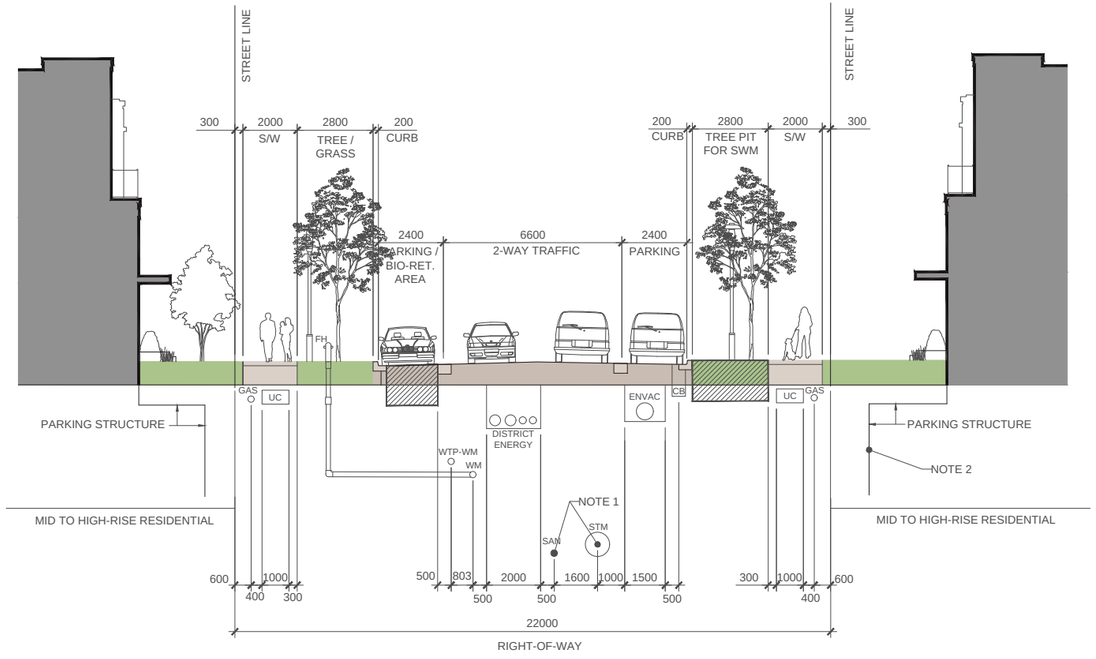


Figure 5-3 – Street 'B' (New Aviator Avenue) 22.0m R.O.W.

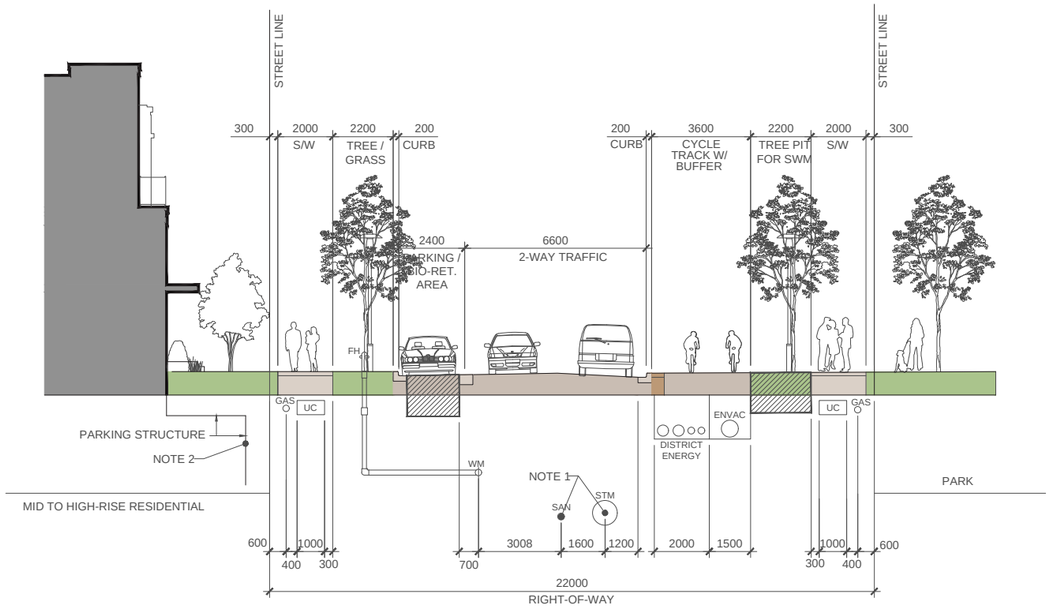


Figure 5-4 – Street 'F' (New Ogden) 22.0m R.O.W.

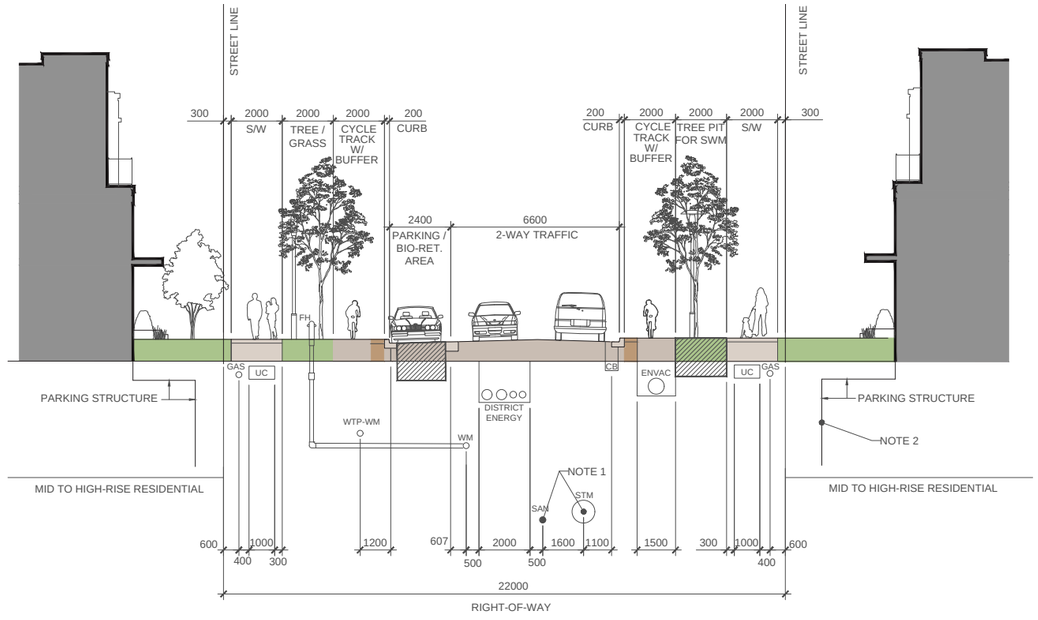


Figure 5-5 – Street 'G' 22.0m R.O.W.

- Two-way cycle track on the non-development side of the street;
- Boulevards with tree plantings and LID features; and
- A multi-use path within adjacent Ogden Green.

5.2.2.3 Street 'G'

Street 'G' will incorporate urban streetscape treatments characterized by enhanced paving, sidewalks, and urban street tree conditions in grass boulevards.

Typical roadway cross-section details shown in **Figure 5-5** include:

- Sidewalks on both sides of the street;
- One 3.3m travel lane in each direction;
- On-street parking on one side of the street;
- Cycle tracks on both sides of the street; and
- Boulevards with tree plantings and LID features.

5.2.2.4 Street 'I' (New Haig)

Street 'I' will incorporate urban streetscape treatments characterized by enhanced paving, sidewalks, and urban street tree conditions in grass boulevards.

Typical roadway cross-section details shown in **Figure 5-6** include:

- Sidewalks on both sides of the street;
- One 3.35m travel lane in each direction to accommodate transit service;
- Cycle tracks on both sides of the street;
- On-street parking on one side of the street;
- Boulevards with tree plantings and LID features.
- Street furniture and landscaping within adjacent Serson Campus.

5.2.3 Local Streets

Local roads serve various districts within Lakeview Village and are intended to provide direct development access and a comfortable pedestrian experience with relatively low levels of local vehicular traffic. Their character varies according to adjacent built form, which include townhouses, mid-rise residential and mixed-use buildings. The local street's right-of-way width is 18.0 metres.

The local road will incorporate urban streetscape treatments characterized by adjacent land uses, a sidewalk on both sides of the street, urban street tree conditions and plantings, and street furniture.

Typical roadway cross-section details shown in **Figure 5-7** include:

- Sidewalks on both sides of the street;
- One travel lane in each direction;
- On-street parking on one side of the street; and
- Boulevards with tree plantings and LID features.

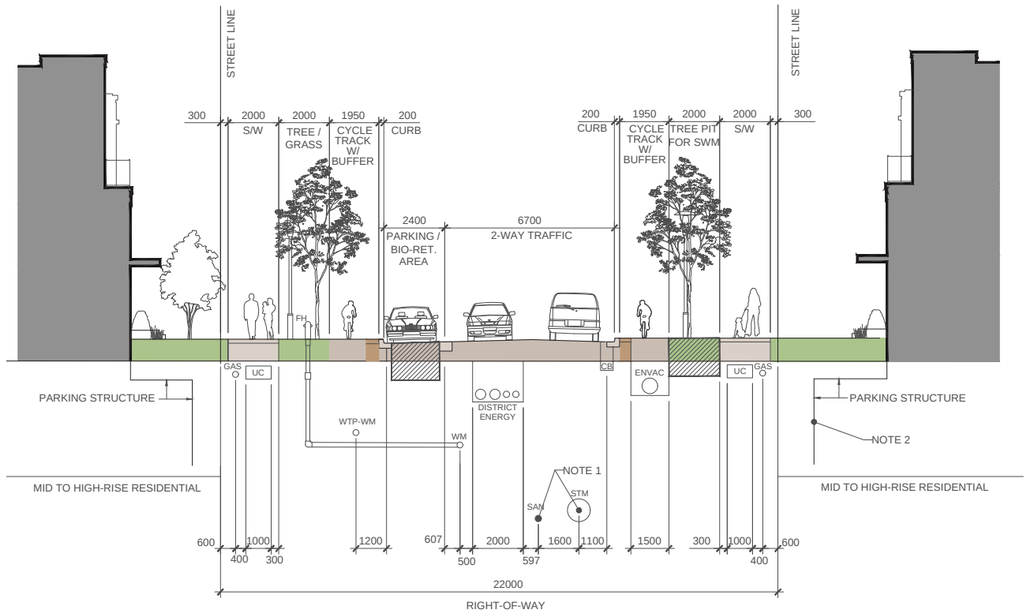


Figure 5-6 – Street 'I' (New Haig) 22.0m R.O.W.

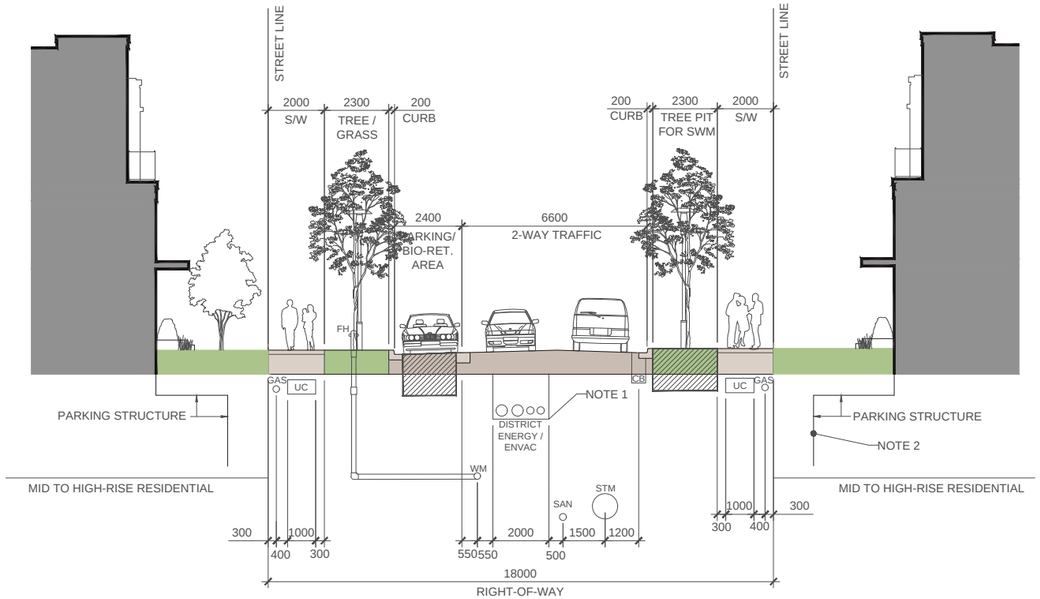


Figure 5-7 – Local Street 18.0m R.O.W.

5.2.4 Autonomous Shuttle Roads

A key component to the transportation strategy for Lakeview Village involves encouraging Lakeview Village residents, workplace employees, and visitors to Lakeview Village to use public transit. The most effective way to encourage transit usage is to make access to public transit easy. A public transit route has been planned and incorporated into the Development Master Plan and this route will be located within Lakeview Village along the major collector roads comprising Lakefront Promenade, Street A, and Hydro Road. This transit route will tie into the existing route on Lakeshore Road which is planned to be expanded to incorporate a rapid-bus system. While the public transit route has been planned for and will be implemented in the fullness of time, it is not anticipated that the roads and transit route within Lakeview Village will be in place in the early stages of development. As a result, consideration is being given to the incorporation of a shuttle vehicle within Lakeview Village to shuttle transit users to and from the existing Lakeshore Road transit route.

Typical roadway autonomous shuttle major and minor collector cross-section details shown in Figures 5-8 and 5-9 respectively, and include:

- Sidewalks on both sides of the street;
- One 3.3m travel lane in each direction;
- On-street parking on one side of the street (Major Collector only);
- Two-way cycle track on one side of the street;
- One 3.0m autonomous shuttle lane on one side of the street; and
- Boulevards with tree plantings and LID features.

5.3 Functional Design

The community will be structured by a fine grain street pattern with a well-ordered hierarchy that will appropriately integrate transit connections and various densities and buildings types, support logical walking and cycling linkages throughout the community and achieve efficient block development.

The character of the streets will vary depending on function and adjacent land use types. Minimum street right-of-way widths are reinforced, and alternative road standards considered to ensure the best response to balancing pedestrian, cycling, transit, and vehicular use with a scale conducive to the adjacent land use types, functions, and architectural massing. Influences from shared streets or 'woonerfs' are encouraged where appropriate to reinforce pedestrian comfort, provide unique streetscape opportunities and achieve a reduction in right of-way widths. Innovative LID features will also be considered within street right-of-way's as a key component of a broader, comprehensive sustainability strategy.

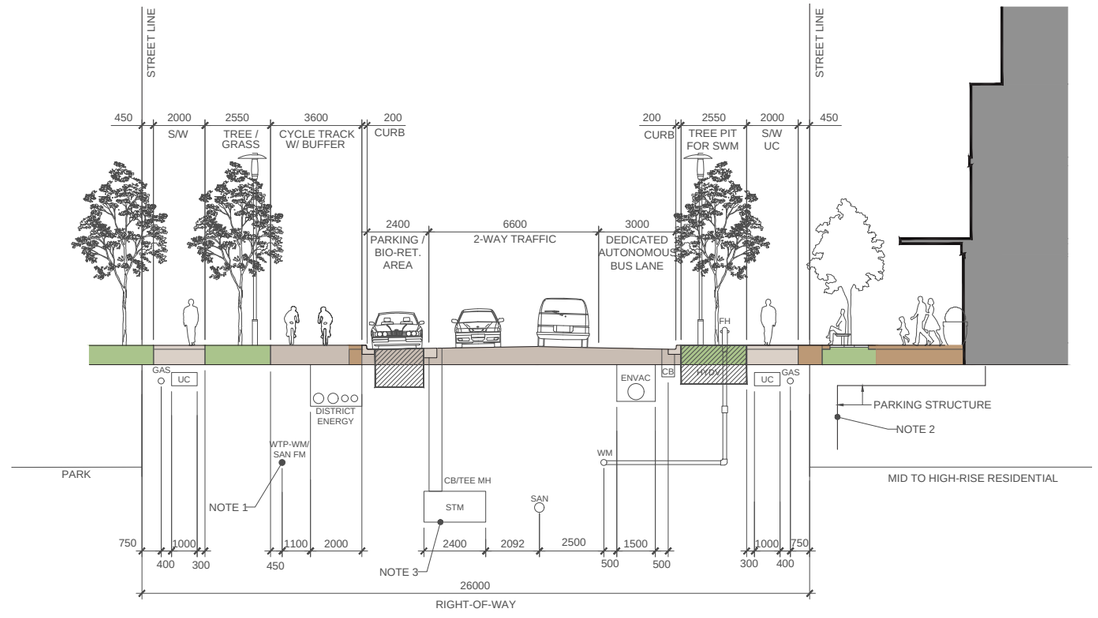


Figure 5-8 – Major Collector (Autonomous Shuttle) 26.0m R.O.W.

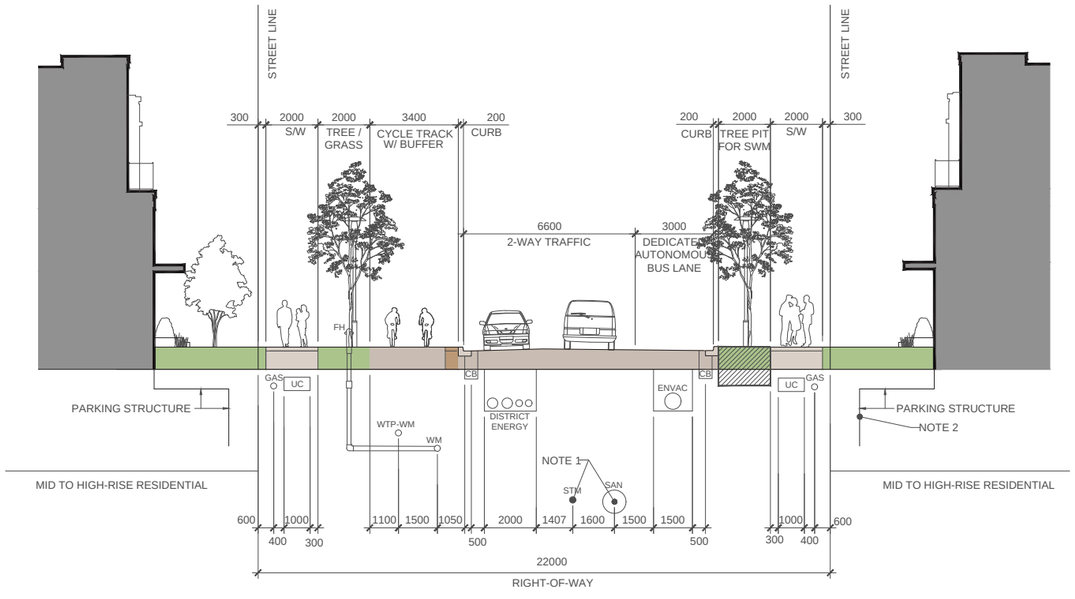


Figure 5-9 – Minor Collector (Autonomous Shuttle) 22.0m R.O.W.

TRANSIT ROUTING AND FACILITIES PLANNING

6

Rendering of Waterway Common in winter

Transit Routing and Facilities Planning

6

Ensuring efficient and convenient transit options are provided to and from Lakeview Village is a fundamental component of the transportation and sustainability strategy. Lakeview Village is ideally situated in proximity to the Long Branch and Port Credit GO stations, the planned future express bus service along Lakeshore Road, future Hurontario Street LRT, and TTC transit hub, bringing residents, employees, and visitors within easy reach of local and regional destinations.

At this stage, it is anticipated that the transit link into Lakeview Village and the Employment and Innovation Corridor will bring local bus service along collector streets with direct connections to the two GO stations and a link to the future Lakeshore Road East transit facility.

Bringing transit to the site will be important for ensuring the long-term sustainability of the project. The plan is designed to be flexible, so that transit can be incorporated as the project is phased and as regional transit plans are implemented.

6.1 Lakeshore Connecting Communities

City Council endorsed the Lakeshore Connecting Communities Transportation Master Plan in June 2019, which recommends implementing transit changesimprovements by the year 2030 along the Lakeshore corridor within the study area including dedicated transit lanes from East Avenue to Deta Road for express bus service, protected cycle tracks, corridor improvements, such as wider sidewalks with treeslandscaping, and increasedenhanced express bus service towith every five minutes headways during rushpeak hours.

The LCC Study recommends implementing changes by the year 2030 along the Lakeshore corridor within the study area including dedicated transit lanes from East Avenue to Deta Road for express bus service, protected cycle tracks, corridor improvements such as wider sidewalks with trees and increased express bus service to every five minutes during rush hour

The following sections were extracted from the Draft Lakeshore Road Transportation Master Plan and Implementation Strategy (May 2019).

6.1.1 Study Area

The Lakeshore Corridor is 13 km long and includes Lakeshore Road between Southdown Road and the east City limit and Royal Windsor Drive between the west City limit and Southdown Road, as shown in Figure 6-1.

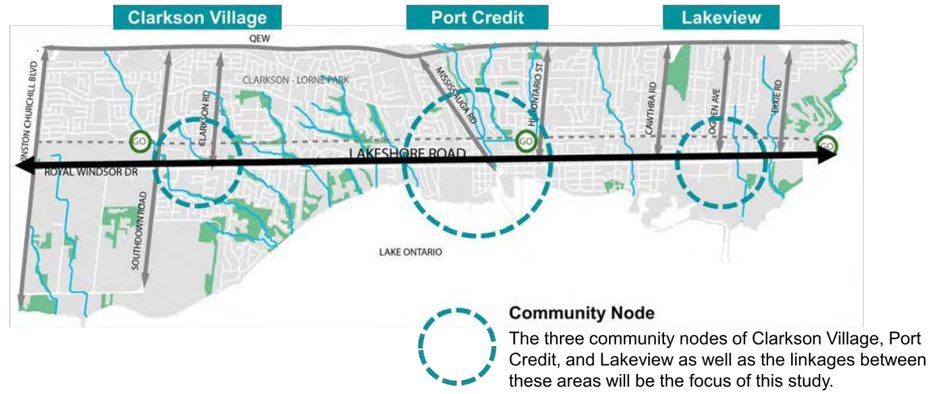


Figure 6-1 – Lakeshore Connecting Communities Study Area
Source: Draft Lakeshore Road Transportation Master Plan and Implementation Strategy (May 2019)

6.1.2 Phasing

The LCC study is currently proceeding with a phased approach to transit along the Lakeshore Road corridor.

Phase 1 Transit Service Improvements (Short to Medium Term)
Phase 1 of the implementation strategy makes transit service improvements along the Study Corridor between 2019 and 2025 with minimal infrastructure requirements. Phase 1 will be realized in three sub-phases as follows:

A. Increase local bus service by doubling the peak frequency of the local bus

B. Upgrade local bus service from 40 ft to 60 ft buses to increase capacity

C. Introduce express bus service layered on top of the local bus service

Once Phase 1 is fully implemented, the express bus will operate in mixed traffic and provide an express route from 70 Mississauga Road to Long Branch GO Station while maintaining local transit service. As a quick win, the express bus will be a higher capacity limited stop service with higher service frequency than the current conventional bus service. New transit stop infrastructure (i.e. bus shelters) would be required to implement this phase; however, no new major transportation infrastructure would be required (i.e. road widening or re-construction).

Phase 2 Multi-Modal Road Work and Further Transit Improvements
Phase 2 of the implementation strategy builds on Phase 1 and includes multi-modal road work improvements and further transit service improvements. Phase 2 will be realized in two sub-phases as follows:

A. Multi-modal road work (Shawnmarr Road to the Etobicoke Creek) and more frequent express bus service (70 Mississauga Road to Long Branch GO Station) to be implemented between 2025 and 2030. This phase involves constructing exclusive median transit lanes between East Avenue and the Etobicoke Creek. This

should be completed with the development of the Lakeview Village development site to support transit oriented development and facilitate direct, fast, and reliable transit trips to and from the site to the Long Branch GO station and future regional express rail (RER) service on the Lakeshore West GO Line. Transit signal priority at intersections along the route can also be implemented to provide travel time reliability in the mixed traffic section.

B. Multi-modal road work (Winston Churchill Boulevard to Shawnmarr Road) to be implemented following the completion of Phase 2A between 2031 and 2041. This phase includes multi-modal road work improvements between Winston Churchill Boulevard and Shawnmarr Road.

Phase 3 Long Term Protection for Extension of TTC Streetcar from Long Branch GO to 70 Mississauga Road

Phase 3 (i.e. the final phase of implementation and ultimate transit configuration) involves the conversion of the express bus based transit service to an extension of the Toronto streetcar service operating in mixed traffic between Mississauga Road and East Avenue, and in exclusive lanes between East Avenue and the Etobicoke Creek to Long Branch GO Station.

In the fullness of time (i.e. beyond 2041), the Study Corridor has been designed such that the extension of the TTC streetcar into Mississauga from the Long Branch GO Station is protected for, subject to discussions with the City of Toronto. The extension of the TTC streetcar will allow for seamless transit travel between Toronto and Mississauga by eliminating a forced transfer and additional fare at the border

Existing local service (Route 23) will be maintained to complement express bus service between Clarkson GO Station and Long Branch GO Station, via Port Credit GO Station.

6.1.3 Cycling Network

The City's Draft Cycling Network proposes separated bike lanes to form the backbone to the east-west cycling network in southern Mississauga (see the City's Draft 2018 Cycling Master Plan) and improves access to the Waterfront by providing a safe link to the Waterfront Trail and adjoining north-south links. Figure 6-2 Illustrates the proposed Draft Cycling Network within the LCC corridor study area.

Cycling facilities proposed along the Lakeshore Road corridor include:

- Recommendation for dedicated and continuous bike lanes between Winston Churchill Boulevard and Etobicoke Creek are separated from vehicular traffic; and
- Crossride pavement markings provided to indicate the intended path for cyclists and delineate a crossing space separated from vehicles and pedestrians

6.1.4 Access Management

In the section between East Avenue and the Etobicoke Creek, intersections will permit left turns and U-turns to provide access to properties. Furthermore, the LCC study recommends the following to move people safely and efficiently upon implementation of the BRT on Lakeshore Road:

- It is recommended that the City secure opportunities to consolidate driveway accesses onto Lakeshore Road and provide access from north-south side streets intersecting Lakeshore Road;
- Special attention should be given to the driveway accesses between Cawthra Road and Dixie Road where continuous curb cuts are currently provided and two or more drive-ways are closely spaced; and
- Driveways should be consolidated if possible or delineated with ramps up to the sidewalk and the separated bike lane to enhance pedestrian and cyclist safety.

Figure 6-2 – City of Mississauga Draft Cycling Network
Source: Mississauga Cycling Master Plan (2018)

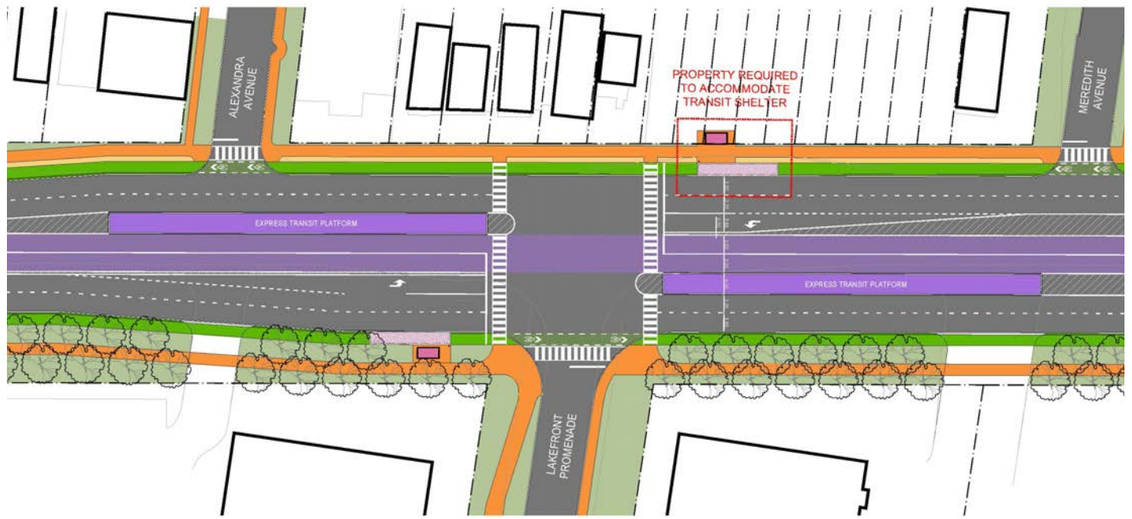


Figure 6-3 – Example Median BRT Bus Stop Layout – Lakefront Promenade
Source: Lakeshore Road Transportation Master Plan and Implementation Strategy (May 2019)

6.1.5 Corridor Design Summary

LCC segments the Lakeshore Corridor into 7 segments. Segments located within proximity of Lakeview Village include Segment 6 - Lakeview West Neighbourhood and Segment 7 - Lakeview Employment Area. The conceptual design of the preferred options for Segments 6 and 7, obtained from the City, is provided in Appendix B.

Figure 6-3, extracted from Appendix B, provides an example layout of a BRT bus stop located in the median of Lakeshore Road East.

The LCC Study identifies the following public realm recommendations (Figure 6-4) for Segments 6 and 7 within the Lakeview Village study area.

Segment 6

** Built form shown for illustrative purposes only.*

Lakeview Neighbourhood West

Recommendations for this segment will include the provision of a contunuous, safe cycling route and improved pedestrian facilities and provide a continuation of vehicular facilities between Port Credit neighborhood with the emerging Lakeview community.

- New continuous, separated bike lanes on both sides of the roadway
- Generous sidewalks and treed boulevards on both sides of the roadway
- Maintain curbside transit stops in mixed traffic
- Maintain 2 lanes of vehicular traffic in both directions
- Maintain continuous two-way-centre-left-turn-lane

Segment 7

** Built form shown for illustrative purposes only.*

Lakeview Neighbourhood / Lakeview Waterfront Major Node

Recommendations for this segment will follow the vision set forth in the Inspiration Lakeview Master Plan by introducing a dedicated rapid transit route , separated bike lanes and improved sidewalks to increase the level of service for all users, while maintaining the current travel lanes available to vehicle users.

- New continuous, separated bike lanes on both sides of the roadway
- Generous sidewalks and treed boulevards on both sides of the roadway
- New dedicated transit lanes in the centre of the roadway with median express bus stops
- Maintain curbside local transit stops in mixed traffic
- Maintain 2 lanes of vehicular traffic in both directions
- Left turn lanes at signalized intersections (u-turns permitted)

Figure 6-4 – Lakeshore Connecting Communities Public Realm Recommendations
Source: Lakeshore Connecting Communities Public Open House #3

6.2 Integration with Lakeshore Road Transit System

Lakeview Village is part of the broader Lakeview Major Node and will accommodate a variety of housing, employment, cultural activities, and an extensive open space network that provides access to Lake Ontario. The land adjacent to Lakeshore Road East is being planned as a medium-to-high density corridor to be served with higher order transit (see Lakeshore Connecting Communities study by the City of Mississauga), supported by future local transit routes that will ultimately extend into the Lakeview Village site to support this transit-oriented community.

Local transit services provide the greatest opportunity to drive ridership at the neighbourhood level. The future Lakeview transit route will operate at similar levels of service and headways to many of the existing local routes. Transit riders will use this route to access local destinations, such as schools or shopping, and as connections to the corridor routes and facilities for longer trips along Lakeshore Road to the GO Stations (Port Credit & Long Branch), accessing the TTC network, and the future Hurontario-Main LRT.

Lakeview Village plans to continue to work with partners from other levels of government, including Metrolinx and the private sector, to explore sustainable transportation solutions. The area's proximity to existing and expanded all day two-way GO Rail transit service, proposed higher order transit along Lakeshore Road East and future enhanced transit into the site will provide increased levels of service and significant person carrying capacity enhancements.

6.3 Modal Split & Ridership

The LCC Study identifies limited road capacity along Lakeshore Road, which in turn requires making transit, walking, and cycling more attractive in order to improve the person-carrying capacity of the corridor. Without these improvements to the transportation network the Lakeshore congestion will worsen for all road users.

A comparison of modal split values for both the Lakeview area the overall Lakeshore corridor during the a.m. peak hour is presented in Table 6-1.

The Region of Peel Sustainable Transportation Strategy (STS), approved by Regional Council in February 2018, sets a goal of a 50% sustainable mode share by 2041, in line with the City's 20919 TMP objective that half of trips to, from, and within Mississauga are taken by sustainable modes.

Table 6-1 – Modal Splits Summary

Mode of Transportation	Lakeview Village Study Area[1]	Lakeshore Road[2]	Region of Peel STS[3]
Transit	15%	10%	–
Auto	75%	85%	50%
Walk / Cycle	10%	5%	–
Sustainable Mode Share	–	–	50%
Total	**100%**	**100%**	**100%**

Notes:
1. Based on the 2011 TTS Data for residential trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zones 3642, 3643, 3875, and 3876
2. Based on LCC Public Open House 2 existing modal split data
3. Based on Region of Peel Sustainably Transportation Strategy

The Peel Region Sustainable Transportation Strategy provides a framework for how the Region will:

- increase the current 37% share of trips by walking, cycling, transit, carpooling and telework in Peel Region, to achieve a 50% sustainable mode share by 2041;
- accommodate growth in a way that prioritizes

environmental, societal and economic sustainability; and

- contribute to a Regional transportation system that is safe, convenient, efficient, multi-modal, well-integrated and sustainable.

To achieve the modal split targets set by the Region, the following existing key issues will need to be addressed:

- Pedestrian and cycling networks are discontinuous and can be better integrated into the overall transportation network.
- Transit service will require additional capacity in the future and a greater degree of transit priority.

To meet the 2041 Lakeshore transit demand, the LCC Study has identified different transit needs along the corridor based on ridership forecasts and projected population and employment growth.

As summarized in Figure 6-5, the recommended stand-alone interim Lakeshore rapid transit (no. 2) is expected to increase the peak hour ridership (peak period direction passenger per hour) from 200 to 650-1200 transit riders. The recommended ultimate solution (beyond 2041), extending the TTC streetcar from Long Branch GO to Mississauga Road, is expected to attract 1700-2300 transit riders.

The LCC preferred transportation and land use strategy, with the implementation of enhanced pedestrian connections and an improved cycling network, will:

- Address future population and employment growth
- Support major development areas;
- Support the City's objective of a 50% sustainable mode share;
- Support the Region's goal of a 50% sustainable mode share by 2041; and
- Provide higher-order transit to move people within the corridor and to connections at GO Stations and Hurontario LRT.

6.4 Transit Network and Stop Locations

The long-term local transit plan for Lakeview Village utilizes the planned major collector road network in the north-south and east-west directions. These roads will form part of a circuitous route accessing Lakeshore Road East between Lakefront Promenade and New Haig Boulevard (north-south), with an internal east-west connection via Street 'A'. In the interim, transit routing will be located on Hydro road until the New Haig Boulevard connection to Lakeshore Road East is fully realized.

All residential, commercial, and institutional development will be located less than 400 metres from the internal transit system which will define the planned transit service route. Proposed bus stops will be implemented, one each, on Lakefront Promenade, Street 'A', and Haig Boulevard along the transit route, to make travel by transit as attractive as possible to new residents and employees.

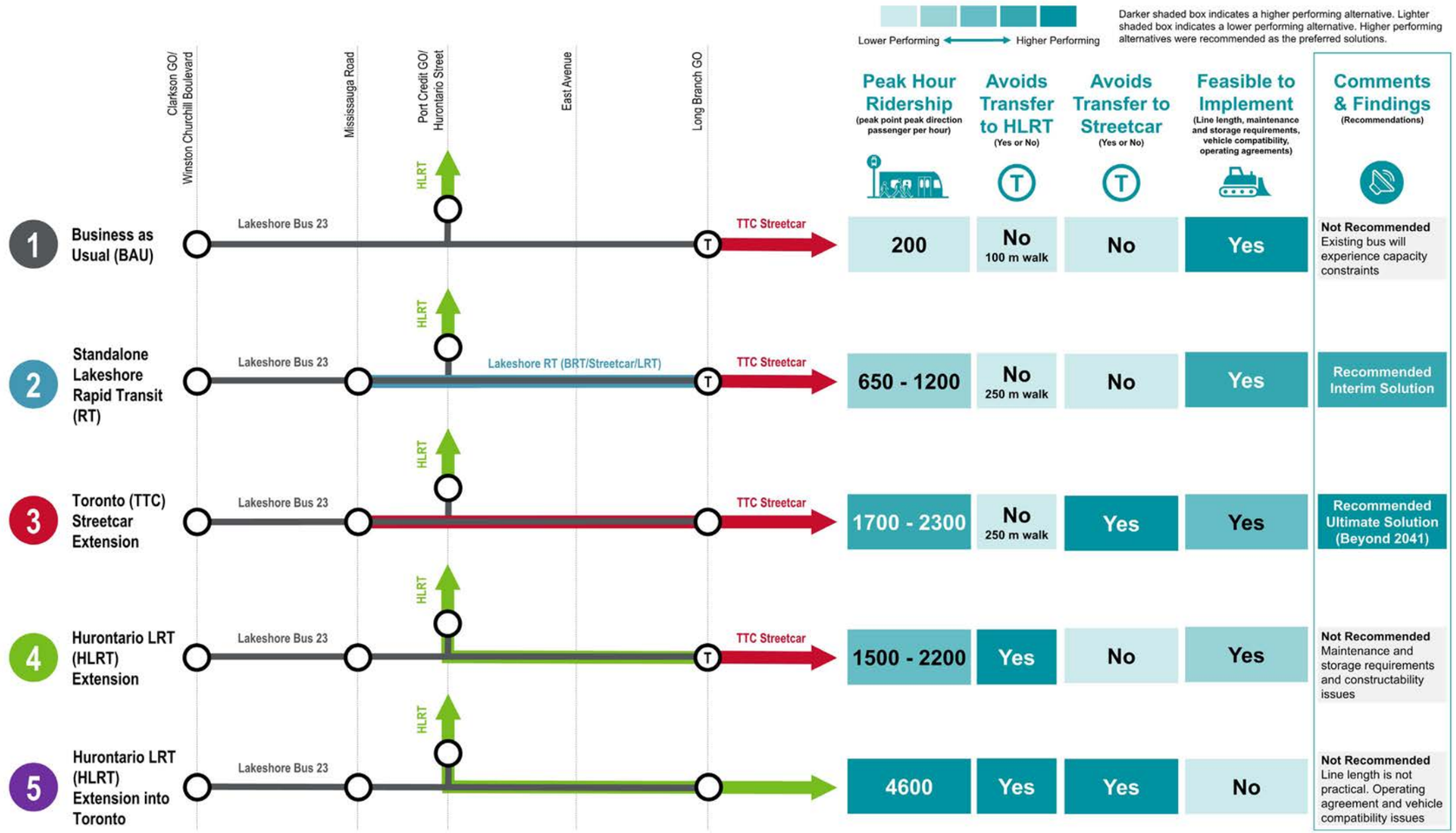


Figure 6-5 – Lakeshore Connecting Communities Rapid Transit Networks Considered
Source: Lakeshore Road Transportation Master Plan and Implementation Strategy (May 2019)

The higher average densities, range of mixed-uses, and TDM measures proposed by DMP 3.0 as detailed in this report will help drive higher transit ridership, to support more frequent transit service headways, and widen the spanreach of public transit service.

As stated in DMP 3.0:

Establishing efficient and convenient transit options to and from Lakeview Village is a fundamental component of the transportation and sustainability strategy. Lakeview Village is ideally situated in proximity to the Long Branch and Port Credit GO stations, future Hurontario Street LRT, and TTC transit hub, bringing residents, employees, and visitors within easy reach of local and regional destinations.

Bringing transit to the site will be important for ensuring the long term sustainability of the project.

Within the district, the transit connection is designed to utilize Lakefront Promenade, Street 'A' north of Waterway Common, and Hydro Road. The dotted line indicates the potential location for a route for an autonomous shuttle in the long-term.

The plan is designed to be flexible, so that transit can be incorporated as the project is phased and as regional transit plans are implemented.

Figure 6-6 illustrates the proposed local transit plan along the Lakeview Village road network.

To ensure new residents, employees, and visitors generated and attracted to the community can rely upon, and become familiar with, attractive and competitive transit service at the onset of development, it is recommended that the City of Mississauga Transit Division investigate the opportunity to modify or add bus routes into and through Lakeview Village at first occupancies. Alternatively, LCPL proposes private shuttle service between the initial phases of the Lakeview Village to connect to Lakeshore Road (and potentially other destinations such as, Port Credit and Long Branch GO Stations, Square One, etc.) until transit demand satisfies the City's threshold to provide public transit routes through the site.

The actual route of initial transit service will be governed by the overall system services in operation at the time, phasing and occupation percentage of the development, and practical integration of the new route into the broader Lakeview Village construction program.

As a fully realized community, transit and active transportation will not only be viable alternatives to private vehicular use but will help shape and support the travel habits of residents, employees and visitors to the future Lakeview Village area. Enhanced transit, a fine grain road network, extensive active transportation facilities, and the use of Transportation Demand Management measures will reduce reliance on private auto travel, reduce congestion, and mitigate greenhouse gas emissions, contributing to a more sustainable and livable community.

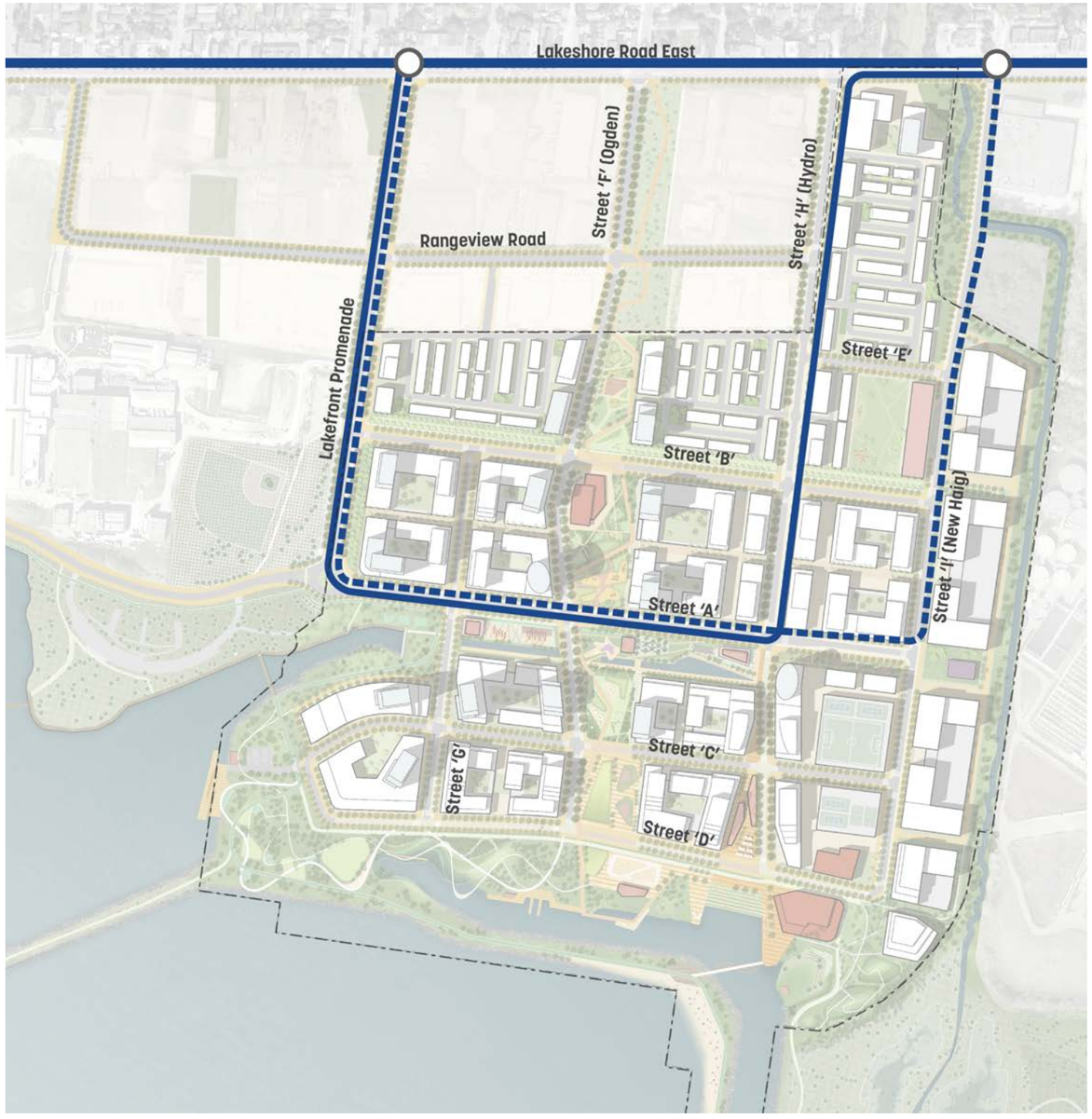


Figure 6-6 – Lakeview Village Proposed Transit Routes
Source: Development Master Plan 3.0 (August 2019)

TRAVEL DEMAND

7

Rendering of a local courtyard play area

Travel Demand

7

7.1 Horizon Years

Ultimately, a progression of development phasing that is timed with the provision of transit and other conditions affecting the modal split in order to maintain acceptable transportation / traffic operations on the local transportation network should be identified and assessed (including measures of how each development phase should be supported). However, the effort and time required to deliver this level of detail is neither practical nor possible at this Development Master Plan stage. The challenge is to provide a sufficient level of detail in this Transportation Study to give comfort to the City that the Lakeview Village DMP can be accommodated in the long term in coordination with the Lakeshore Connecting Communities study and/or other transportation system initiatives.

During pre-consultation with the City of Mississauga, future planning horizons of 2031 and 2041 were selected to correspond with the anticipated full build-out of Lakeview Village and to examine the long-term corridor growth / background development, respectively.

While it is understood that phased infrastructure requirements need to be identified and timed to support each phase of the Lakeview Village development, this Transportation Study shall focus on the ultimate development impacts for the two long-term horizons consistent with the City's Lakeshore Connecting Communities study. Once these ultimate long-range conditions are examined, and infrastructure needs are identified under the full buildout condition, detailed analysis of development phasing and specific transportation requirements needed to support that phasing can be developed. Such in-depth study would be recommended at the Draft Plan of Subdivision stage and be further examined at Site Plan Application.

7.2 Background Growth

During pre-consultation with the City, annual growth rates from the City's traffic forecast model were provided and applied to the existing Lakeshore Road East traffic counts to forecast background traffic growth for the 2031 and 2041 horizon years:

- 1.5% growth in westbound traffic during the a.m. peak period, compounded per annum
- 0.5% growth in eastbound traffic during the p.m. peak period, compounded per annum
- No predicted growth in eastbound traffic during the a.m. peak period or westbound traffic during the p.m. peak period

Existing 2018 traffic volumes and corridor growth along Lakeshore Road East were combined to produce the 2031 and 2041 a.m. and p.m. peak hour background traffic volumes.

7.3 Multi-Modal Site Trip Generation

Lakeview Village has been planned with a fine grain street system that provides attractive and competitive route options and travel mode choices within the development and the surrounding transportation network. Lakeview Village will be designed to encourage a shift away from Single Occupant Vehicle (SOV) travel by providing safe and convenient connections to transit and active transportation infrastructure.

As such, the trip generation for the Lakeview Village site accounts for the multi-modal nature of the development and the planned transit and active transportation improvements along Lakeshore Road, as identified in the preliminary Lakeshore Connecting Communities study findings.

7.3.1 Multi-Modal Demand Forecasting

The presence of mixed land uses within the development (residential, retail, office, etc.) was taken into consideration in order to determine the peak hour vehicular traffic generated by Lakeview Village. The residential component of site traffic was determined based on a first principles assessment of the site using a person trip methodology. Vehicular traffic generated by non-residential land uses was calculated using ITE 10th edition methodology. Finally, considerations were made for additional adjustments to vehicular trips due to the multi-use nature of the Lakeview Village development and the close proximity of residential, retail, and office uses.

As previously mentioned in Section 1.2, the Lakeview Village Land Use Plan and Development Phasing Concept which has been adopted in this study was developed concurrently with the latest Development Master Plan 'DMP 3.0', recently submitted by LCPL. Due to the evolutionary nature of the DMP process, and the efforts and timeline required to create the traffic model, the build-out land uses for the Lakeview Lands were based on a blending of Master Plan elements previously considered in our original transportation study of January 2019, the Development Master Plan 2.0 (presented to the City, but never submitted) and the latest DMP 3.0.

As a result, the land use plan adopted herein differs slightly from the final proposed distribution of cultural, institutional, retail, housing and unit counts presented in DMP 3.0 submitted to the City. For instance, the land use parameters utilized in the transportation model assumed 9,700 dwelling units, representing an 8% increase over the 8,982 units proposed by DMP 3.0. However, the non-residential components of the latest Lakeview Plan proposed in DMP 3.0 HAVE been incorporated into our traffic model, which has resulted in a high intensity development than currently presented in the latest DMP. Therefore, our operational assessment represents a highly conservative (i.e., worse case) analysis of the proposed Lakeview transportation network and the broader transportation system.

For reference, the latest DMP 3.0 now proposes approximately 8,982 residential units in the form of townhouses and apartment condominiums within mid/high rise buildings and taller elements, along with approximately 175,577 m^2 of commercial space (including office/institutional uses), 18,049 m^2 of retail space (including hotel), and 26,012 m^2 of civic space (including school/community centre uses) and a significant portion of park land and open space.

7.3.2 Residential Trip Generation

The residential multi-modal trip demand was based on the planned number of residential units and estimated occupancy levels. Transportation Tomorrow Survey (TTS) 2011 data was then used to develop residential travel demand for each travel mode (e.g. auto-driver, transit, walk, cycle, etc.) during both the a.m. and p.m. peak hours using person trip methodology.

Residential trip demand was calculated based on the overall number of residential units planned for the development and site traffic was assigned to the road network according to the ultimate buildout for the 2031 and 2041 analysis. A total of 9,700 residential units were planned for the development at the time this report was written. TMIG acknowledges that this represents an approximate excess of 700 units compared to what is presented in DMP 3.0, however, the excess in residential units implies the analysis detailed in this report should be viewed as conservative.

Table 7-1 details the number of units assigned to each type of residential dwelling and the assumed number of residents based on person per unit (PPU) rates outlined in the City of Mississauga's 2019 Development Charges Background Study, dated April 2019.

The number of residents living in each type of residential dwelling was calculated based on the associated PPU rate listed in the Development Charges study. An overall average occupancy rate of 1.96 PPU was based on the dwelling unit mix, which includes

Table 7-1 – Residential Unit Types

Type of Unit	Number of Units	Persons per Unit (PPU)	Resident Population
Town House	416	3.13	1,302
Apartment	3,064	2.74	8,395
Small Apartment	6,220	1.49	9,268
Total	**9,700**	-	**18,956**

the classification of 67% of all apartments as "small apartments" (units less than 700 square feet). Assuming all 9,700 units will be occupied, 18,956 residents would be living in the Lakeview Village community upon full buildout. Based on 2011 TTS data, Port Credit and the Lakeview area have current occupancy rates of 1.64 and 1.90 people per unit, respectively. As such, an average occupancy of 1.96 people per unit in Lakeview Village is a more conservative estimate than existing occupancy levels.

TTS data was collected to determine the percentage of residents that are expected to travel during the a.m. and p.m. hours using all modes of transportation. TTS data was also used to determine the modal split of individuals traveling during the peak hours and what percentage of travel is inbound and outbound. Detailed TTS data and calculations can be found in Appendix C.

TTS data was collected for the Lakeview area south of the Lakeshore West Rail Corridor to analyze existing travel patterns in the area surrounding Lakeview Village. In addition to the data collected for the Lakeview area, TTS data for Port Credit was also collected and analyzed as a proxy site. Lakeview TTS data was collected from 2006 GTA Traffic Zones 3642, 3643, 3875, and 3876, while Port Credit data was taken from traffic zone 3877.

Port Credit was used as a proxy site for Lakeview Village due to its high residential density, variety of dwelling unit types, and mixed-use retail and office buildings. The residential and mixed-use composition of the Port Credit area is similar to what is planned for the Lakeview Village development. Port Credit is located approximately 3 km to the west of the Lakeview site via Lakeshore Road, representing a similar regional context and exposure to alternative travel modes.

TMIG acknowledges that the current levels of transit connectivity in Port Credit and the Lakeview area vary greatly, in particular with the influence of a GO train station in Port Credit to draw additional transit routes and alternative transportation modes to the area. However, it is expected the introduction of BRT service and city-wide transit initiatives will drive a shift in the existing Lakeview mode split and transit ridership levels similar to those currently observed in Port Credit can be achieved in the Lakeview area. Similarly, it can be expected that existing transit usage levels in Port Credit will also increase in the future.

Although Port Credit can be considered a viable proxy site for Lakeview Village, the TTS data gathered for the existing Lakeview area and Port Credit were averaged in order to present a more conservative analysis. The averaged data points include the transportation mode splits and percentage of residents traveling during the peak hours, as per 2011 TTS data.

Table 7-2 details the person trip methodology used to forecast residential trip generation of the entire Lakeview Village site based on the averaged Lakeview and Port Credit TTS data. The total residential-based auto-driver trips shown in Table 7-2 include minor adjustments to trip volumes due to interaction with the retail and office land uses within the site. The multi-use adjustment methodology will be discussed in Section 7.3.4.

Based on Table 7-2, the residential component of the Lakeview Village development is expected to generate 1,924 new two-way auto-driver trips during the a.m. peak hour consisting of 484 inbound and 1,440 outbound trips. During the p.m. peak hour, the development is expected to generate 2,386 new two-way auto-driver trips consisting of 1,462 inbound and 924 outbound trips. As stated previously, these

Table 7-2 – Residential Site Trip Generation

Component	Residential Peak Hour Trip Generation					
Number of Units	9,700					
Occupancy	Assume 100% Occupancy					
	Unit Occupancy of 1.96 person/unit					
Number of Residents	18,965					
Residential Trips[1]	Assumed % of residents traveling during the weekday AM peak hour		18.0%	Assumed % of residents traveling during the weekday PM peak hour		20.5%
	# trips during AM peak		3,414	# trips during PM peak		3,888
Modal Split[2]	Split Percentage		Trips	Split Percentage		Trips
Transit	22.5%		768	17.5%		680
Auto-Driver	57.5%		1,963	65.0%		2,527
Auto-Passenger	12.5%		427	15.0%		583
Walk	6.5%		222	1.5%		58
Cycle	1.0%		34	1.0%		39
Directional Distribution[3]	Inbound	Outbound	Total	Inbound	Outbound	Total
	25%	75%	100%	61%	39%	100%
Person Trips						
Transit	192	576	768	415	266	681
Auto-Driver	491	1,472	1,963	1,541	986	2,527
Auto-Passenger	107	320	427	356	227	583
Walk	56	167	223	35	23	58
Cycle	9	26	35	24	15	39
Total Trips	855	2,561	3,416	2,371	1,517	3,888
Auto Trip Rate (veh trips/unit)	0.05	0.15	0.20	0.16	0.10	0.26
Mixed Use Adjustments	7	332	39	79	62	141
Total Auto-Drive Trips used for analysis[4]	**484**	**1,140**	**1,924**	**1,462**	**924**	**2,386**

Notes:
1. Based on 2011 TTS Data for apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
2. Based on 2011 TTS Data for residential trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
3. Directional Distribution based on average of ITE 10e Multi-family Housing LUC 221 (mid-rise) and 222 (High-rise)
4. Minor discrepancies are present due to person trips being calculated at the development phase level and added together for analysis purposes compared to the example calculations of person trips for the entire development

total vehicle trip volumes take into account minor adjustments due to interactions with mixed-use nodes within the site that will not require the use of a vehicle trip by residents.

7.3.3 Non-Residential Trip Generation

Non-residential site traffic was developed using ITE 10th edition trip generation rates. Table 7-3 lists the types of Land Use Codes (LUC) that were applied to each non-residential use. The non-residential components of the latest Lakeview Plan proposed in DMP 3.0 have been incorporated into our traffic model.

The gross trips of the non-residential uses planned within Lakeview Village were calculated using ITE 10th edition trip generation rates with mixed-use adjustments and transit reductions applied. Based on the mode splits obtained from the averaged Lakeview and Port Credit TTS 2011 data, a transit reduction of 22.5% was applied to the a.m. peak hour trips, and 17.5% was applied to the p.m. peak hour trips. Table 7-4 and Table 7-5 summarize the estimated total trip generation of the non-residential component of the site in 2031 and 2041, respectively. It is important to note that the trip totals presented in Table 7-4 and Table 7-5 take into account minor adjustments due to the interaction of residential and non-residential uses within the site that will not warrant a vehicle trip. This mixed-use adjustment is discussed in Section 7.3.4 in greater detail.

Due to the physical layout of the development site, only the multi-use node at Lakeshore Road East and Hydro Road was considered eligible to attract pass-by trips from existing traffic. However, its close proximity to a signalized intersection with median-running BRT bus lanes make it a problematic location for cars to enter and exit the multi-use node without considerable deviations to their travel route along Lakeshore Road.

The relatively close spacing of 170 metres between the signalized intersections of Hydro Road and Haig

Table 7-3 – Non-Residential Statistics by Development Phase

ITE Land Use Code	Proposed G.F.A. (sq. ft.) or # of Rooms
LUC 820 – Retail, Shopping Center	147,080 G.F.A.
LUC 710 – General Office Building	937,000 G.F.A.
LUC 760 – Research and Development Center	952,900 G.F.A.
LUC 495 – Recreational Community Center	69,890 G.F.A.
LUC 310 – Hotel	212 Rooms

Boulevard on Lakeshore Road makes the placement of a mid-block access to Lakeshore Road unlikely. The main access to the multi-use node will likely be placed on the east side of Hydro Road. Southbound traffic from Lakeshore Road seeking to turn left into the mixed-use node may have to contend with the peak hour northbound queue from the Hydro Road and Lakeshore Road intersection extending past the access point. As such, the analysis did not consider the addition of pass-by traffic to the multi-use node due to its anticipated lack of ease of access.

TMIG investigated developing non-residential 'person trip' based generation rates instead of the more traditional methods of GFA-based trip rates presented in this report. However, TMIG maintains that using GFA-based ITE trip generation rates for the non-residential component of the Lakeview Village development is the most appropriate course of action at this time based on the minimal amount of non-residential 'person-derived' trip data available (the GFA-based method is represented by many more surveys, and therefore carries more legitimacy and credibility).

Furthermore, many other assumptions and/or data sets would be needed to provide a wholesome trip generation exercise for non-residential uses in addition to using Floor Space per Worker (FSW) rates. Some examples of additional assumptions and information that would need to be determined are:

- Varying shift start and end times for workers that effect the percentage of total employees traveling during the adjacent street peak hours (unpredictable based on current breakdown of land uses)
- Volume of customers and patrons traveling to non-residential uses during the adjacent street peak

Table 7-4 – 2031 Non-Residential Site Trip Generation

Land Use	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Retail	Gross Trips	140	85	225	347	376	723
	Mixed-Use Adjustments	69	37	106	63	106	169
	Transit Reduction	16	11	27	50	47	97
	New Trips	55	37	92	234	223	457
Office	Gross Trips	780	127	907	153	801	954
	Mixed-Use Adjustments	41	25	66	47	35	82
	Transit Reduction	166	23	189	19	134	153
	New Trips	573	79	652	87	632	719
Research & Development	Gross Trips	300	100	400	70	397	467
	Mixed-Use Adjustments	16	20	36	22	17	39
	Transit Reduction	64	18	82	8	66	74
	New Trips	220	62	282	40	314	354
Community Center	Gross Trips	168	86	254	180	204	384
	Mixed-Use Adjustments	0	0	0	0	0	0
	Transit Reduction	38	19	57	31	36	67
	New Trips	130	67	197	149	168	317
Hotel	Gross Trips	60	41	101	68	65	133
	Mixed-Use Adjustments	0	0	0	0	0	0
	Transit Reduction	13	9	22	12	11	23
	New Trips	47	32	79	56	54	110
Total	**New Trips**	**1,025**	**277**	**1,302**	**566**	**1,391**	**1,957**

hours is not determined by the number of employees (customer volumes are highly driven by the type of land use, of which such level of detail is not yet available)

- The percentage of people both living and working within the development, i.e. highly likely to be non-auto based trips
- An employee could make multiple trips to and from, or within the development in a given hour e.g. deliveries, running errands for a company, morning check-in before working off-site, etc.
- A customer could enter and exit the site within a given peak hour.

A greater degree of detail can be applied to non-residential trip generation at a later date, such as at site plan application level when the specific tenant or non-residential use is known with greater certainty. As stated previously, the total non-residential vehicle trip volumes take into account minor adjustments due to the interaction of mixed-use nodes and residential areas within the site that will not require the use of a vehicle trip by residents. Including mixed-use adjustments and transit reductions, the non-residential component of the Lakeview Village development is expected to generate 1,302 new two-way auto-driver trips during the a.m. peak hour consisting of 1,025 inbound and 277 outbound trips. During the p.m. peak hour, the development is expected to generate 1,957 new two-way auto-driver trips consisting of 566 inbound and 1,391 outbound trips.

7.3.4 Mixed-Use Considerations and Adjustments

An integral part of the vision for Lakeview Village is to design a community that is multi-modal in nature. In addition to providing the infrastructure, such as bicycle lanes and multi-use pathways, creating destinations within the community that are within walking distance of residential areas is a key consideration in the planning process.

The presence of multi-use nodes throughout the development will encourage residents to use an alternate mode of transportation to reach their destination. This will aid in reducing auto-driver trips generated that travel from one destination to another within the site itself. To account for the interaction of residential and non-residential uses present within the site, the study adopted the mixed-use development trip generation methodology presented in chapter 6 of the ITE 3rd edition Trip Generation Handbook.

The ITE mixed-use development trip generation methodology looks at on-site land use pairs within a multi-use development to determine internal capture volumes. The types of land uses that can be applied to this method are:

- Office
- Retail
- Restaurant
- Cinema/Entertainment
- Residential
- Hotel

In the context of the Lakeview Village development, residential, retail, and office land uses were considered as a part of the multi-use internal capture calculations. The cultural hub, although likely to attract a high number of trips internal from Lakeview Village, is expected to generate the majority of its trips outside of the peak hours. The ITE method provides internal capture percentages that have been observed between land-use pairs and identifies the demand of internal person trips in each direction between land uses. The lower of the two-person trip demands between a land use pair is then used to adjust the number of trips generated by a given land use by separating generated trips into internal and external trips.

The internal capture calculations performed on site trips generated during the 2031 a.m. and p.m. peak hour by residential, retail, and office land uses are in Appendix D.

Table 7-5 – 2041 Non-Residential Site Trip Generation

Land Use	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Retail	Gross Trips	140	85	225	347	376	723
	Mixed-Use Adjustments	69	37	106	63	106	169
	Transit Reduction	16	11	27	50	47	97
	New Trips	55	37	92	234	223	457
Office	Gross Trips	780	127	907	153	801	954
	Mixed-Use Adjustments	38	20	58	38	31	69
	Transit Reduction	167	24	191	20	135	155
	New Trips	575	83	658	95	635	730
Research & Development	Gross Trips	300	100	400	70	397	467
	Mixed-Use Adjustments	15	16	31	17	15	32
	Transit Reduction	64	19	83	9	67	76
	New Trips	221	65	286	44	315	359
Community Center	Gross Trips	168	86	254	180	204	384
	Mixed-Use Adjustments	0	0	0	0	0	0
	Transit Reduction	38	19	57	31	36	67
	New Trips	130	67	197	149	168	317
Hotel	Gross Trips	60	41	101	68	65	133
	Mixed-Use Adjustments	0	0	0	0	0	0
	Transit Reduction	13	9	22	12	11	23
	New Trips	47	32	79	56	54	110
Total	**New Trips**	**1,028**	**284**	**1,312**	**578**	**1,395**	**1,973**

The internal capture adjustments that were applied to the total vehicle trips generated by the residential and non-residential components of the Lakeview Village development are summarized in Table 7-2 and Table 7-4, respectively.

In 2031, with transit and internal capture adjustments taken into consideration, the Lakeview Village development is expected to generate a total of 3,226 new two-way auto-driver trips during the a.m. peak hour consisting of 1,509 inbound and 1,717 outbound trips. During the p.m. peak hour, the development is expected to generate 4,343 new two-way auto-driver trips consisting of 2,028 inbound and 2,315 outbound trips.

As discussed in the background development trip generation section of this report, Section 7.5.2, the northern portion of the Serson Innovation Corridor (herein referred to as Serson North), located north of Serson Creek, is expected to be constructed by the 2041 planning horizon. Although the northern Serson extension is not a part of the Lakeview Village development, its placement directly east of the mixed-use node at Hydro Road and Lakeshore Road East will allow for direct interaction between the developments in 2041.

Table 7-6 – 2031 and 2041 Total Residential and Non-Residential Site Trip Generation

Year	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
2031	Residential Trips	484	1,440	1,924	1,462	924	2,386
	Non-Residential Trips	1,025	277	1,302	566	1,391	1,957
	Total Trips	**1,509**	**1,717**	**3,226**	**2,028**	**2,315**	**4,343**
2041	Residential Trips	484	1,435	1,919	1,458	924	2,382
	Non-Residential Trips	1,028	284	1,312	578	1,395	1,973
	Total Trips	1,512	1,719	3,231	2,036	2,319	4,355

Table 7-7 – Site Trip Distribution

Direction To/From		AM Peak Hour		PM Peak Hour	
		In (%)	Out (%)	In (%)	Out (%)
East	Dixie Road	12	15	12	10
	Brown's Line	13	20	23	10
West	Cawthra Road	30	20	15	25
	Lakeshore Road west of Cawthra Road	25	25	30	35
North	Alexandra Avenue	0	2	0	2
	Ogden Avenue	13	12	13	12
	Haig Boulevard	7	6	7	6
Total		**100**	**100**	**100**	**100**

The Lakeview Village mixed-use internal capture calculations were recreated for the 2041 scenario with the interaction between the Lakeview Village multi-use node and the office component of Serson North taken into account. The 2041 mixed-use internal capture calculations are located in Appendix D. Table 7-6 provides a comparison of the 2031 and 2041 site traffic volumes. The 2041 site traffic volumes were produced by updating the 2031 site volume calculations with the 2041 mixed-use internal capture volumes.

In 2041, with transit and internal capture adjustments taken into consideration, the Lakeview Village development is expected to generate 3,231 new two-way auto-driver trips during the a.m. peak hour consisting of 1,512 inbound and 1,719 outbound trips. During the p.m. peak hour, the development is expected to generate 4,355 new two-way auto-driver trips consisting of 2,036 inbound and 2,319 outbound trips.

7.3.5 Site Trip Distribution and Assignment

The distribution of site traffic was derived from 2011 TTS data for the Lakeview Village study area (2006 GTA Traffic Zones 3642, 3643, 3875, and 3876). Site traffic for each development phase was assigned a north-south route from the Lakeview Village site to Lakeshore Road East before being distributed to the larger road network according to the directional splits presented in Table 7-7. TTS data used to develop the distribution of site traffic can be found in Appendix C.

As presented in Table 7-7, there are several entrance/exit points to/from the site to the east, west, and north. Although the majority of traffic is identified as having an origin/destination to the east or west of the site, many of these routes require travel to/from the QEW north of the study area. Interchanges at Cawthra Road and Dixie Road (which will be converted to a full moves interchange before 2031) provide motorists direct access to both Cawthra Road and Dixie Road, but also the South Service Road. Using the south service road, motorists are able to access three additional north-south roads that connect to Lakeshore Road to the south; Alexandra Avenue, Ogden Avenue, and Haig Boulevard.

It was assumed that traffic would not travel south to the Lakeview Village development via Alexandra Avenue upon the conversion of its intersection at Lakeshore Road East to right-in/right-out operations to accommodate the median-running BRT lanes. A southbound vehicle on Alexandra would be required to turn right at Lakeshore Road and travel west, away from the Lakeview Village development, before either turning left or performing a U-turn at East Avenue to access a north-south route into the Lakeview site. Accordingly, it was assumed that southbound traffic from South Service Road would use a more direct, convenient route to Lakeview Village, such as Ogden Avenue or Haig Boulevard.

As will be discussed in further detail in Section 7.6.2, Ogden Avenue and Haig Boulevard are currently classified as a major and minor collector roads, respectively, as documented in the Mississauga Official Plan Amendment 89. Although these local north-south roads do not currently attract a significant number of trips as an alternative to Cawthra Road and Dixie Road, as confirmed through discussions with City staff, both Ogden Avenue and Haig Boulevard have the potential to accommodate additional traffic as collector roads. Some of this infiltration will be due to existing and future capacity constraints at Cawthra Road and Dixie Road.

The conversion of the existing QEW and Dixie Road interchange to a full-moves interchange has the potential to attract additional trips to Dixie Road in the future. However, the recent reduction of Dixie Road from two travel lanes in each direction to one lane south of Londonderry Boulevard must also be considered. The loss of a travel lane in each direction has provided space for bicycle lanes to promote active transportation in the area, but Dixie's vehicular capacity has been diminished by the reduction of lanes.

Accordingly, changes to existing travel patterns were considered to account for increased congestion along Dixie Road and at the intersection of Dixie Road and Lakeshore Road East. Despite the small detour to access the Dixie Road or Cawthra Road interchanges via South Service Road, Lakeview Village traffic will view the north-south roads, such as Ogden Avenue, as a viable and attractive option when compared to the anticipated increase in congestion along Lakeshore Road East, Dixie Road, and Cawthra Road. As such, a non-trivial amount of north-south traffic is expected to make use of the South Service Road, via Ogden Avenue and Haig Boulevard, to access the QEW interchanges.

It was assumed that all the transportation infrastructure required to accommodate the full build-out of the Lakeview Village development will be implemented by 2031.

The estimated site trips generated by the Lakeview Village development in 2031 and 2041 were assigned to the study area road network for the weekday a.m. and p.m. peak hours as shown in Figure 7-1 and Figure 7-2 respectively.

Existing traffic patterns along Rangeview Road were assumed to be unchanged in 2031, as the Rangeview Estates background development will not be complete until the 2041 planning horizon. Adjustments made to Rangeview Road traffic patterns in 2041 are discussed in Section 7.5.1.2 of this report.

7.3.6 Transit Trip Generation

As seen in Table 7-2 and Table 7-4 of Section 7.3, transit reductions of 22.5% and 17.5% were applied to site traffic during the a.m. and p.m. peak hours, respectively. The transit reductions were applied to both residential and non-residential trips generated by Lakeview Village. The total transit trips that will originate or be destined for Lakeview Village are summarized in Table 7-8.

Calculations were performed to determine the number of buses and associated headways required to service the transit demand of Lakeview Village. Both the BRT route along Lakeshore Road East and the local route servicing the Lakeview Village site were considered.

Table 7-8 – Lakeview Village Estimated Transit Ridership

Generator of Transit Ridership	AM Peak Hour		PM Peak Hour	
	IN	OUT	IN	OUT
Residential	189	563	394	249
Retail	16	11	50	47
Office	166	23	19	134
R&D	64	18	8	66
Recreation Center	38	19	31	36
Hotel	13	9	12	11
Total	**486**	**643**	**514**	**543**

Table 7-9 – Nova Bus LFS Diesel and LFS Arctic Passenger Capacities

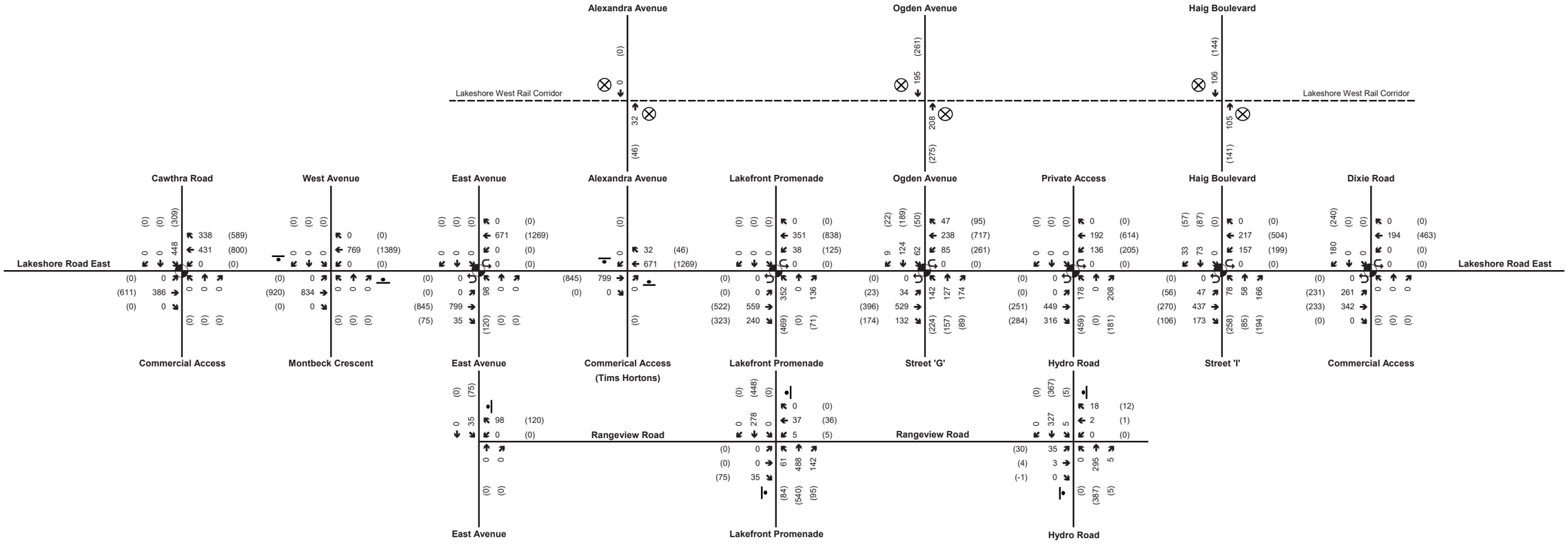
Type of Capacity	LFS Diesel 40′ (Local Route)	LFS Artic 62′ (BRT Route)
Seating Capacity	Up to 41 passengers	Up to 62 passengers
Loading Capacity (max. seated and standing)	Up to 80 passengers	Up to 112 passengers
Average	Up to 61 passengers	Up to 87 passengers

For the purpose of calculations, capacity statistics for bus models from MiWay's most recent Nova Bus order were taken from the manufacturer's website. The local route was assumed to run 40′ Nova Bus LFS models, while the BRT was assumed to run 62′ articulated Nova Bus LFS Artic models. Bus specification summary sheets for both Nova Bus models can be found in Appendix H.

A range of capacities were considered, as each will provide a varying degree of passenger comfort and the minimum number of buses required to cover the transit demand of the development. MiWay staff will be able to perform more detailed calculations in the future to optimize the number of buses required for each route based on MiWay guidelines for capacity and passenger comfort levels. Table 7-9 summarizes the range of passenger capacities used to calculate the required number of buses for each route.

In order to reach the BRT route, residents and employees of Lakeview Village may either walk or cycle north to Lakeshore Road East or use the proposed local bus loop circulating through the site along the planned collector road network. To account for transit users that will use active transportation options to reach the BRT route, it was assumed that any residents or employees located north of Street 'B' would use alternate transportation methods to reach Lakeshore Road East.

2031 SITE TRAFFIC VOLUMES



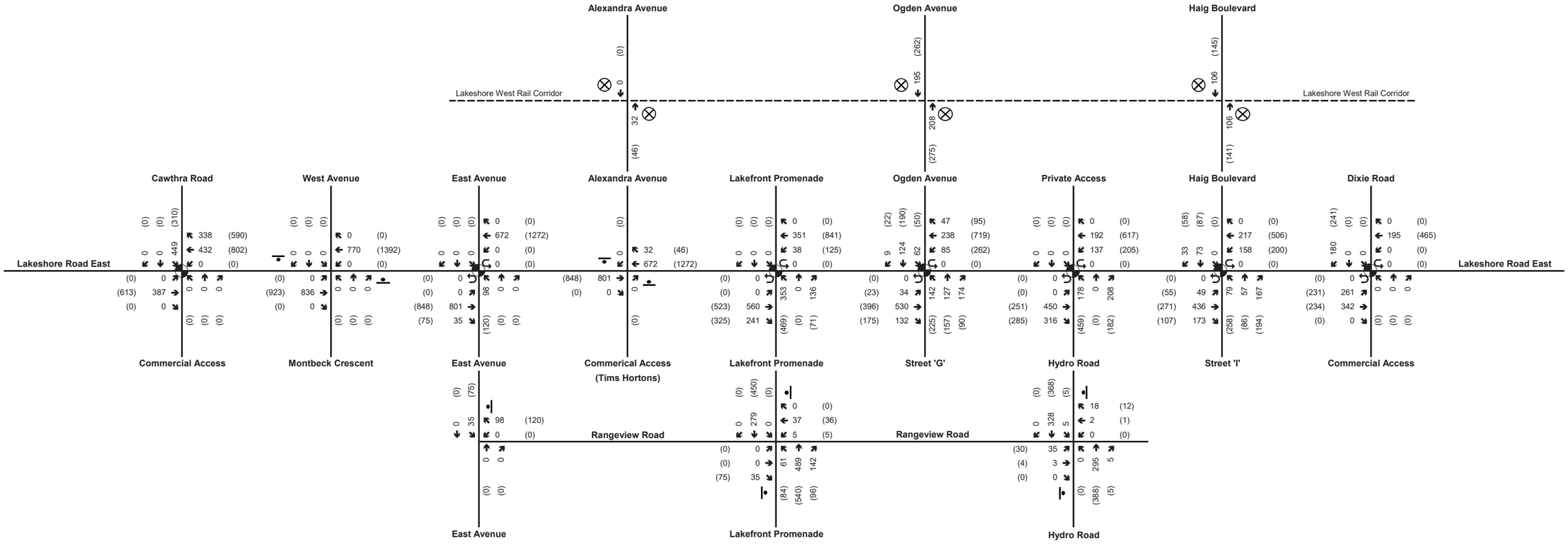
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-1 – 2031 Site Traffic Volumes

2041 SITE TRAFFIC VOLUMES



LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-2 – 2041 Site Traffic Volumes

Table 7-10 – Reduced Lakeview Village Local Transit Ridership

Ridership Description	AM Peak Hour		PM Peak Hour	
	IN	OUT	IN	OUT
Total Lakeview Village Ridership	593	707	558	519
Active Transportation Reduction	89	115	89	96
Local Loop Transit Ridership	397	528	425	447
Percentage of Total Lakeview Village Ridership removed from Local Loop	18%	18%	17%	18%

Table 7-11 – Local Transit Loop Route – Minimum Operational Requirements

Capacity Level	Capacity (passengers)	Number of Nova Bus LFS 40' Required (Min. Headway in minutes)					
		AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Seating	41	10 (6)	13 (5)	23 (--)	11 (5)	11 (5)	22 (--)
Average	61	7 (9)	9 (7)	16 (--)	8 (8)	8 (8)	16 (--)
Loading	80	5 (12)	7 (9)	12 (--)	6 (10)	6 (10)	12 (--)

Table 7-12 – Adjusted Auto-Driver Directional Splits Applied to Transit Trips

Direction To/From	AM Peak Hour		PM Peak Hour	
	IN	OUT	IN	OUT
East via Dixie Road, Brown's Line, and Lakeshore Road	35%	45%	45%	30%
West via Cawthra Road and Lakeshore Road	65%	55%	55%	70%
North via Ogden Avenue and Haig Boulevard	0%	0%	0%	0%
Total	100%	100%	100%	100%

Table 7-13 – Lakeshore Road BRT Route – Minimum Operational Requirements

Capacity Level	Capacity (passengers)	Number of Nova Bus LFS Artic 62' Required (Min. Headway in minutes)							
		Eastbound				Westbound			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT	IN	OUT	IN	OUT
Seating	62	6 (10)	5 (12)	5 (12)	3 (20)	3 (20)	6 (10)	4 (15)	7 (9)
Average	87	4 (15)	4 (15)	4 (15)	2 (30)	2 (30)	5 (12)	3 (20)	5 (12)
Loading	112	3 (20)	3 (20)	3 (20)	2 (30)	2 (30)	4 (15)	3 (20)	4 (15)

Table 7-10 details the transit ridership reductions made to the local transit loop route to account for the use of active transportation to reach the planned BRT/local transit service. Overall, approximately 18% or less of the total transit ridership generated by Lakeview Village is estimated to be within 450m of Lakeshore Road East. It was assumed that this 18% or less ridership will use active transportation instead of the local transit loop to reach the Lakeshore BRT/local transit service.

It was assumed that all Lakeview Transit users would utilize the Lakeshore Road BRT line to travel to their destinations, transfer to other MiWay routes, or travel to either Long Branch GO, or Port Credit GO to access other transit providers such as the TTC or Metrolinx (GO trains and buses). As such, the ridership numbers shown in Table 7-8 were used without any reductions for BRT calculations.

The ridership and bus model capacity for each route was used to determine the number of buses required during the a.m. and p.m. peak hours, along with the corresponding minimum headway. It is important to note that these calculations only took into account ridership to and from the Lakeview Village site. In reality, a greater number of buses and smaller headways between buses will be required to account for any existing and future ridership demand in the Lakeview area and along the Lakeshore Road corridor.

Table 7-11 summarizes the calculations performed for the local loop bus route through the Lakeview Village site. On average, a total of 16 Nova Bus LFS 40' buses will be required to meet demand during both the a.m. and p.m. peak hour. To accommodate the estimated Lakeview Village transit ridership, the average minimum headway required between buses during the a.m. peak hour is nine minutes, and eight minutes during the p.m. peak hour.

As a part of determining the minimum operational requirements for the BRT route, the directional splits applied to the auto-driver component of trips generated by Lakeview Village were also applied to the transit trips. The 20% of traffic that was assigned to the north was divided evenly between the east and west, as the BRT will connect to north-south local routes at both Cawthra Road and Dixie Road, to the west and east of the site, respectively. Table 7-12 provides the adjusted directional splits that were applied to transit trips after adjusting the northern component of the original auto-driver directional splits.

The directional splits presented in Table 7-12 were applied to the Lakeview Village transit trips to determine the number of 62' articulated buses that would be needed in the eastbound and westbound directions during the a.m. and p.m. peak hours. The minimum operational requirements for the BRT route to support the Lakeview Village transit demand are summarized in Table 7-13.

At an average capacity level, a maximum of four eastbound buses with miminum headways of 15 minutes will be required during the a.m. and p.m. peak hours. On average, a maximum of five westbound buses during both the a.m. and p.m. peak hours would be required to operate at minimum headways of 12 minutes to accommodate the estimated Lakeview Village transit ridership.

7.4 2031 Business as Usual Sensitivity

TMIG analyzed a 'Business as Usual' (BAU) scenario at the 2031 planning horizon to determine the potential impacts of development in the area (including full build-out of Lakeview Village) without the planned BRT service along the Lakeshore Road corridor.

To identify the effects of the median-running BRT service not being in place by the projected 2031 full build-out of Lakeview Village, the following assumptions were made to create the 2031 Total BAU model:

- No exclusive median-running BRT lanes;
- No right-in/right-out intersections within study area;
- 2018 existing lane configurations will be maintained with the exception of modifications to the south legs of Lakefront Promenade, Ogden Avenue, and Hydro Road at Lakeshore Road East to accommodate Lakeview Village traffic demand;
- Signalization of Hydro Road and Lakeshore Road East;
- 2018 existing signal timings optimized; and
- Lakeview Village site trip generation updated to reflect the existing modal split (with lower transit / active transportation usage) during a.m. and p.m. peak hours.

7.4.1 BAU Multi-Modal Demand Forecasting

The site trip generation methodology presented in Section 7.3.1 of this report was also used to determine the number of trips that would be generated by the Lakeview Village development at full-build out if the BRT route was not in place within the study area.

While the 2031 Total trip generation calculations made use of modal splits based on averaged 2011 TTS data from Port Credit and the Lakeview area, the 2031 Total BAU trip generation calculations used a modal split derived solely from 2011 TTS data for the Lakeview are A comparison of modal split values for Port Credit and the Lakeview area, and an average of both is presente in Table 7-14.

As shown in Table 7-14, The 2031 BAU trip generation had a transit reduction of 15% applied to both the a.m. and p.m. peak hour traffic, a decrease of 7.5% anc 2.5% respectively when compared to the transit modal splits applied to the 2031 Total trip generation. To keep the results of the 2031 Total and 2031 Total BAU a.m. scenarios directly comparable, the assumed percentag of Lakeview Village residents traveling during the a.m. and p.m. peak hours remained the same as the values derived for the 2031 Total residential trip generation.

Table 7-15 summarizes the residential person-trip calculations performed for the 2031 BAU scenario, and Table 7-16 shows the ITE 10th edition trip generation results for the non-residential land uses with the new transit modal split values applied. Finally, Table 7-17 provides the total residential and non-residential trips used for the purposes of analysis.

Table 7-14 – 2011 TTS Modal Splits for Port Credit and Lakeview

Mode of Transportation	Port Credit[1]		Lakeview[2]		Average	
	AM	PM	AM	PM	AM	PM
Transit	30.0%	20.0%	15.0%	15.0%	22.5%	17.5%
Auto-Driver	60.0%	60.0%	55.0%	70.0%	57.5%	65.0%
Auto-Passenger	5.0%	15.0%	20.0%	15.0%	12.5%	15.0%
Walk	3.0%	3.0%	10.0%	0.0%	6.5%	1.5%
Cycle	2.0%	2.0%	0.0%	0.0%	1.0%	1.0%
Total	100%	100%	100%	100%	100%	100%

Notes:
1. Based on 2011 TTS Data for residential trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zones 3877
2. Based on 2011 TTS Data for residential trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zones 3642, 3643, 3875, and 3876

Table 7-15 – 2031 BAU Residential Site Trip Generation

Component	Residential Peak Hour Trip Generation					
Number of Units	9,700					
Occupancy	Assume 100% Occupancy					
	Unit Occupancy of 1.96 persons/unit					
Number of Residents	18,965					
Residential Trips[1]	Assumed % of residents traveling during the weekday AM peak hour		18%	Assumed % of residents traveling during the weekday PM peak hour		21%
	# trips during AM peak		3,414	# trips during PM peak		3,888
Modal Split[2]	Split Percentage		Trips	Split Percentage		Trips
Transit	15%		512	15%		583
Auto-Driver	55%		1,878	70%		2,722
Auto-Passenger	20%		683	15%		523
Walk	10%		341	0%		0
Cycle	0%		0	0%		0
Directional Distribution[3]	Inbound	Outbound	Total	Inbound	Outbound	Total
	25%	75%	100%	61%	39%	100%
Person Trips						
Transit	128	384	512	356	227	583
Auto-Driver	470	1,409	1,879	1,660	1,062	2,722
Auto-Passenger	171	512	683	356	227	523
Walk	85	256	341	0	0	0
Cycle	0	0	0	0	0	0
Total Trips	854	2,561	3,415	2,372	1,516	3,888
Auto Trip Rate (veh trips/unit)	0.05	0.15	0.19	0.19	0.11	0.28
Mixed Use Adjustments	7	31	38	85	67	152
Total Auto-Driver Trips used for analysis[4]	**463**	**1,378**	**1,841**	**1,575**	**995**	**2,570**

Notes:
1. Based on 2011 TTS Data for apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3642, 3643, 3875, 3876, and 3877
2. Based on 2011 TTS Data for residential trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zones 3642, 3643, 3875, 3876, and 3877
3. Directional Distribution based on average of ITE 10e Multi-family Housing LUC 221 (mid-rise) and 222 (High-rise)
4. Mixed-use adjustments have been applied to the total auto-driver volumes used for analysis and will be discussed in Section 7.3.4.

Table 7-16 – 2031 BAU Non-Residential Site Trip Generation

Development Phase	Land Use	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
3A	Retail	Gross Trips	97	59	156	41	44	85
		Transit	14	9	23	6	7	13
		New Trips	83	50	133	35	37	72
3C1	Retail	Gross Trips	104	63	167	108	117	225
		Transit	16	9	25	16	18	34
		New Trips	88	54	142	92	99	191
3C2	Retail	Gross Trips	106	65	171	128	138	266
		Transit	16	10	26	19	21	40
		New Trips	90	55	145	109	117	226
	Hotel	Gross Trips	61	40	101	63	54	117
		Transit	0	0	0	0	0	0
		New Trips	61	40	101	63	54	117
	Office	Gross Trips	79	13	92	13	68	81
		Transit	12	2	14	2	10	12
		New Trips	67	11	78	11	58	69
3C3	Community College	Gross Trips	243	72	315	100	99	199
		Transit	36	11	47	15	15	30
		New Trips	207	61	268	85	84	169
4C	Office	Gross Trips	488	79	567	96	504	600
		Transit	73	12	85	14	76	90
		New Trips	415	67	482	82	428	510
6	Retail	Gross Trips	109	67	176	154	167	321
		Transit	16	10	26	23	25	48
		New Trips	93	57	150	131	142	273
	Office	Gross Trips	108	17	125	19	100	119
		Transit	16	3	19	3	15	18
		New Trips	92	14	106	16	85	101
Total		**New Trips**	**1,196**	**409**	**1,605**	**624**	**1,104**	**1,728**

Table 7-17 – 2031 BAU Total Residential and Non-Residential Site Trip Generation

Year	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
2031 BAU	Residential Trips	463	1,378	1,841	1,575	995	2,570
	Non-Residential Trips	1,123	304	1,427	583	1,432	2,015
	Total Trips	**1,586**	**1,682**	**3,268**	**2,158**	**2,427**	**4,585**

7.4.2 Trip Distribution and Assignment

The site trip distribution and assignment methodology presented in Section 7.3.5 of this report was also applied to the trips that would be generated by the Lakeview Village development at full-build out if the BRT route was not in place within the study area.

The estimated site trips generated by the Lakeview Village development under the 2031 BAU scenario were assigned to the study area road network for the weekday a.m. and p.m. peak hours as shown in Figure 7-3.

7.5 Background Developments

7.5.1 Rangeview Estates

The Rangeview Estates development north of Lakeview Village lands is made up of parcels of land not owned by LCPL but are included in the Lakeview Major Node Character Area of the City's Official Plan. These parcels are subject to the City's MOP policies and have the potential to develop over a longer period of time compared to Lakeview Village, as they contain existing businesses, and development will require the sale and land assembly of various parcels. During pre-consultation with City transportation staff, it was determined that the Rangeview Estates development will commence construction post 2031 and will reach full-build out by the 2041 planning horizon.

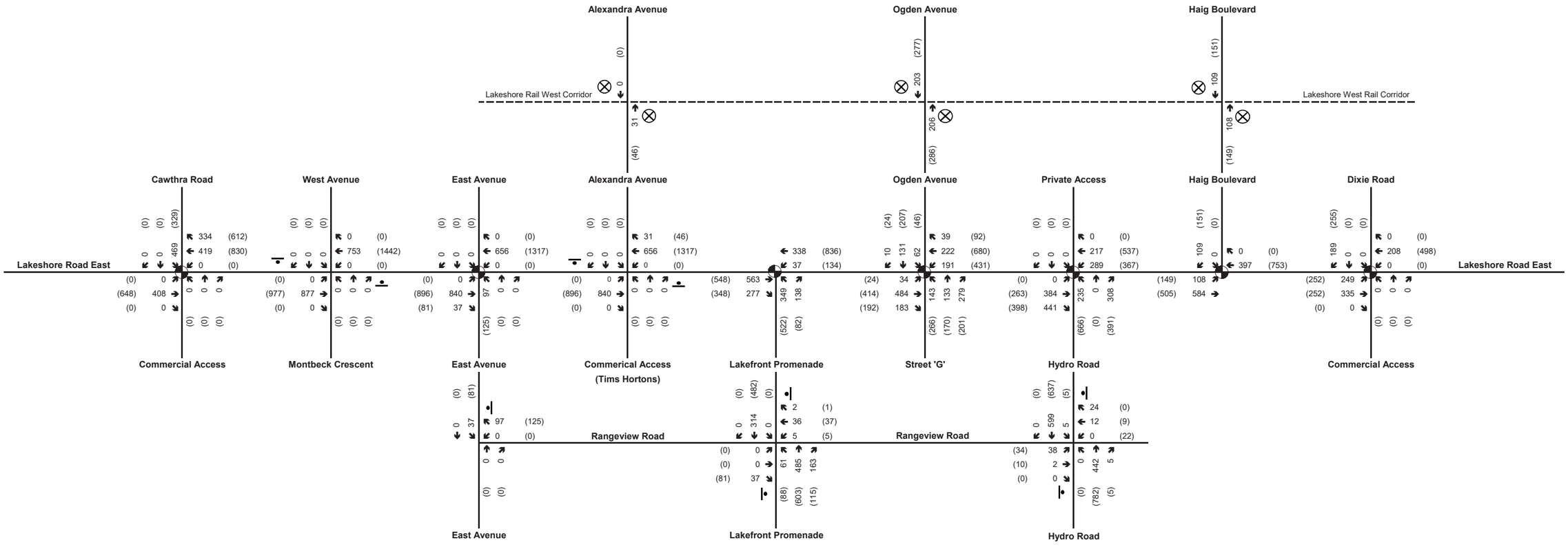
The Rangeview Estates development will span from East Avenue in the west to Hydro Road in the east. Lakeshore Road East acts as the Lakeview Village development's northern boundary, and its limits abut Lakeview Village lands south of Rangeview Road. Figure 7-4 details the extent of the Rangeview Estate lands and its location relative to the Lakeview Village development.

7.5.1.1 Trip Generation

The Rangeview Estates site has been envisioned as a mixed-use development, comprised of residential, retail, and commercial uses. While site statistics for the Rangeview Estates development are still preliminary, the site statistics have been extracted from 'Inspiration Lakeview Conceptual Municipal Servicing Strategy – Appendix A & C', dated July 23, 2014, prepared by TMIG (2014 TMIG Servicing Strategy), see Appendix E, and were used for trip generation purposes. The total commercial GFA proposed was 59,502ft^2 located within Private Parcel Areas #4 and #5, as summarized in 2014 TMIG Servicing Strategy Appendix A & C.

The Lakeview Waterfront OPA provides for a mixed-use community that includes a wide range and mix of uses including residential, employment, institutional, recreational, park and open space. The distribution of land uses reflects opportunities on Lakeshore Road providing visibility for commercial uses. Comparison of the 2014 TMIG Servicing Strategy land use assumptions with MOPA89 observed an increase in the total mixed-use development lands proposed along Lakeshore Road East. The 34,800ft^2 commercial GFA estimated for Private Parcel #4 was therefore doubled to reflect mixed-uses located in Private Parcel #3. As a result, the Rangeview Estates total mixed-use GFA estimates increased from 59,502ft^2 to 94,303ft^2 and subsequently

2031 BUSINESS AS USUAL
SITE TRAFFIC VOLUMES



LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-3 – 2031 Business as Usual Site Traffic Volumes

Figure 7-4 – Rangeview Estates Site Location

split in half between office and retail commercial uses. The estimated Rangeview Estates land use summary is presented in Table 7-18.

The same trip generation methodology applied to the Lakeview Village development was also applied to the Rangeview Estates lands. Trips produced by the residential component of the site were developed on a person trip basis using 2011 TTS data, drawing upon Port Credit's modal split patterns as a proxy site to account for the higher-order transit that is planned for the Lakeshore Road corridor.

Table 7-18 – Rangeview Estates Land Use Summary

Land Use	Number of Units or GFA (ft^2)
Residential	2,981 Units
Retail	47,151 ft^2
Office	47,152 ft^2

Source: Inspiration Lakeview Conceptual Municipal Servicing Strategy – Appendix C

The average PPU rate was adjusted to reflect the estimated residential unit mix of Rangeview Estates instead of the Lakeview Village PPU. It was assumed that no townhouses will be built in Rangeview Eastate lands, but only apartments. A standard 40% of the units were assumed to be "small apartments" with 700 ft2 G.F.A. or less, as per the City of Mississauga's Development Charges Study. These assumptions resulted in a PPU of 2.18.

Table 7-19 summarizes the trip generation results of the residential component of the Rangeview Estates development. The residential trip generation methodology is discussed in greater detail in Section 7.3.2 of this report.

Table 7-19 – Rangeview Estates Residential Site Trip Generation

Component	Residential Peak Hour Trip Generation					
Number of Units	2,981					
Occupancy	Assume 100% Occupancy					
	Unit Occupancy of 2.18 persons/unit					
Number of Residents	6,492					
Residential Trips[1]	Assumed % of residents traveling during the weekday AM peak hour		18.0%	Assumed % of residents traveling during the weekday PM peak hour		20.5%
	# trips during AM peak		1,169	# trips during PM peak		1,331
Modal Split[2]	Split Percentage		Trips	Split Percentage		Trips
Transit	22.5%		263	17.5%		233
Auto-Driver	57.5%		672	65.0%		865
Auto-Passenger	12.5%		146	15.0%		200
Walk	6.5%		76	1.5%		20
Cycle	1.0%		12	1.0%		13
Directional Distribution[3]	Inbound	Outbound	Total	Inbound	Outbound	Total
	25%	75%	100%	61%	39%	100%
Person Trips						
Transit	66	197	263	142	91	233
Auto-Driver	168	504	672	528	337	865
Auto-Passenger	37	110	147	122	78	200
Walk	19	57	76	12	8	20
Cycle	3	9	12	8	5	13
Total Trips	293	877	1,170	812	519	1,331
Auto Trip Rate (veh trips/unit)	0.06	0.17	0.23	0.18	0.11	0.29
Mixed-use Adjustment	3	6	9	28	13	41
Total Auto-Driver Trips used for analysis[4]	**165**	**498**	**663**	**500**	**324**	**824**

Notes:
1. Based on 2011 TTS Data for apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
2. Based on 2011 TTS Data for residential trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
3. Directional Distribution based on average of ITE 10e Multi-family Housing LUC 221 (mid-rise) and 222 (High-rise)

Accordingly, the residential component of Rangeview Estates is expected to generate 663 new two-way auto-driver trips during the a.m. peak hour consisting of 165 inbound and 498 outbound trips. During the p.m. peak hour, the development is expected to generate 824 new two-way auto-driver trips consisting of 500 inbound and 324 outbound trips. These total vehicle trip volumes do not take into account minor adjustments due to interactions with mixed-use nodes within the site that will not require the use of a vehicle trip by residents.

Non-residential site traffic was developed using ITE 10th edition trip generation rates. The gross non-residential site trips were then adjusted based on mixed-use calculations and the transit component of the modal splits applied to the site – 22.5% transit in the a.m. peak hour, and 17.5% transit in the p.m. peak hour. Table 7-20 summarizes the gross trips generated by ITE 10th edition trip generation rates and the total number of new trips after adjustments were made to account for mixed-use interaction and transit use.

The non-residential component of Rangeview Estates is expected to generate 172 new two-way auto-driver trips during the a.m. peak hour consisting of 119 inbound and 53 outbound trips. During the p.m. peak hour, the development is expected to generate 295 new two-way auto-driver trips consisting of 127 inbound and 168 outbound trips. These total vehicle trip volumes do not take into account minor adjustments due to the interaction of mixed-use nodes and residential areas within the site that will not require the use of a vehicle trip by residents.

As summarized in Table 7-21, with transit and internal capture adjustments taken into consideration, the Rangeview Estates development is expected to generate 823 new two-way auto-driver trips during the a.m. peak hour consisting of 284 inbound and 548 outbound trips. During the p.m. peak hour, the development is expected to generate 1,061 new two-way auto-driver trips consisting of 609 inbound and 452 outbound trips.

7.5.1.2 Trip Distribution and Assignment

Before the 2041 Rangeview Estates site traffic was assigned to the study area road network, the existing Rangeview traffic was removed from the road network's background traffic.

The process to remove the existing Rangeview traffic from the study area was based on existing traffic volumes and travel patterns along Rangeview Road. The following general assumptions were used to guide the process of removing existing Rangeview Road traffic:

- Only existing Rangeview Road traffic attributable to the light industrial uses with accesses to Rangeview Road were removed. In theory, additional traffic could have been removed from Lakeshore Road East (due to the light industrial uses with accesses to Lakeshore Road being a part of the Rangeview Estates land as well. However, it would prove difficult to identify all traffic currently associated with these uses from TMCs alone).
- Traffic accessing Rangeview Road via East Ave was removed, but traffic accessing the Lakeview Water Treatment plant remained and was re-routed as required.
- Traffic accessing Rangeview Road via Hydro Road was removed, as was the traffic traveling to/from the lands south of Rangeview Road via Hydro
- Traffic at the Lakefront Promenade intersection was removed or rerouted based on whether it was traveling to/from the Lakefront Promenade recreational uses located south of Rangeview Road.
- Existing traffic that was removed from Rangeview Road was also removed from Lakeshore Road East to the extents of the study area.

Figure 7-5 illustrates the removal of existing traffic volumes generated by the existing Rangeview Estates lands to account for the shift in traffic patterns upon redevelopment of Rangeview Estates within the 2041 planning horizon.

Table 7-20 – Rangeview Estates Non-Residential Site Trip Generation

Land Use Code	Parameter	Weekday AM Peak Hour		
		In	Out	Total
Retail (LUC 820 – Retail, Shopping Center)	Gross Trips	109	66	175
	Mixed-Use Adjustment	12	8	20
	Transit Reduction	22	13	35
	New Trips	75	45	120
Office (LUC 710 – General Office Building)	Gross Trips	61	10	71
	Mixed-Use Adjustment	4	3	7
	Transit Reduction	13	2	15
	New Trips	44	5	49
Total	**New Trips**	**119**	**50**	**169**

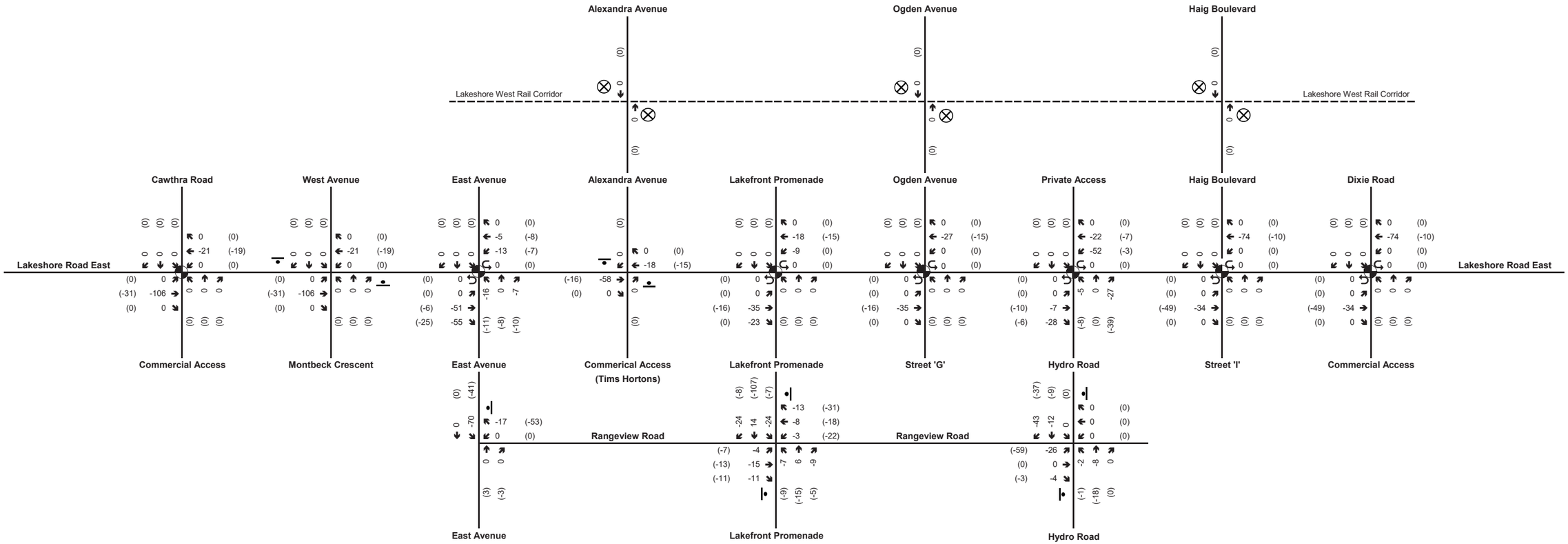
Table 7-21 – Rangeview Estates Residential and Non-Residential Total Site Trip Generation

Year	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
2041	Residential	165	498	663	500	324	824
	Non-Residential	119	50	169	109	125	237
	Total Trips	284	548	832	608	452	1,061

Table 7-22 – Rangeview Estates North-South Trip Distribution

North-South Access Location	AM Peak Hour Inbound / Outbound Traffic	PM Peak Hour Inbound / Outbound Traffic
East Avenue	20%	20%
Lakeshore R-I/R-O Access	5%	5%
Lakefront Promenade	30%	30%
Ogden Avenue	30%	30%
Hydro Road	14%	14%
Haig Boulevard	1%	1%

REMOVAL OF EXISTING RANGEVIEW ROAD TRAFFIC



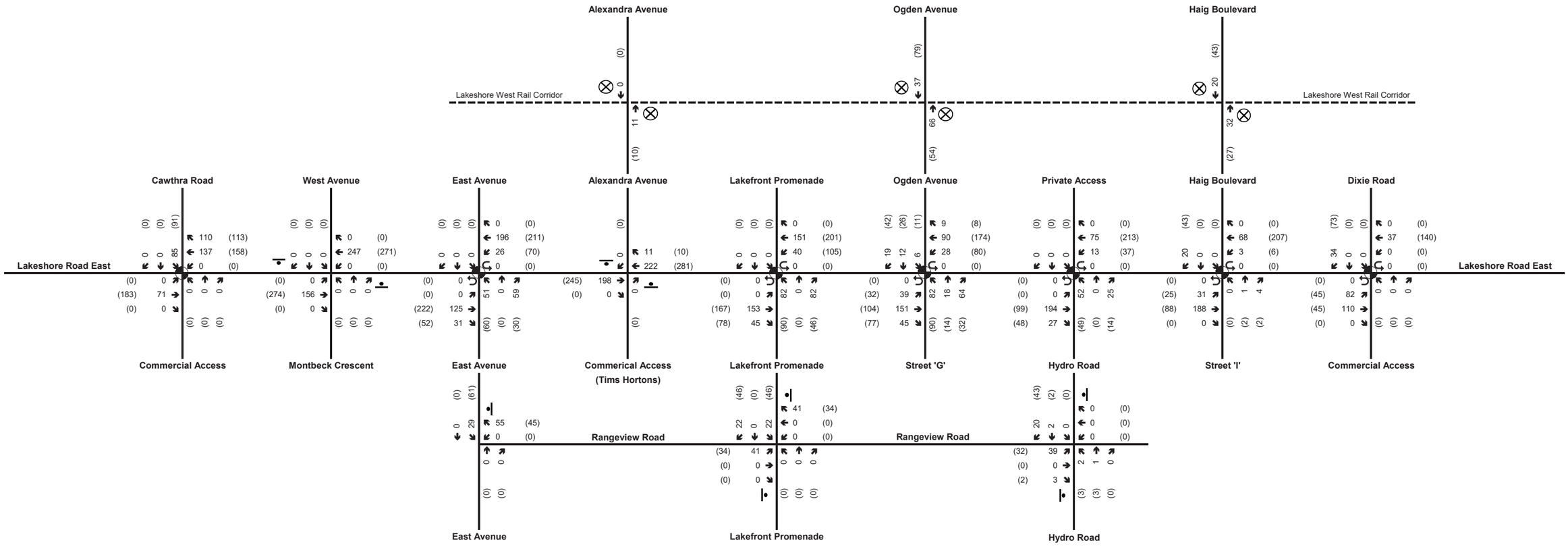
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-5 – Removal of Existing Rangeview Road Traffic

2041 RANGEVIEW ESTATES
SITE TRAFFIC VOLUMES



LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-6 – 2041 Rangeview Estates Site Traffic Volumes

Figure 7-7 – Serson North Site Location

Rangeview Estates site traffic was assigned to the study area road network in a similar fashion as the trip assignment method used for Lakeview Village site traffic. In 2041, it was assumed that Rangeview Estates traffic would have access to 6 different roads/accesses that provide connections to the development south of Lakeshore Road East.

East Avenue, Lakefront Promenade, Ogden Avenue, Hydro Road, and Haig Boulevard were all considered as connecting roads to Lakeshore Road East. The sixth access point is a mid-block right-in/right-out access that will directly connect Rangeview Estates to Lakeshore Road East. The direct access to Lakeshore Road East was assumed to be located half way between the signalized intersections at East Avenue and Lakefront Promenade.

The Rangeview Estates site traffic was first assigned to one of the north-south access points to Lakeshore Road East and then assigned to travel east, west, or north based on the overall directional splits presented in Table 7-7 that were developed from existing traffic patterns as per 2011 TTS data. Table 7-22 summarizes the percentage of Rangeview Estates site traffic that was assigned to each north-south access during the a.m. and p.m. peak hours. Detailed Rangeview Estates trip assignment calculations are located in Appendix F.

The estimated site trips generated by the Rangeview Estates development in 2041 were assigned to the study area road network for the weekday a.m. and p.m. peak hours as shown in Figure 7-6.

7.5.2 Serson North

The Serson North campus will act as an extension of the southern portion of the Serson Innovation Corridor built on LCPL lands. For the purposes of this study, it has been assumed that construction of Serson North will begin post 2031 and be fully built-out by the 2041 planning horizon. As shown in Figure 7-7, Serson North is located south of Lakeshore Road East, north of Serson Creek. The eastern boundary of Serson North is defined by the existing access road (Fergus Ave) to the Lakeview Wastewater Treatment plant.

Table 7-23 – Serson North Total Site Trip Generation

Land Use Code	G.F.A. (sq. ft.)	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Research & Development (LUC 760 – Office, R&D Center)	224,428	Gross Trips	71	23	94	17	93	110
		Mixed-Use Adjustment	3	4	7	4	4	8
		Transit Reduction	15	4	19	2	16	18
		New Trips	53	15	68	11	73	84
Office (LUC 710 – General Office Building)	224,427	Gross Trips	204	33	237	39	206	245
		Mixed-Use Adjustment	10	5	15	10	8	18
		Transit Reduction	44	6	50	5	35	40
		New Trips	150	22	172	24	163	187
Total	**448,855**	**New Trips**	**203**	**37**	**240**	**35**	**236**	**271**

7.5.2.1 Trip Generation

The specific land use of Serson North has yet to be decided, but it has been envisioned to be a hub of innovation and research that could work cooperatively with the potential post-secondary/research and development campus located in Serson South. For the purposes of this study, it was assumed that half of the planned GFA of Serson North would be office space, and the other half used as research and development space.

Serson North site traffic was developed using ITE 10th edition trip generation rates. The gross site trips were then adjusted based on the transit component of the modal splits applied to the site – 22.5% transit in the a.m. peak hour, and 17.5% transit in the p.m. peak hour.

The Serson North development is not planned as a mixed-use development. However, if viewed as an extension of Serson South, the office land use within Serson North will interact with the Lakeview Village development as if it were a part of a mixed-use development. This is especially true if the mixed-use node at the intersection of Lakeshore Road East and Hydro Road, directly west of the Serson North, is taken into consideration. As such, the office component of the Serson North development was incorporated into the Lakeview Village ITE internal capture calculations for the 2041 planning horizon.

Table 7-23 summarizes the gross number of vehicle trips generated by the ITE 10th edition trip generation rates based on Serson North GFA estimates that were extracted from the 2014 TMIG Servicing Strategy – Appendix C. Mixed-use internal capture adjustments and transit reductions were applied to the gross trips generated by the development.

In 2041, with transit and mixed-use adjustments taken into consideration, the Serson North development is expected to generate 240 new two-way auto-driver trips during the a.m. peak hour consisting of 203 inbound and 37 outbound trips. During the p.m. peak hour, the development is expected to generate 271 new two-way auto-driver trips consisting of 35 inbound and 236 outbound trips.

7.5.2.2 Trip Distribution and Assignment

Trip assignment of Serson North traffic was approached with a methodology similar to that of the Rangeview Estates development. First, possible north-south connections from the site to Lakeshore Road East were identified and traffic assigned proportionately before

then being assigned to travel east, west, or north from the site to the boundaries of the study area.

Two main points of access to Lakeshore Road East from Serson North were considered; a full-moves intersection at Haig Boulevard, and a right-in/right-out access opposite of Fergus Avenue. Based on this assumption, all westbound and northbound traffic exiting the Serson North site would default to using the full-moves intersection at Haig Boulevard to avoid performing an eastbound U-turn at Dixie Road. Assignment of all outbound west and north traffic to Haig Boulevard represents a worst-case scenario at the Lakeshore Road East intersections as the analysis assumes there will be no dispersion of site traffic through Lakeview Village and further west before accessing Lakeshore Road East.

Given that the main access to the Serson North development will be located on Haig Boulevard, the directional splits determined from 2011 TTS data were adjusted to account for cars travelling to/from the north being more likely to use Haig Boulevard versus Ogden Avenue to access Serson North directly. The overall percentage of cars travelling to/from the north remained the same.

Table 7-24 shows the adjustments made to the original site trip distribution values developed for Lakeview Village. Adjusted numbers are in bold, with the corresponding original values in parentheses. Detailed Serson North trip assignment calculations can be found in Appendix G.

The estimated site trips generated by Serson North in 2041 were assigned to the study area road network for the weekday a.m. and p.m. peak hours as shown in Figure 7-8.

Table 7-24 – Serson North Site Trip Distribution

Direction To/From		AM Peak Hour		PM Peak Hour	
		IN (%)	OUT (%)	IN (%)	OUT (%)
East	Dixie Road	12	15	12	10
	Brown's Line	13	20	23	10
West	Cawthra Road	30	20	15	25
	Lakeshore Road west of Cawthra Road	25	25	30	35
North	Alexandra Avenue	0	2	0	2
	Ogden Avenue	**7** (13)	**6** (12)	**7** (13)	**6** (12)
	Haig Boulevard	**13** (7)	**12** (6)	**13** (7)	**12** (6)

7.6 Traffic Infiltration

During TMIG's initial consultation with City of Mississauga staff, it was requested that the potential infiltration of Lakeview Village traffic into the neighbourhoods north of Lakeshore Road East be investigated. The impacts of converting several intersections along Lakeshore Road East to right-in/right-out operations due to the median-running BRT lanes were also considered.

Overall, traffic pattern changes due to the BRT lane conversion, new site trips generated by Lakeview Village, and additional traffic generated by the Rangeview Estates and Serson North background developments will be the main contributors of traffic infiltration into the northern study area neighbourhoods.

7.6.1 Lakeshore Road East BRT Conversion

The installation of median-running BRT lanes on Lakeshore Road East in the study area will require eight intersections to be converted to right-in/right-out (RI/RO) operations. These Lakeshore Road East intersections are:

- Greaves Avenue;
- Westmount Avenue;
- Alexandra Avenue;
- Meredith Avenue;
- Edgeleigh Avenue;
- Strathy Avenue;
- Orchard Road; and
- Fergus Avenue.

Of these eight intersections, only Alexandra Avenue provides a continuous north-south connection between Lakeshore Road East and the QEW's South Service Road. While some traffic will still use Alexandra Avenue as a north-south connection to Lakeshore Road East, its conversion to RI/RO operations at Lakeshore will make it a less desirable route than other north-south roads through the northern Lakeview neighbourhood, such as Ogden Avenue and Haig Boulevard. Traffic patterns specific to these north-south roads is discussed in greater detail in Section 7.6.2.

To account for a shift in existing traffic patterns at intersections subject to right-in/right-out conversion, through and left-turning traffic from the north and south legs were re-routed. These trips were either re-routed to the closest full-moves intersection, or they were converted to a right-turn movement before making a U-turn manoeuvre at a downstream full-moves intersection to return to their intended direction of travel within the network.

Existing eastbound and westbound left-turning traffic were also re-routed from RI/RO intersections by either performing a U-turn manoeuvre or completing a left-turn at a full-moves intersection. In general, vehicles that were re-routed from intersections converted to RI/RO operations only made use of the northern local road network as needed to navigate to their intended destination.

The re-routing of vehicles at each RI/RO intersection was dependent upon the proximity of the intersection to a full-moves intersection and the level of connectivity to the broader local road network north of Lakeshore Road East. As such, unique re-routing assignments were required at each RI/RO intersection. A detailed summary of re-routing decisions for each RI/RO intersection can be found in Appendix J.

Figure 7-9 details the shift in existing traffic patterns due to the RI/RO conversion of eight intersections. Positive and negative traffic volume adjustments throughout the study area network are shown.

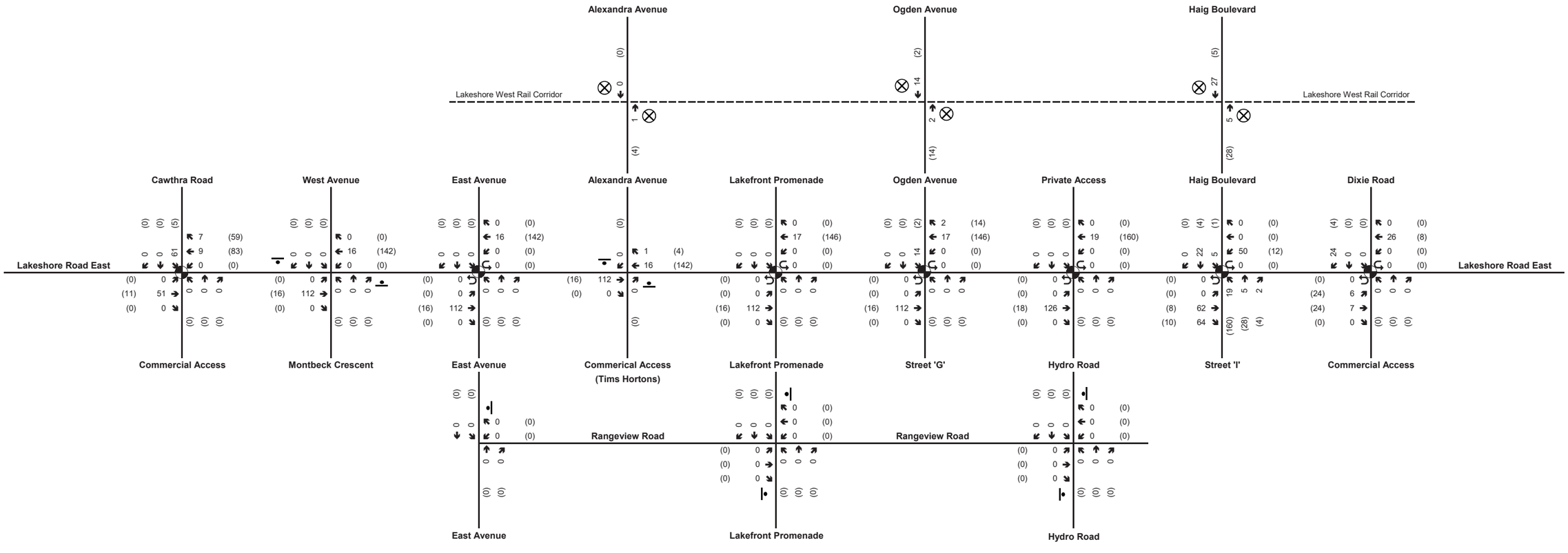
7.6.2 2031 Traffic Infiltration

Based on existing traffic patterns in the Lakeview area, as determined from 2011 TTS data, 20% of Lakeview Village site traffic was assumed to be traveling to/from the northern boundary of the study area. The north-south Lakeview Village site traffic was assigned to Alexandra Avenue, Ogden Avenue, and Haig Boulevard as detailed in Table 7-25.

The existing peak hour volume of northbound and southbound traffic at the intersections of the three north-south roads and Lakeshore Road East are listed in Table 7-26. The volume of traffic added or removed at these intersections are also listed in Table 7-26, which includes changes to traffic patterns due to RI/RO conversions, and projected 2031 Lakeview Village site traffic volumes.

The highest anticipated increase in traffic volume will occur along Ogden Avenue during both the a.m. and

SERSON NORTH 2041
SITE TRAFFIC VOLUMES



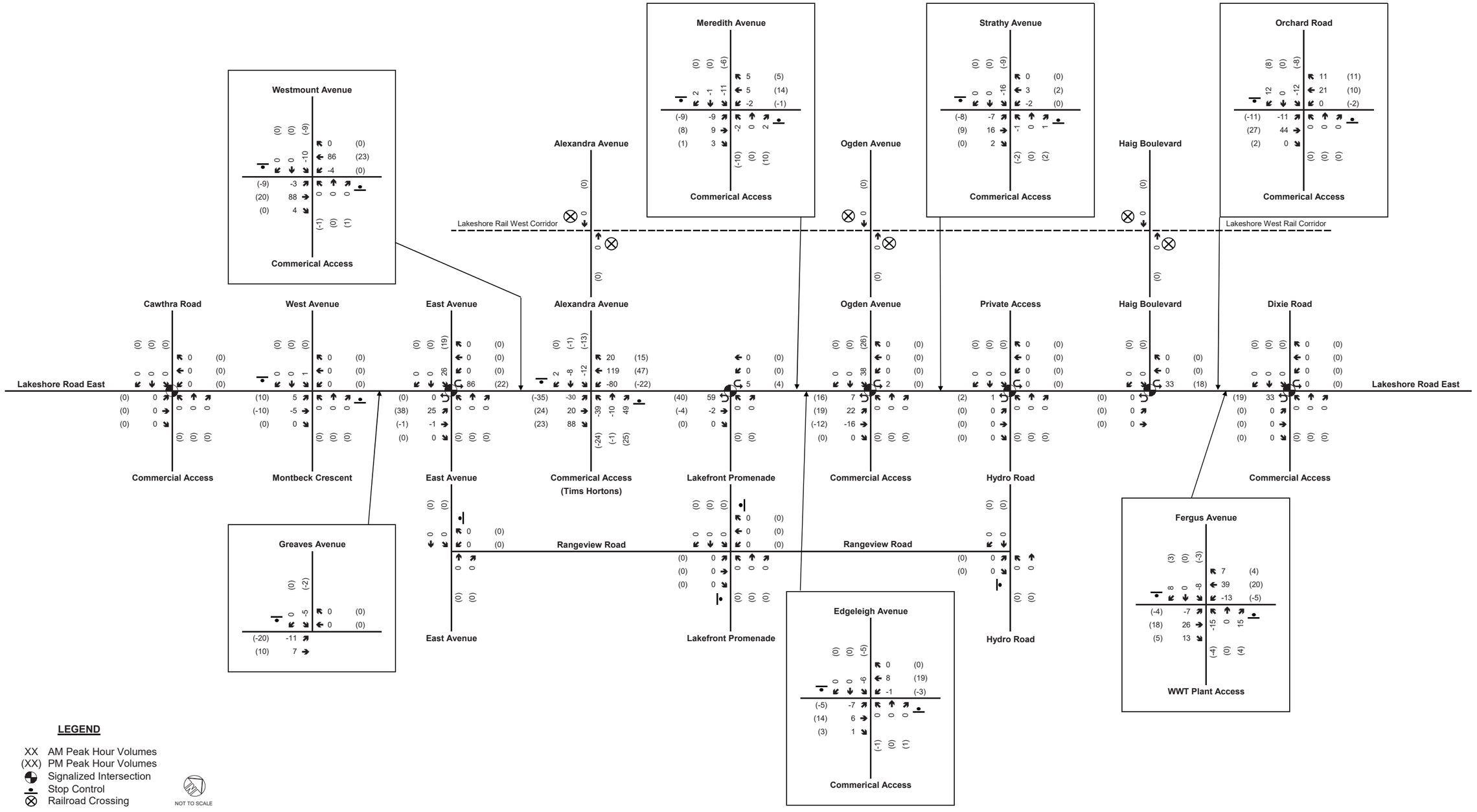
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-8 – Serson North 2041 Site Traffic Volumes

RIGHT-IN / RIGHT-OUT CONVERSION
EXISTING TRAFFIC VOLUME ADJUSTMENTS



LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-9 – Right-In / Right-Out Conversion Existing Traffic Volume Adjustments

p.m. peak hours, with between 232 and 308 additional trips added to each direction. The highest percent increase between existing traffic and 2031 total traffic, 428%, corresponds to approximately 5.3 times the existing southbound p.m. peak volume of 67 cars travelling on Ogden Avenue.

TMIG acknowledges that when compared to relatively low existing volumes, that the number of vehicle trips added to Ogden Avenue and Haig Boulevard in 2031 are a significant change from the current status quo vehicular operations on these roads. However, as per the City of Mississauga's Official Plan, Schedule 5, Ogden Avenue and Haig Boulevard are currently classified as a major and minor collector road, respectively, and these projected volumes are consistent with the typical volumes expected along these types of roads.

Figure 7-10 is an excerpt from the Mississauga Official Plan Amendment 89 document and identifies both the existing and future road classifications within the vicinity of Lakeview Village.

According to Table 2.6.5 in Chapter 2 of the Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads, a local residential road will have a typical traffic volume of less than 1,000 vehicles per day (approximately 100 vehicles per peak hour) whereas a residential collector will typically see less than 8,000 vehicles per day (approximately 800 vehicles per peak hour). A copy of TAC's Table 2.6.5: Characteristics of Urban Roads has been provided in Appendix K.

The existing 2018 and future 2031 peak hour traffic volumes were used to estimate daily traffic volumes for Alexandra Avenue, Ogden Avenue, and Haig Boulevard. A typical peak hour to AADT conversion formula was applied to create the daily volumes; a.m. and p.m. peak hour volumes were added together and multiplied by four. The results are presented in Table 7-27.

Due to the conversion of Alexandra Avenue to right-in/right-out operations at Lakeshore Road East, the daily volume of cars traveling along Alexandra Avenue is expected marginally increase from 956 to 968 vehicles per day. Ogden Avenue will see an increase from 1,532 existing trips to 5,796 trips in 2031, while Haig Boulevard will see an increase from 1,100 to 3,096 vehicles per day.

Table 7-27 – Existing and 2031 North-South Daily Traffic Volume Comparison

Road	TAC Road Classification (Vehicles / Day)	Daily Volume (Vehicles / Day)	
		Existing	2031
Alexandra Avenue	Local Residential (< 1,000)	956	892
Ogden Avenue	Residential Collector (< 8,000)	1,532	5,004
Haig Boulevard	Residential Collector (< 8,000)	1,100	2,676

Although there will be a notable increase in traffic along Ogden Avenue and Haig Boulevard in 2031 compared to existing conditions, the estimated daily volume of traffic will be well below TAC's upper limit of 8,000 vehicles per day on residential collector roads. Based on TAC Guidelines, TMIG acknowledges the acceptable increase in traffic along Alexandra Avenue, Ogden Avenue, and Haig Boulevard under projected 2031 traffic conditions.

Table 7-25 – 2031 North-South Site Trip Distribution

Direction To/From		AM Peak Hour		PM Peak Hour	
		IN (%)	OUT (%)	IN (%)	OUT (%)
North	Alexandra Avenue	0	2	0	2
	Ogden Avenue	13	12	13	12
	Haig Boulevard	7	6	7	6
	Total	20	20	20	20

Table 7-26 – 2031 North-South Traffic Volume Comparison – Lakeview Village

Planning Horizon / Traffic Volume Source	Alexandra Avenue		Ogden Avenue		Haig Boulevard	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
2018 Existing (Baseline)	65	56	121	86	60	61
	(79)	(39)	(109)	(67)	(108)	(46)
2031 BRT Re-route and Lakeview Village	6	-18	202	204	91	89
	(10)	(-14)	(227)	(235)	(100)	(114)
2031 Total	71	38	323	290	151	150
	(89)	(25)	(336)	(302)	(208)	(160)
2031 Total Percent Increase	9.2%	-32.1%	166.9%	237.2%	151.7%	145.9%
	(12.7%)	(-35.9%)	(208.3%)	(350.7%)	(92.6%)	(247.8%)

A.M. Peak Hour (P.M. Peak Hour)

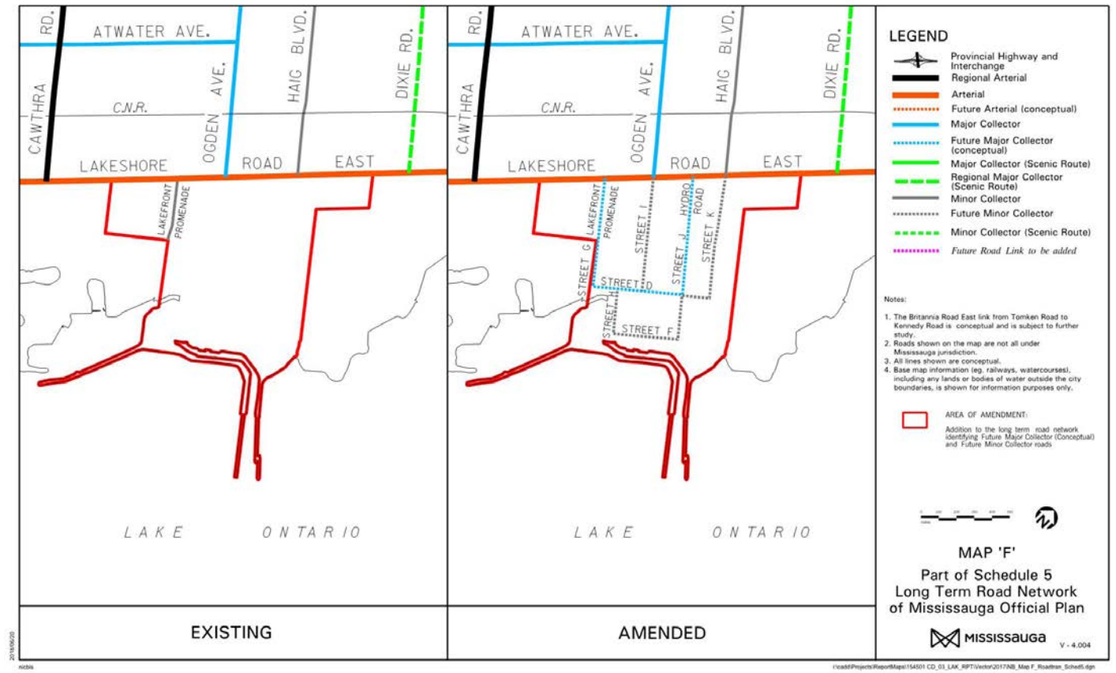


Figure 7-10 – Map 'F', Schedule 5 of MOPA 89 – Lakeview Long Term Road Network
Source: MOPA89

7.6.3 2041 Traffic Infiltration

In addition to Lakeview Village site traffic, the 2041 planning horizon includes traffic generated by the Rangeview Estates and Serson North background developments. Following a similar site traffic assignment methodology as Lakeview Village, 20% of the total vehicle trips generated by the background developments were assumed to be traveling to/from the northern boundary of the study area. The north-south Lakeview Village and background development site traffic was assigned to Alexandra Avenue, Ogden Avenue, and Haig Boulevard as detailed in Table 7-28.

Of note, the assumed percentage of Serson North site traffic traveling on Haig Boulevard was adjusted, compared to Lakeview Village and Rangeview Estates north-south traffic distribution, to account for the opening of the south leg of Haig Boulevard providing a direct connection between the Serson Innovation Corridor and Lakeshore Road East. The percentage of site traffic traveling on Alexandra Avenue and Ogden Avenue was updated accordingly to maintain the overall 20% of site traffic assigned to the three north-south roads.

Table 7-29 compares existing traffic volumes to the total volume of 2041 traffic added to Alexandra Avenue, Ogden Avenue, and Haig Boulevard. The additional 2041 traffic volumes include changes to traffic patterns due to RI/RO conversions, projected 2041 Lakeview Village site traffic, and traffic generated by background developments. A more detailed breakdown of the volume calculations presented in Table 7-26 and Table 7-29 can be found in Appendix L.

The highest anticipated increase of traffic volume in 2041 will occur along Ogden Avenue during both the a.m. and p.m. peak hours, with between 284 and 378 additional trips added to each direction. The highest percent increase between existing traffic and 2041 total traffic, approximately 551%, corresponds to approximately 6.5 times the existing southbound p.m. peak volume of 67 cars travelling on Ogden Avenue.

The existing 2018 and future 2041 peak hour traffic volumes were used to estimate daily traffic volumes for Alexandra Avenue, Ogden Avenue, and Haig Boulevard. The results are presented in Table 7-30.

In 2041, daily traffic traveling on Alexandra Avenue will experience an increase from 956 to 1,080 vehicles per day, a total of 124 additional vehicles per day, and will marginally exceed TAC's expected upper limit of 1,000 vehicles per day on local residential roads. Ogden Avenue will see an increase from 1,532 existing trips to 6,876 trips in 2041, while Haig Boulevard will see an increase from 1,100 to 3,840 vehicles per day.

Alexandra Avenue, Ogden Avenue, and Haig Boulevard are expected to see an increase of 112, 1,080, and 744 vehicles per day, respectively, between 2031 and 2041. Despite the additional increase in traffic from 2031 to 2041 due to background developments, the estimated daily volumes on Ogden Avenue and Haig Boulevard will remain below TAC's upper limit of 8,000 vehicles per day on residential collector roads.

Based on TAC Guidelines, TMIG acknowledges the acceptable increase in traffic along Alexandra Avenue, Ogden Avenue, and Haig Boulevard under projected 2041 traffic conditions. Furthermore, TMIG's predicted future total 2041 traffic volumes along these corridors are consistent with the forecasted 2041 traffic volumes found within the Lakeshore Connecting Communities Transportation Master Plan (May 2019).

Notwithstanding the 2031 and 2041 traffic infiltration projections being well within typical daily vehicle volume ranges for like roadways, expected increases in traffic could trigger the need for site-specific / context sensitive traffic calming features. Such an investigation is best considered in conjunction with, and as a companion to, the Lakeshore Connecting Communities study, given the median proposed along Lakeshore Road and the not-inconsequential effects on local businesses, site access, and travel patterns.

Table 7-28 – 2041 North-South Site Trip Distribution

Direction To/From		2041 – Lakeview Village and Rangeview Estates		2041 – Serson North	
		IN (%)	OUT (%)	IN (%)	OUT (%)
North	Alexandra Avenue	0 (0)	2 (2)	0 (0)	2 (2)
	Ogden Avenue	13 (13)	12 (12)	7 (7)	6 (6)
	Haig Boulevard	7 (7)	6 (6)	13 (13)	12 (12)
	Total	**20 (20)**	**20 (20)**	**20 (20)**	**20 (20)**

A.M. Peak Hour (P.M. Peak Hour)

Table 7-29 – 2041 North-South Site Traffic Volume Comparison – Lakeview Village

Planning Horizon / Traffic Volume Source	Alexandra Avenue		Ogden Avenue		Haig Boulevard	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
2018 Existing (Baseline)	65	56	121	86	60	61
	(79)	(39)	(109)	(67)	(108)	(46)
2041 New Trips	18	-18	255	251	119	130
	(23)	(-14)	(288)	(308)	(147)	(159)
2041 Total	**83**	**38**	**376**	**337**	**179**	**191**
	(102)	**(25)**	**(397)**	**(375)**	**(255)**	**(205)**
2041 Total Percent Increase	27.7%	-32.1%	210.7%	291.9%	198.3%	213.1%
	(29.1%)	(-35.9%)	(264.2%)	(459.7%)	(136.1%)	(345.7%)

A.M. Peak Hour (P.M. Peak Hour)

Table 7-30 – Existing and 2041 North-South Daily Traffic Volume Comparison

Road	TAC Road Classification (Vehicles / Day)	Daily Volume (Vehicles / Day)	
		Existing	2041
Alexandra Avenue	Local Residential (< 1,000)	956	992
Ogden Avenue	Residential Collector (< 8,000)	1,532	5,940
Haig Boulevard	Residential Collector (< 8,000)	1,100	3,320

7.6.4 Inspiration Lakeview Master Plan – June 2014

TMIG was provided a draft copy of the June 2014 Inspiration Lakeview: Phase 3 Transportation Master Plan (ILTMP) produced by UEM . As summarized in Table 7-31, the north-south site trip distribution developed for the ILTMP in 2014, on average, assigned twice as much Lakeview Village site traffic to the northern boundary of the study area compared to the site trip distribution developed by TMIG.

It is important to note that the while ILTMP did not assign any traffic to Alexandra, TMIG's consideration of Alexandra resulted in a net increase of less than 20 trips in the northbound direction in 2031. As such, the exclusion or inclusion of Alexandra Avenue is inconsequential for the purposes of comparing the north-south site trip distribution and volumes developed for the ILTMP and this report.

Table 7-32 presents the difference in 2031 Total traffic volumes from comparing the results of the ILTMP draft and TMIG's trip generation and assignment for this report. Note that 2041 Total volumes were not reported in the ILTMP.

The ILTMP assigned an additional 116 to 194 trips to Ogden Avenue and 208 to 364 additional trips to Haig Boulevard, during the a.m. and p.m. peak hours, respectively, in 2031 compared to the volumes prepared for this report. The 2031 total volumes presented in this report is estimated to cause a lower level of infiltration into the communities north of Lakeshore Road East than those presented in the ILTMP draft in 2014.

The ILTMP predicted a total of 3,494 two-way trips during the a.m. peak hour and 4,526 two-way trips during the p.m. peak hour would be generated by the Lakeview Village development in 2031. Through the trip generation methodology presented in Section 7.2 of this report, TMIG determined 3,226 and 4,343 two-way trips would be generated during the a.m. and p.m. peak hours, respectively.

7.7 Total Traffic Volumes

Total traffic volumes for each planning horizon scenario described in this report were determined by combining several sources of traffic together. Existing traffic, background corridor growth, Lakeview Village site traffic, background development site traffic, and modifications to existing traffic patterns due to the implementation of median-running BRT lanes were considered.

Future Background 2031 traffic volumes represent a combination of existing traffic, background Lakeshore Road corridor growth, and adjustments to existing traffic patterns to account for right-in/right-out conversion of several intersections along Lakeshore Road East due to exclusive median-running BRT lanes. The Future Background 2031 traffic volumes for the a.m. and p.m. peak hours are presented in Figure 7-11.

The Future Total 2031 Business as Usual scenario was developed without BRT lanes in place along Lakeshore Road East. As such, 2031 BAU traffic volumes did not include any changes to existing traffic patterns within the study area, and Lakeview Village site traffic volumes reflected a higher number of vehicle trips due to reduced transit options in the area. Background Lakeshore Road corridor growth was also applied. The Future Total 2031 BAU traffic volumes for the a.m. and p.m. peak hours are presented in Figure 7-12.

Future Total 2031 traffic volumes were determined by adding 2031 Lakeview Village site trips to the volumes already determined for the Total Background 2031 scenario. The Future Total 2031 traffic volumes for the a.m. and p.m. peak hours are presented in Figure 7-13.

Future Total 2041 traffic volumes were determined by adding 2041 Rangeview Village and 2041 Serson North background development site trips to the volumes already determined for the Future Total 2031 scenario. The Future Total 2041 traffic volumes for the a.m. and p.m. peak hours are presented in Figure 7-14.

Table 7-31 – ILTMP 2031 North-South Site Trip Distribution

Direction To/From		AM Peak Hour		PM Peak Hour	
		IN (%)	OUT (%)	IN (%)	OUT (%)
North	Alexandra Avenue	-- (0)	-- (2)	-- (0)	-- (2)
	Ogden Avenue	20 (13)	20 (12)	19 (13)	20 (12)
	Haig Boulevard	20 (7)	20 (6)	19 (7)	20 (6)
	Total	**40 (20)**	**40 (20)**	**38 (20)**	**40 (20)**

UEM 2014 Report (TMIG)

Table 7-32 – 2031 Total ILTMP and TMIG North-South Traffic Volume Comparison

Planning Horizon / Traffic Volume Source	Alexandra Avenue		Ogden Avenue		Haig Boulevard	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
2031 Total - ILTMP (2014)	-	-	480	500	375	420
	(-)	(-)	(590)	(470)	(610)	(450)
2031 Total - TMIG	159	76	351	306	167	171
	(158)	(82)	(420)	(354)	(246)	(202)
Difference	**-159**	**-76**	**129**	**194**	**208**	**249**
	(-158)	**(-82)**	**(170)**	**(116)**	**(364)**	**(248)**

A.M. Peak Hour (P.M. Peak Hour)

7.8 Regional Rail

GO Transit operates two Regional Rail stations within close proximity to the Lakeview Village study area. The Long Branch GO Transit station, located on the western edge of Etobicoke, is approximately one kilometre east of Dixie Road, and the Port Credit GO Transit station is approximately two kilometres west of Cawthra Road. The Lakeshore West GO Train line services both the Long Branch and Port Credit GO Transit stations as it travels between Hamilton and Union Station in Toronto.

The Lakeshore West GO Train line provides eastbound service through the study area from 5:42 a.m. to 12:11 a.m. from Monday to Friday. The eastbound Lakeshore West line services both Port Credit and Long Branch stations approximately every half hour during a.m. and p.m. peak periods. Westbound GO Train service is provided from 6:32 a.m. to 1:04 a.m. on weekdays, with an average headway of 30 minutes between trains during both the a.m. and p.m. peak hours. The full Lakeshore West GO Train schedule, including weekend service and a route map, is located in Appendix H.

7.8.1 GO Expansion - Regional Express Rail

Metrolinx, the provider of GO Transit services, has planned an expansion of GO Transit along many of its rail corridors in order to introduce Regional Express Rail (RER) service to the GTHA. RER service has been planned for the Lakeshore West GO Train line to provide two-way, all day service between Toronto and Aldershot seven days a week.

The RER project, also known as the GO Expansion, will provide express service by increasing the existing 30-minute service on the Lakeshore West line to an

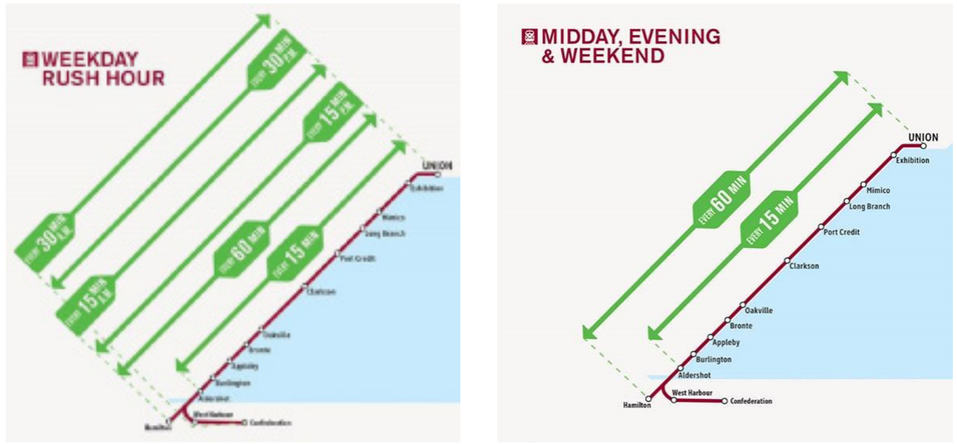


Figure 7-15 – Lakeshore West Regional Express Rail Service

average of 15-minute service or better within the next 10 years. Figure 7-15 summarizes the frequency of train service envisioned for the Lakeshore West GO Train line to transform the existing commuter service into a convenient rapid transit route for communities along the Lakeshore West rail corridor.

Excerpts from Metrolinx's website are located in Appendix H and provide a detailed summary of the GO Expansion project and information specific to the Lakeshore West GO Train line.

7.8.2 Lakeshore West Rail Crossings

There are three at-grade rail crossings of the Lakeshore West Rail corridor within the study area. The three north-south roads that cross the rail corridor are Alexandra Avenue, Ogden Avenue, and Haig Boulevard. For analysis purposes, the frequency of rail crossings during the a.m. and p.m. peak hour periods were calculated and applied to the traffic model in order to assess vehicular operations at the three rail crossings.

Current schedules for both GO Rail and VIA Rail routes using the Lakeshore West rail corridor were consulted, and the maximum possible number of combined GO Rail and VIA Rail crossings were determined for both the a.m. and p.m. peak hours. After calculating the existing frequency of train crossings, the RER was used to determine the increase in frequency to use to model train crossings for the 2031 and 2041 planning horizons.

Table 7-33 lists the calculated number of train crossings that occur during the a.m. and p.m. peak periods based on existing schedules and the future planned RER frequency of service. Detailed calculations and the GO Rail and VIA Rail train schedules that were used as a part of the calculations can be found in Appendix I.

Table 7-33 – Frequency of Rail Crossings within Lakeview Village Study Area

Planning Horizon	Rail Company	Maximum Number of Combined GO and VIA Rail Crossings	
		A.M. Peak Hour	P.M. Peak Hour
2018	GO Rail	8	7
	VIA Rail	1	2
	Total	9	9
2031 & 2041	GO Rail	15	15
	VIA Rail	1	3
	Total	16	18

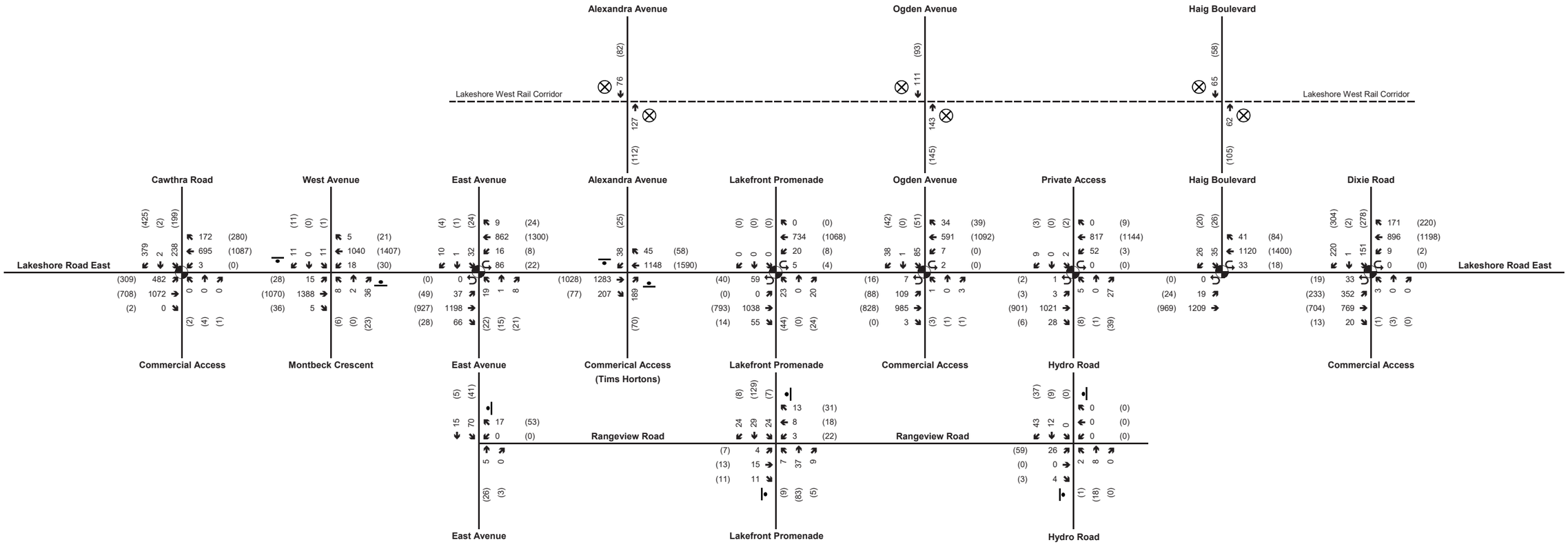
The total number of crossings each hour took into account trains traveling in both the eastbound and westbound directions. The Lakeshore West rail corridor has three sets of rails running through the Lakeview Village study area, allowing for the possibility of two trains passing through an at-grade simultaneously. For the purposes of a conservative analysis, it was assumed that all trains would traverse the at-grade crossings individually with no overlap in schedules.

Using Synchro 10 software, the at-grade rail crossings were modeled as pre-timed signalized intersections. The amount of time required for north-south vehicular traffic to stop while a train crosses was determined through the observation of a proxy site GO Rail at-grade crossing in Newmarket. It was determined through observation that from the time rail crossing barriers began to lower to the time they returned to a raised position after a train crosses, approximately 60 seconds passed.

The timing of the 'signalized' rail crossings was determined by dividing the hour-long model simulation period by the total number of rail crossings within the hour to determine the length of the signal's cycle. The east-west phase assigned to the train was given a 60 second green period, and the north-south phase for vehicular traffic was assigned the remaining cycle time as its green period.

For example, during the existing a.m. peak hour, nine trains are expected to travel through the at-grade crossings. This means that a 400-second-long cycle length will allow the pre-timed signal to complete a cycle (a train crossing) nine times within an hour. Of the 400 seconds, 60 seconds would be assigned to the east-west train phase, and 340 seconds to the north-south vehicle phase. This means that just under every six minutes, a simulated train crossing will occur within the Synchro traffic model.

FUTURE BACKGROUND 2031
TRAFFIC VOLUMES



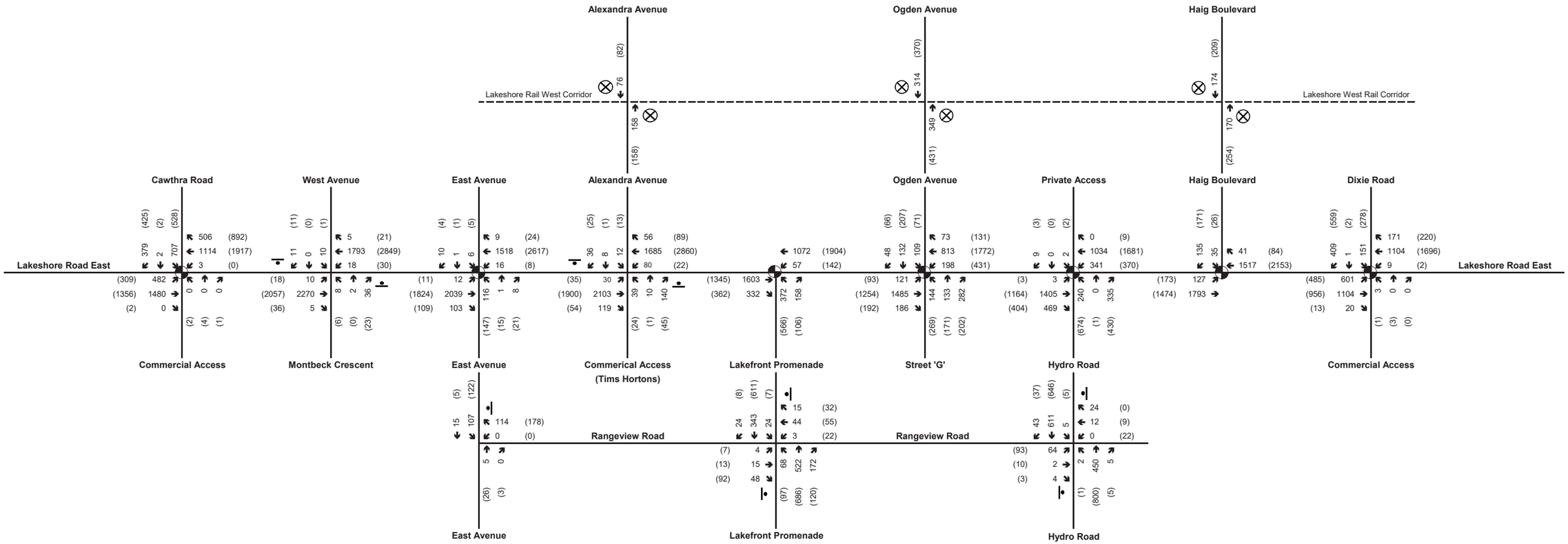
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-11 – Future Background 2031 Traffic Volumes

FUTURE TOTAL 2031 BUSINESS AS USUAL
SITE TRAFFIC VOLUMES



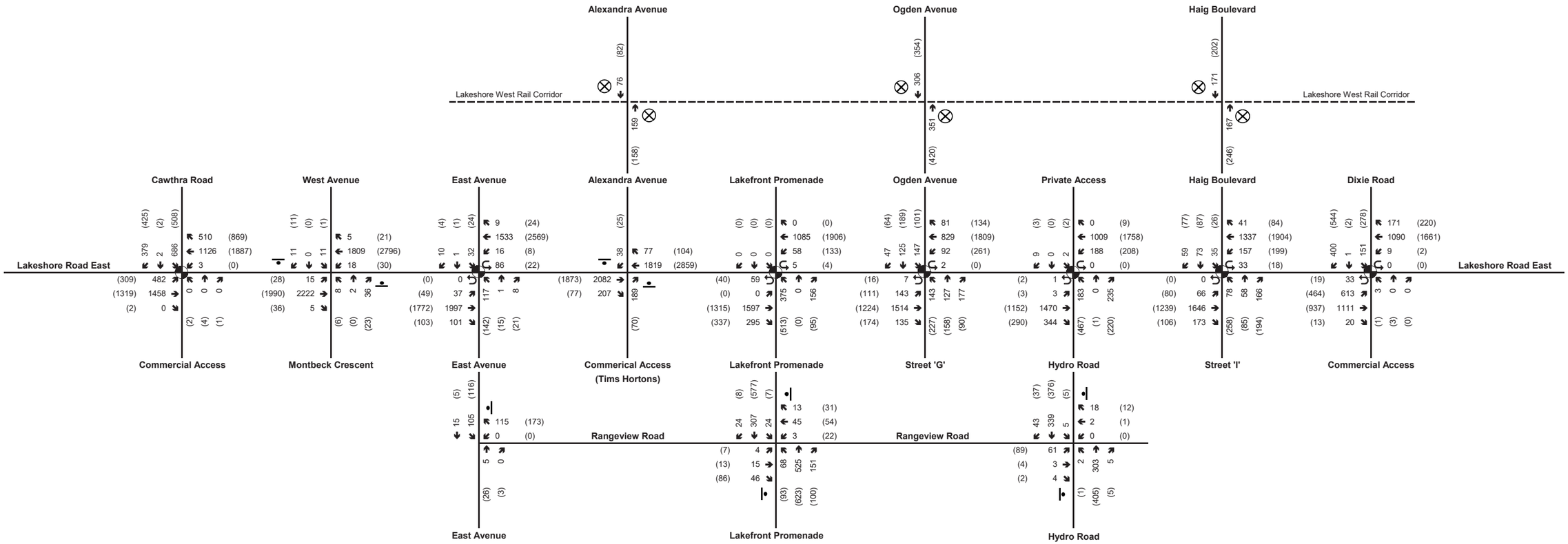
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-12 – Future Total 2031 Business as Usual Traffic Volumes

FUTURE TOTAL 2031
TRAFFIC VOLUMES



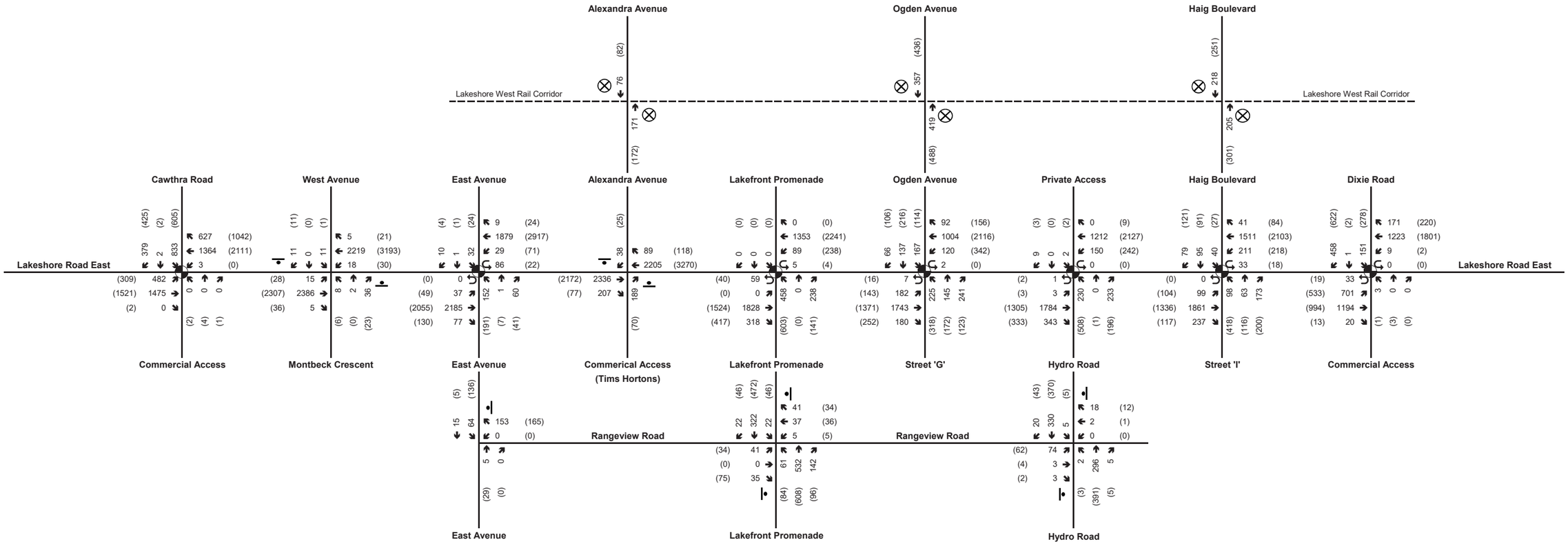
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-13 – Future Total 2031 Traffic Volumes

FUTURE TOTAL 2041
TRAFFIC VOLUMES



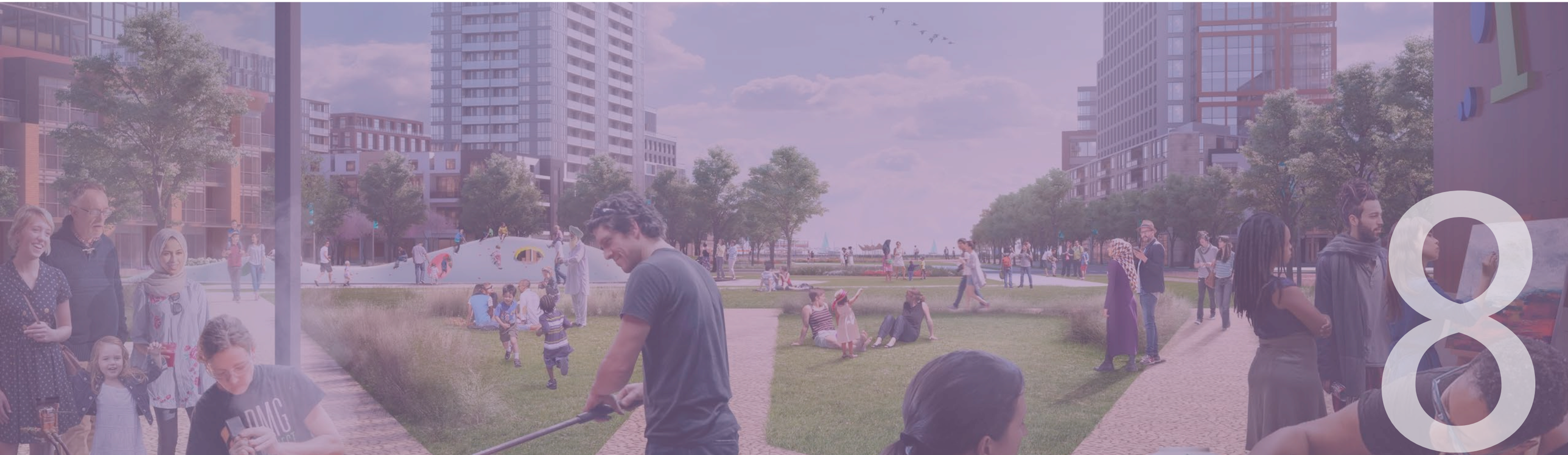
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 7-14 – Future Total 2041 Traffic Volumes

TRANSPORTATION IMPACT ASSESSMENT AND MITIGATION



8

Rendering of Ogden Green through the Artscape Atelier

Transportation Impact Assessment and Mitigation

8

8.1 Analysis Methodology

The capacity analysis identifies how well the intersections and driveways are operating.

The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 10 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement.

In accordance with City of Mississauga Terms of Reference for Transportation Impact Studies, the analysis includes identification and required modifications and improvements (if any) at intersections where the addition of background growth or background growth plus site-generated traffic/transit volumes causes the following:

- Unsignalized: Level of service (LOS), based on average delay per vehicle, on individual movements exceed LOS 'E';
- Signalized: v/c ratios for overall intersection operations, through movements or shared through/turning movements increase to 0.85 or above; and
- Signalized: v/c ratios for exclusive movements increase to 0.90 or above.

Critical movements and overall intersection operations, as defined above, are bolded in the capacity results tables. The following tables summarize the HCM capacity results for the study intersections during the weekday a.m. and p.m. peak hours under existing (2018), future background (2031) and future total (2031 & 2041) traffic conditions. The detailed calculation sheets are provided in Appendix M.

8.2 Analysis Parameters

8.2.1 Lane Configurations

Within the study area boundary, there are several arterial, collector, local, and minor access intersections with Lakeshore Road East. Key intersections in the wider study area to be analyzed in the transportation analysis will include those identified in Section 2.8.4. The Existing (2018) and Businesses Usual (2031) traffic scenarios were analyzed with existing lane configurations (see Appendix A) at all study intersections.

The assumed road network improvements for the 2031 and 2041 horizon years within the study area, as included in City of Mississauga LCC preliminary BRT design (Section 6.1.5), include the following:

From Greaves Avenue extending west through Cawthra Road:

- New continuous, separated bike lanes on both sides of the roadway;
- Generous sidewalks and treed boulevards on both sides of the roadway;
- Maintain curbside traffic stops in mixed traffic;
- Maintain two lanes of vehicular traffic in both directions;
- Maintain continuous two-way-centre-left-turn-lane

Between Greaves Avenue and Dixie Road:

- New continuous, separated bike lanes on both sides of the roadway;
- Generous sidewalks and treed boulevards on both sides of the roadway;
- New dedicated transit lanes in the centre of the roadway with median express bus stops; maintain local transit stops in mixed traffic;
- Maintain curbside traffic stops in mixed traffic;
- Maintain two lanes of vehicular traffic inn both directions;
- Left turn lanes at signalized intersections (U-turns permitted).

With one exception, all improvements, lane configurations, and attributes that were included in the City's LCC preliminary design were retained in the traffic model as provided. The one exception was the addition of exclusive westbound right-turn lanes on Lakeshore Road East at Dixie Road and Cawthra Road. The westbound auxiliary lanes are recommended to mitigate queuing and capacity issues observed during all future traffic scenarios (background and total).

Other relevant details to note:

- All local roads intersecting Lakeshore Road East, with the exception of West Avenue/Montbeck Crescent converted to right-in/right-out intersections;
- Under future background (2031) traffic conditions, exclusive northbound left-turn lanes implemented at Hydro Road and Lakefront Promenade intersections with Lakeshore Road East;
- Under future total (2031) traffic conditions, Ogden Avenue extended south of Lakeshore Road East servicing the Lakeview Village and the surrounding existing land uses; and
- Under future total (2041) traffic conditions, Haig Boulevard extended south of Lakeshore Road East servicing Serson North and Lakeview Village.

The future area road network lane configurations are provided in Appendix A.

8.2.2 Signal Timings

Current signal timing plans obtained from the City's calibrated existing conditions Vissim model of the Lakeshore Road corridor that was developed for the Lakeshore Connecting Communities study were applied to existing traffic conditions. The current signal timings were subsequently optimized under future traffic conditions.

8.3 Primary Transportation Corridors / Junctions

8.3.1 Existing (2018) Traffic Conditions

The existing capacity analysis for signalized and unsignalized intersections during the a.m. and p.m. peak hours indicates that overall intersection operations and individual turning movements will operate with acceptable LOS.Intersections with overall v/c ratios above 0.85 include Lakeshore Road East at Cawthra Road (v/c=0.86) and Dixie Road (v/c=0.86).

During the a.m. peak hour, the critical movements identified include the northbound-left and southbound-left/thru/right at West Avenue. During the p.m. peak hour, the critical movements include the westbound-through/right at Dixie Road and Cawthra Road, and the northbound-left at West Avenue.

Table 8-1 and Table 8-2 summarize the movements of interest for the a.m. and p.m. peak hour at the signalized and unsignalized study intersections, respectively. Detailed capacity analysis outputs can be found in Appendix M1.

8.3.2 Business as Usual (2031) Traffic Conditions

The business as usual capacity analysis for the 2031 horizon year for signalized and unsignalized intersections during the a.m. and p.m. peak hours indicates that many of the overall intersection operations and individual turning movements will operate with near or above capacity.

Table 8-1 – Signalized Intersection LOS – Existing (2018) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Commercial Access/Cawthra Road & Lakeshore Road East	Overall	**0.86**	22	C	**0.86**	30	C
	Eastbound Left	0.87	28	C	0.78	44	D
	Eastbound Through/Right	0.46	10	A	0.28	8	A
	Westbound Left	0.01	23	C	-	-	-
	Westbound Through/Right	0.51	29	C	**0.87**	35	C
	Northbound Left/Through/Right	-	-	-	0.25	64	E
	Southbound Left	0.38	42	D	0.38	42	D
	Southbound Left/Through	0.39	42	D	0.39	43	D
	Southbound Right	0.49	27	C	0.67	33	C
Commercial Access/Dixie Road & Lakeshore Road East	Overall	0.73	21	C	**0.86**	33	C
	Eastbound Left	0.72	33	C	0.82	54	D
	Eastbound Through/Right	0.32	5	A	0.31	10	A
	Westbound Left	0.03	14	B	0.01	16	B
	Westbound Through/Right	0.52	19	B	**0.88**	35	C
	Northbound Left/Through/Right	0.03	43	D	0.01	35	C
	Southbound Left	0.71	59	E	0.85	61	E
	Southbound Through/Right	0.16	44	D	0.45	40	D
Commercial Access/Ogden Avenue & Lakeshore Road East	Overall	0.39	10	A	0.40	5	A
	Eastbound Left	0.14	7	A	0.22	6	A
	Eastbound Through/Right	0.38	10	B	0.28	5	A
	Westbound Left	0.02	1	A	-	-	-
	Westbound Through/Right	0.21	2	A	0.42	1	A
	Northbound Left/Through/Right	0.00	50	D	0.04	52	D
	Southbound Left	0.42	55	D	0.25	53	D
	Southbound Through/Right	0.03	51	D	0.03	51	D
East Avenue & Lakeshore Road East	Overall	0.44	7	A	0.47	5	A
	Eastbound Left	0.02	4	A	0.05	2	A
	Eastbound Through	0.46	8	A	0.33	4	A
	Eastbound Right	0.05	6	A	0.02	3	A
	Westbound Left	0.06	2	A	0.02	2	A
	Westbound Through	0.28	2	A	0.49	3	A
	Westbound Right	0.01	2	A	0.02	2	A
	Northbound Left	0.22	54	D	0.24	54	D
	Northbound Through/Right	0.02	52	D	0.15	53	D
	Southbound Left	0.07	52	D	0.06	52	D
	Southbound Through/Right	0.02	52	D	0.01	52	D
Lakefront Promenade & Lakeshore Road East	Overall	0.40	5	A	0.39	4	A
	Eastbound Through	0.41	4	A	0.27	3	A
	Eastbound Right	0.05	1	A	0.01	2	A
	Westbound Left	0.07	4	A	0.02	1	A
	Westbound Through	0.25	5	A	0.39	2	A
	Northbound Left/Right	0.27	54	D	0.38	54	D
Lakeshore Road East & Haig Boulevard	Overall	0.45	10	B	0.49	7	A
	Eastbound Left	0.07	4	A	0.10	2	A
	Eastbound Through	0.54	5	A	0.31	1	A
	Westbound Through/Right	0.43	15	B	0.51	9	A
	Southbound Left/Right	0.13	40	D	0.28	56	E

Table 8-2 – Unsignalized Intersection LOS – Existing (2018) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Delay (s)	LOS	Delay (s)	LOS
Alexandra Avenue & Lakeshore Road East	Eastbound Left	11	B	15	C
	Westbound Left	16	C	11	B
	Northbound Left/Through/Right	69	**F**	25	D
	Southbound Left/Through/Right	37	**E**	31	D
East Avenue & Rangeview Road	Westbound Left/Right	9	A	9	A
	Northbound Through/Right	-	-	-	-
	Southbound Left/Through	6	A	7	A
Hydro Road & Rangeview Road	Eastbound Left/Right	9	A	9	A
	Northbound Left/Through	1	A	1	A
	Southbound Through/Right	-	-	-	-
Hydro Road/Laneway & Lakeshore Road East	Eastbound Left	9	A	11	B
	Westbound Left	12	B	10	A
	Northbound Left/Through/Right	15	B	13	B
	Southbound Left/Through/Right	11	B	16	C
Lakefront Promenade & Rangeview Road	Eastbound Left/Through/Right	10	A	11	B
	Westbound Left/Through/Right	10	A	11	B
	Northbound Left/Through/Right	1	A	1	A
	Southbound Left/Through/Right	2	A	1	A
Montbeck Crescent/West Avenue & Lakeshore Road East	Eastbound Left	10	A	14	B
	Westbound Left	13	B	11	B
	Northbound Left	109	**F**	71	**F**
	Northbound Through/Right	19	C	12	B
	Southbound Left/Through/Right	42	**E**	20	C
Commercial Access/Edgeleigh Avenue & Lakeshore Road East	Eastbound Left	9	A	12	B
	Westbound Left	12	B	9	A
	Northbound Left/Through/Right	0	A	13	B
	Southbound Left/Through/Right	13	B	19	C
Commercial Access/Meredith Avenue & Lakeshore Road East	Eastbound Left	10	B	14	B
	Westbound Left	12	B	10	A
	Northbound Left/Through/Right	23	C	16	C
	Southbound Left/Through/Right	19	C	25	C
Commercial Access/Orchard Road & Lakeshore Road East	Eastbound Left	10	B	13	B
	Westbound Left	-	-	11	B
	Northbound Left/Through/Right	0	A	12	B
	Southbound Left/Through/Right	16	C	25	C
Commercial Access/Strathy Avenue & Lakeshore Road East	Eastbound Left	10	A	14	B
	Westbound Left	13	B	-	-
	Northbound Left/Through/Right	35	**E**	20	C
	Southbound Left/Through/Right	18	C	29	D
Commercial Access/Westmount Avenue & Lakeshore Road East	Eastbound Left	9	A	13	B
	Westbound Left	13	B	-	-
	Northbound Left/Through/Right	12	B	14	B
	Southbound Left/Through/Right	15	C	25	C
Greaves Avenue & Lakeshore Road East	Eastbound Left	10	A	13	B
	Southbound Left/Right	18	C	20	C
WWTP Access/Fergus Avenue & Lakeshore Road East	Eastbound Left	9	A	11	B
	Westbound Left	14	B	10	B
	Northbound Left/Through/Right	31	D	13	B
	Southbound Left/Through/Right	15	B	13	B

Table 8-3 – Signalized Intersection LOS – Business as Usual (2031) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Commercial Access/Cawthra Road & Lakeshore Road East	Overall	**1.37**	91	**F**	**1.47**	217	**F**
	Eastbound Left	**1.44**	252	**F**	**1.37**	230	**F**
	Eastbound Through/Right	0.72	18	B	0.66	18	B
	Westbound Left	0.03	19	B	-	-	-
	Westbound Through/Right	**1.23**	142	**F**	**1.78**	373	**F**
	Northbound Left/Through/Right	-	-	-	0.25	64	E
	Southbound Left	0.84	55	D	0.65	41	D
	Southbound Left/Through	**0.85**	55	D	0.66	42	D
	Southbound Right	0.57	26	C	0.70	35	C
Commercial Access/Dixie Road & Lakeshore Road East	Overall	**1.00**	43	D	**1.38**	122	**F**
	Eastbound Left	**1.03**	69	E	**1.37**	228	**F**
	Eastbound Through/Right	0.46	3	A	0.44	19	B
	Westbound Left	0.05	24	C	0.01	19	B
	Westbound Through/Right	**1.01**	64	E	**1.29**	167	**F**
	Northbound Left/Through/Right	0.05	44	D	0.16	62	E
	Southbound Left	0.73	61	E	0.77	51	D
	Southbound Through/Right	0.29	46	D	**1.00**	93	**F**
Street G/Ogden Avenue & Lakeshore Road East	Overall	**1.19**	57	E	**1.35**	86	**F**
	Eastbound Left	0.45	26	C	0.74	45	D
	Eastbound Through/Right	**1.04**	65	E	**1.07**	73	E
	Westbound Left	**1.15**	154	**F**	**1.21**	143	**F**
	Westbound Through/Right	0.46	14	B	**1.07**	64	E
	Northbound Left	0.50	41	D	**1.58**	330	**F**
	Northbound Through/Right	0.79	52	D	0.81	52	D
	Southbound Left	**1.21**	205	**F**	0.69	57	E
	Southbound Through/Right	0.35	38	D	0.58	40	D
East Avenue & Lakeshore Road East	Overall	0.83	11	B	**1.04**	45	D
	Eastbound Left	0.08	4	A	0.19	10	A
	Eastbound Through	**0.86**	9	A	0.78	8	A
	Eastbound Right	0.09	2	A	0.10	3	A
	Westbound Left	0.27	15	B	0.13	9	A
	Westbound Through	0.65	9	A	**1.11**	73	E
	Westbound Right	0.01	4	A	0.02	10	A
	Northbound Left	0.68	59	E	0.72	59	E
	Northbound Through/Right	0.02	45	D	0.11	43	D
	Southbound Left	0.04	45	D	0.03	43	D
	Southbound Through/Right	0.01	45	D	0.02	43	D
Lakefront Promenade & Lakeshore Road East	Overall	**0.99**	31	C	**1.15**	30	C
	Eastbound Through	**0.99**	32	C	0.65	9	A
	Eastbound Right	0.46	9	A	0.51	7	A
	Westbound Left	0.55	33	C	**1.15**	102	**F**
	Westbound Through	0.59	16	B	**0.93**	12	B
	Northbound Left	**0.99**	82	**F**	**1.16**	133	**F**
	Northbound Right	0.33	35	C	0.18	32	C
Lakeshore Road East & Haig Boulevard	Overall	0.72	9	A	**0.90**	13	B
	Eastbound Left	0.70	49	D	0.71	30	C
	Eastbound Through	0.77	3	A	0.53	10	B
	Westbound Through/Right	0.82	8	A	**0.99**	10	B
	Southbound Left/Right	0.25	45	D	0.52	54	D
Hydro Road/Laneway & Lakeshore Road East	Overall	**1.29**	87	**F**	**1.46**	109	**F**
	Eastbound Left	0.01	13	B	0.05	12	B
	Eastbound Through/Right	**1.17**	110	**F**	**1.24**	130	**F**
	Westbound Left	**1.28**	195	**F**	**1.33**	206	**F**
	Westbound Through/Right	0.46	9	A	**0.88**	6	A
	Northbound Left	**1.14**	152	**F**	**1.58**	310	**F**
	Northbound Through/Right	0.61	51	D	0.51	34	C
	Southbound Left/Through/Right	0.01	42	D	0.00	27	C

Table 8-3 and Table 8-4 summarize the movements of interest for the a.m. and p.m. peak hour at the signalized and unsignalized study intersections, respectively. Detailed capacity analysis outputs can be found in Appendix M2.

Table 8-4 – Unsignalized Intersection LOS – Business as Usual (2031) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Delay (s)	LOS	Delay (s)	LOS
Alexandra Avenue & Lakeshore Road East	Eastbound Left	21	C	312	**F**
	Westbound Left	76	**F**	19	C
	Northbound Left/Through/Right	Err	**F**	Err	**F**
	Southbound Left/Through/Right	Err	**F**	Err	**F**
East Avenue & Rangeview Road	Westbound Left/Right	9	A	9	A
	Northbound Through/Right	0	-	0	-
	Southbound Left/Through	7	A	7	A
Hydro Road & Rangeview Road	Eastbound Left/Through/Right	107	**F**	Err	**F**
	Westbound Left/Through/Right	20	C	38	**E**
	Northbound Left/Through/Right	0	A	0	A
	Southbound Left/Through/Right	0	A	0	A
Lakefront Promenade & Rangeview Road	Eastbound Left/Through/Right	32	D	Err	**F**
	Westbound Left/Through/Right	75	**F**	642	**F**
	Northbound Left/Through/Right	2	A	4	A
	Southbound Left/Through/Right	1	A	0	A
Montbeck Crescent/West Avenue & Lakeshore Road East	Eastbound Left	18	C	458	**F**
	Westbound Left	31	D	27	D
	Northbound Left	333	**F**	Err	**F**
	Northbound Through/Right	85	**F**	15	B
	Southbound Left/Through/Right	201	**F**	Err	**F**
Commercial Access/Edgeleigh Avenue & Lakeshore Road East	Eastbound Left	11	B	28	D
	Westbound Left	17	C	12	B
	Northbound Left/Through/Right	0	A	15	C
	Southbound Left/Through/Right	16	C	50	**E**
Commercial Access/Meredith Avenue & Lakeshore Road East	Eastbound Left	14	B	45	**E**
	Westbound Left	17	C	14	B
	Northbound Left/Through/Right	35	D	26	D
	Southbound Left/Through/Right	31	D	140	**F**
Commercial Access/Orchard Road & Lakeshore Road East	Eastbound Left	14	B	22	C
	Westbound Left	0	-	14	B
	Northbound Left/Through/Right	0	A	13	B
	Southbound Left/Through/Right	29	D	71	**F**
Commercial Access/Strathy Avenue & Lakeshore Road East	Eastbound Left	14	B	63	**F**
	Westbound Left	30	D	0	-
	Northbound Left/Through/Right	136	**F**	28	D
	Southbound Left/Through/Right	35	**E**	468	**F**
Commercial Access/Westmount Avenue & Lakeshore Road East	Eastbound Left	14	B	56	**F**
	Westbound Left	21	C	0	-
	Northbound Left/Through/Right	17	C	25	C
	Southbound Left/Through/Right	28	D	362	**F**
Greaves Avenue & Lakeshore Road East	Eastbound Left	17	C	210	**F**
	Southbound Left/Right	36	**E**	497	**F**
Street G & Rangeview Road	Eastbound Left/Through/Right	77	**F**	424	**F**
	Westbound Left/Through/Right	16	C	32	D
	Northbound Left/Through/Right	1	A	1	A
	Southbound Left/Through/Right	1	A	1	A
WWTP Access/Fergus Avenue & Lakeshore Road East	Eastbound Left	10	A	25	D
	Westbound Left	23	C	14	B
	Northbound Left/Through/Right	92	**F**	22	C
	Southbound Left/Through/Right	17	C	38	**E**

8.3.3 Future Background (2031) Traffic Conditions

The future background capacity analysis for the 2031 horizon year for signalized intersections during the a.m. and p.m. peak hours indicates that overall intersection operations and individual turning movements will operate with acceptable LOS and delay.

The unsignalized intersection at West Avenue/ Montbeck Crescent at Lakeshore Road East is expected to continue to operate with LOS F during the a.m. and p.m. peak hour. This delay can be attributed to the high volume of vehicles travelling on Lakeshore Road though the intersection providing very little gap to allow turning movements from West Avenue and Montbeck Crescent.

Table 8-5 and Table 8-6 summarize the movements of interest for the a.m. and p.m. peak hour at the signalized and unsignalized study intersections, respectively. Detailed capacity analysis outputs can be found in Appendix M3.

Table 8-5 – Signalized Intersection LOS – Future Background (2031) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Commercial Access/Cawthra Road & Lakeshore Road East	Overall	0.76	19	B	0.73	22	C
	Eastbound Left	0.75	13	B	0.65	14	B
	Eastbound Through/Right	0.38	7	A	0.25	5	A
	Westbound Left	0.01	15	B	-	-	-
	Westbound Through	0.35	19	B	0.49	18	B
	Westbound Right	0.12	16	B	0.21	14	B
	Northbound Left/Through/Right	-	-	-	0.29	76	E
	Southbound Left	0.38	50	D	0.38	54	D
	Southbound Left/Through	0.39	50	D	0.39	54	D
	Southbound Right	0.65	41	D	0.81	54	D
Commercial Access/Dixie Road & Lakeshore Road East	Overall	0.64	29	C	0.71	31	C
	Eastbound U-Turn/Left	0.78	53	D	0.79	68	E
	Eastbound Through/Right	0.29	6	A	0.28	9	A
	Westbound U-Turn/Left	0.45	84	**F**	0.10	71	E
	Westbound Through	0.52	27	C	0.62	26	C
	Westbound Right	0.15	21	C	0.21	19	B
	Northbound Left/Through/Right	0.14	72	E	0.19	73	E
	Southbound Left	0.71	70	E	0.80	66	E
	Southbound Through/Right	0.15	56	E	0.21	48	D
East Avenue & Lakeshore Road East	Overall	0.49	20	C	0.45	16	B
	Eastbound U-Turn/Left	0.52	63	E	0.52	60	E
	Eastbound Through/Right	0.62	19	B	0.41	13	B
	Westbound U-Turn/Left	0.64	58	E	0.42	69	E
	Westbound Through/Right	0.40	14	B	0.58	13	B
	Northbound Left	0.06	38	D	0.07	38	D
	Northbound Through/Right	0.01	37	D	0.05	38	D
	Southbound Left	0.10	38	D	0.08	38	D
	Southbound Through/Right	0.01	37	D	0.01	37	D
Lakefront Promenade & Lakeshore Road East	Overall	0.40	7	A	0.38	7	A
	Eastbound U-Turn/Left	0.48	66	E	0.47	51	D
	Eastbound Through/Right	0.40	2	A	0.28	4	A
	Westbound U-Turn/Left	0.34	53	D	0.52	82	**F**
	Westbound Through	0.28	6	A	0.39	4	A
	Northbound Left	0.19	54	D	0.33	54	D
	Northbound Through/Right	0.01	52	D	0.02	51	D
Commercial Access/Ogden Avenue & Lakeshore Road East	Overall	0.43	13	B	0.47	11	B
	Eastbound U-Turn/Left	0.60	64	E	0.56	49	D
	Eastbound Through/Right	0.37	3	A	0.26	5	A
	Westbound U-Turn/Left	0.39	58	E	-	-	-
	Westbound Through/Right	0.28	13	B	0.44	8	A
	Northbound Left/Through/Right	0.00	59	E	0.04	52	D
	Southbound Left	0.46	52	D	0.51	58	E
	Southbound Through/Right	0.03	48	D	0.03	52	D
Hydro Road/Laneway & Lakeshore Road East	Overall	0.37	6	A	0.36	6	A
	Eastbound U-Turn/Left	0.17	74	E	0.21	61	E
	Eastbound Through/Right	0.38	4	A	0.30	9	A
	Westbound U-Turn/Left	0.45	52	D	0.13	88	**F**
	Westbound Through/Right	0.28	3	A	0.38	2	A
	Northbound Left	0.08	56	E	0.13	56	E
	Northbound Through/Right	0.02	55	E	0.04	55	E
	Southbound Left/Through/Right	0.01	55	E	0.00	55	E
Haig Boulevard & Lakeshore Road East	Overall	0.41	10	A	0.48	10	B
	Eastbound U-Turn/Left	0.39	83	**F**	0.32	61	E
	Eastbound Through/Right	0.49	6	A	0.37	5	A
	Westbound U-Turn/Left	0.45	61	E	0.38	62	E
	Westbound Through/Right	0.47	10	A	0.59	12	B
	Southbound Left/Through/Right	0.04	43	D	0.03	44	D

Table 8-6 – Unsignalized Intersection LOS – Future Background (2031) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Delay (s)	LOS	Delay (s)	LOS
Alexandra Avenue & Lakeshore Road East	Southbound Right	12	B	15	B
Lakefront Promenade & Rangeview Road	Eastbound Left/Through/Right	10	A	10	B
	Westbound Left/Through/Right	9	A	10	B
	Northbound Left/Through/Right	1	A	1	A
	Southbound Left/Through/Right	2	A	1	A
Montbeck Crescent/West Avenue & Lakeshore Road East	Eastbound Left	10	B	12	B
	Westbound Left	12	B	11	B
	Northbound Left	50	**F**	55	**F**
	Northbound Through/Right	16	C	12	B
	Southbound Left	45	**E**	79	**F**
	Southbound Through/Right	10	B	10	A
Street H/Hydro Road & Rangeview Road	Eastbound Left/Right	9	A	9	A
	Northbound Left/Through	2	A	1	A
	Southbound Through/Right	-	-	-	-
East Avenue & Rangeview Road	Westbound Left/Right	8	A	9	A
	Northbound Through/Right	-	-	-	-
	Southbound Left/Through	6	A	7	A

8.3.4 Future Total (2031) Traffic Conditions

The future total capacity analysis for signalized intersections during the a.m. and p.m. peak hour for the 2031 horizon year indicates that overall intersection operations and individual turning movements for all study intersections will operate below capacity with v/c ratios of less than 1.0. The lone exception is the eastbound left-turn movement (during the p.m. peak hour) at Dixie Road and Lakeshore Road East, which is expected to operate with a v/c ratio of a little over 1.0. However, this operational characteristic is expected to be short-lived, and within driver expectation for exclusive left-turn movements along congested corridors (especially with BRT implemented).

A number of individual movements at the study intersections within the study area are approaching or almost at capacity but do not go exceed v/c ratios of 1.0.

The unsignalized intersection at West Avenue/ Montbeck Crescent at Lakeshore Road East is expected to continue to operate with LOS F during the a.m. and p.m. peak hour. Similar to the background traffic condition, this delay can be attributed to the high volume of vehicles travelling on Lakeshore Road though the intersection providing very little gap to allow turning movement from West Avenue and Montbeck Crescent. It is recommended that the City monitor this intersection to determine if a conversion to a right-in/ right-out condition is acceptable.

Table 8-7 and Table 8-8 summarize the movements of interest for the a.m. and p.m. peak hour at the signalized and unsignalized study intersections, respectively. Detailed capacity analysis outputs can be found in Appendix M4.

Table 8-7 – Signalized Intersection LOS – Future Total (2031) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Commercial Access/Cawthra Road & Lakeshore Road East	Overall	0.84	36	D	**0.88**	25	C
	Eastbound Left	**0.93**	66	E	**0.92**	78	E
	Eastbound Through/Right	0.61	16	B	0.51	11	B
	Westbound Left	0.02	29	C	-	-	-
	Westbound Through	0.84	47	D	**0.95**	24	C
	Westbound Right	0.56	40	D	0.83	11	B
	Northbound Left/Through/Right	-	-	-	0.18	70	E
	Southbound Left	0.67	45	D	0.59	49	D
	Southbound Left/Through	0.69	46	D	0.64	51	D
	Southbound Right	0.46	21	C	0.67	38	D
Commercial Access/Dixie Road & Lakeshore Road East	Overall	0.86	32	C	**1.02**	57	E
	Eastbound U-Turn/Left	**0.90**	26	C	**1.12**	134	**F**
	Eastbound Through/Right	0.43	10	A	0.39	12	B
	Westbound U-Turn/Left	0.13	57	E	0.03	66	E
	Westbound Through	**0.91**	51	D	**0.99**	59	E
	Westbound Right	0.17	30	C	0.23	25	C
	Northbound Left/Through/Right	0.05	57	E	0.12	67	E
	Southbound Left	0.53	47	D	0.64	51	D
	Southbound Through/Right	0.40	47	D	**0.91**	78	E
East Avenue & Lakeshore Road East	Overall	0.81	23	C	**0.90**	28	C
	Eastbound U-Turn/Left	0.32	55	E	0.41	74	E
	Eastbound Through/Right	**0.92**	28	C	0.71	10	B
	Westbound U-Turn/Left	0.63	59	E	0.31	65	E
	Westbound Through/Right	0.67	11	B	**0.99**	37	D
	Northbound Left	0.44	48	D	0.62	66	E
	Northbound Through/Right	0.01	39	D	0.06	50	D
	Southbound Left	0.12	41	D	0.11	51	D
	Southbound Through/Right	0.01	39	D	0.01	49	D
Lakefront Promenade & Lakeshore Road East	Overall	**0.88**	26	C	**0.97**	36	D
	Eastbound U-Turn/Left	0.42	51	D	0.34	55	E
	Eastbound Through/Right	**0.90**	25	C	**0.90**	36	D
	Westbound U-Turn/Left	0.46	57	E	0.77	74	E
	Westbound Through	0.51	10	A	**0.95**	26	C
	Northbound Left	**0.88**	62	E	**0.95**	66	E
	Northbound Through/Right	0.17	36	D	0.06	29	C

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Table 8-7 – Signalized Intersection LOS – Future Total (2031) Capacity Analysis (continued)

Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Street G/Ogden Avenue & Lakeshore Road East	Overall	0.83	31	C	**0.92**	35	D
	Eastbound U-Turn/Left	0.62	63	E	0.75	65	E
	Eastbound Through/Right	**0.85**	21	C	0.80	25	C
	Westbound U-Turn/Left	0.55	63	E	0.81	68	E
	Westbound Through/Right	0.52	22	C	**0.95**	27	C
	Northbound Left	0.42	35	C	**0.90**	71	E
	Northbound Through/Right	0.84	66	E	0.49	38	D
	Southbound Left	0.68	45	D	0.53	48	D
	Southbound Through/Right	0.55	48	C	0.82	65	E
Hydro Road/Laneway & Lakeshore Road East	Overall	0.84	21	C	**0.95**	35	D
	Eastbound U-Turn/Left	0.06	58	E	0.07	62	E
	Eastbound Through/Right	**0.86**	15	B	**0.93**	37	D
	Westbound U-Turn/Left	0.75	63	E	0.84	78	E
	Westbound Through/Right	0.40	10	B	**0.90**	21	C
	Northbound Left	0.79	64	E	**0.97**	72	E
	Northbound Through/Right	0.38	45	D	0.18	28	C
	Southbound Left/Through/Right	0.01	42	D	0.00	26	C
Haig Boulevard & Lakeshore Road East	Overall	0.82	19	B	0.86	32	C
	Eastbound U-Turn/Left	0.47	61	E	0.57	62	E
	Eastbound Through/Right	0.85	12	B	0.76	15	B
	Westbound U-Turn/Left	0.77	61	E	0.68	52	D
	Westbound Through/Right	0.58	9	A	**0.93**	32	C
	Northbound Left	0.46	46	D	**0.89**	68	E
	Northbound Through/Right	0.46	45	D	0.49	39	D
	Southbound Left/Through/Right	0.70	64	E	0.67	61	E

Table 8-8 – Unsignalized Intersection LOS – Future Total (2031) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Delay (s)	LOS	Delay (s)	LOS
Alexandra Avenue & Lakeshore Road East	Southbound Right	14	B	12	B
Lakefront Promenade & Rangeview Road	Eastbound Left/Through/Right	17	C	30	D
	Westbound Left/Through/Right	29	D	118	**F**
	Northbound Left/Through/Right	2	A	2	A
	Southbound Left/Through/Right	1	A	0	A
Montbeck Crescent/West Avenue & Lakeshore Road East	Eastbound Left	16	C	117	**F**
	Westbound Left	23	C	20	C
	Northbound Left	173	**F**	1704	**F**
	Northbound Through/Right	48	**E**	16	C
	Southbound Left	174	**F**	7807	**F**
	Southbound Through/Right	10	B	16	C
Street H/Hydro Road & Rangeview Road	Eastbound Left/Through/Right	18	C	24	C
	Westbound Left/Through/Right	11	B	11	B
	Northbound Left/Through/Right	0	A	0	A
	Southbound Left/Through/Right	0	A	0	A
East Avenue & Rangeview Road	Westbound Left/Right	9	A	9	A
	Northbound Through/Right	-	-	-	-
	Southbound Left/Through	7	A	7	A

8.3.5 Future Total (2041) Traffic Conditions

The future total capacity analyses for the horizon year 2041 indicates that a number of intersections operate with overall v/c ratios above 1.0 and individual turning movements at or above capacity during the p.m. peak hour. However, during the a.m. peak hour only some study intersections within the study network would experience some capacity deficiencies with the majority of study locations projected to operate below capacity.

TMIG sought to determine if these capacity constraints could be rectified by achieving the Region's sustainable mode split of 50% by 2041. Section 8.4 presents the capacity results of a sensitivity analysis performed based on the assumption of a 50% sustainable mode split, as per the Region's STS goals.

Table 8-9 and Table 8-10 summarize the movements of interest for the a.m. and p.m. peak hour at the signalized and unsignalized study intersections, respectively. Detailed capacity analysis outputs can be found in Appendix M5.

Table 8-9 – Signalized Intersection LOS – Future Total (2041) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Commercial Access/Cawthra Road & Lakeshore Road East	Overall	**0.96**	45	D	**0.96**	39	D
	Eastbound Left	**0.98**	80	**F**	**0.99**	98	**F**
	Eastbound Through/Right	0.62	17	B	0.60	14	B
	Westbound Left	0.02	28	C	-	-	-
	Westbound Through	**0.98**	64	E	**1.06**	44	D
	Westbound Right	0.74	46	D	**1.03**	39	D
	Northbound Left/Through/Right	-	-	-	0.18	70	E
	Southbound Left	0.81	53	D	0.66	50	D
	Southbound Left/Through	0.83	55	E	0.73	54	D
	Southbound Right	0.47	22	C	0.67	38	D
Commercial Access/Dixie Road & Lakeshore Road East	Overall	**0.94**	49	D	**1.17**	86	**F**
	Eastbound U-Turn/Left	**1.02**	79	E	**1.28**	189	**F**
	Eastbound Through/Right	0.46	8	A	0.41	22	C
	Westbound U-Turn/Left	0.15	67	E	0.03	66	E
	Westbound Through	**0.99**	70	E	**1.08**	85	**F**
	Westbound Right	0.19	34	C	0.23	25	C
	Northbound Left/Through/Right	0.06	66	E	0.12	67	E
	Southbound Left	0.53	55	D	0.64	51	D
	Southbound Through/Right	0.55	57	E	**1.13**	142	**F**
East Avenue & Lakeshore Road East	Overall	**0.89**	43	D	**1.04**	70	E
	Eastbound U-Turn/Left	0.32	54	E	0.41	70	E
	Eastbound Through/Right	**1.05**	25	E	**0.93**	23	C
	Westbound U-Turn/Left	0.71	53	E	0.51	53	D
	Westbound Through/Right	**0.86**	19	C	**1.17**	105	**F**
	Northbound Left	0.49	41	D	0.71	67	E
	Northbound Through/Right	0.11	37	D	0.05	46	D
	Southbound Left	0.11	37	D	0.09	47	D
	Southbound Through/Right	0.01	36	D	0.01	46	D
Lakefront Promenade & Lakeshore Road East	Overall	**1.01**	50	D	**1.14**	74	E
	Eastbound U-Turn/Left	0.48	66	E	0.33	88	**F**
	Eastbound Through/Right	**1.03**	58	E	**1.09**	63	E
	Westbound U-Turn/Left	0.69	76	E	**1.08**	130	**F**
	Westbound Through	0.63	20	C	**1.09**	64	E
	Northbound Left	**1.01**	97	**F**	**1.14**	131	**F**
	Northbound Through/Right	0.40	43	D	0.09	35	C
Street G/Ogden Avenue & Lakeshore Road East	Overall	**0.99**	49	D	**1.12**	82	**F**
	Eastbound U-Turn/Left	0.68	54	D	**1.06**	131	**F**
	Eastbound Through/Right	**1.02**	55	E	**0.98**	44	D
	Westbound U-Turn/Left	0.74	77	E	**0.99**	102	**F**
	Westbound Through/Right	0.69	19	B	**1.11**	89	**F**
	Northbound Left	0.67	39	D	**1.12**	135	**F**
	Northbound Through/Right	**1.00**	95	**F**	0.76	62	E
	Southbound Left	0.81	57	E	0.51	47	D
	Southbound Through/Right	0.60	49	D	**1.16**	166	**F**
Hydro Road/Laneway & Lakeshore Road East	Overall	**0.95**	20	B	**1.10**	61	E
	Eastbound U-Turn/Left	0.06	63	E	0.07	56	E
	Eastbound Through/Right	**0.97**	16	B	**0.97**	48	D
	Westbound U-Turn/Left	0.82	80	**F**	**0.98**	102	**F**
	Westbound Through/Right	0.50	4	A	**1.01**	49	D
	Northbound Left	**0.90**	78	E	**1.19**	147	**F**
	Northbound Through/Right	0.47	45	D	0.16	30	C
	Southbound Left/Through/Right	0.01	40	D	0.00	29	C
Street I/Haig Boulevard & Lakeshore Road East	Overall	**0.99**	39	D	**1.07**	79	E
	Eastbound U-Turn/Left	0.53	40	D	0.74	82	**F**
	Eastbound Through/Right	**0.99**	40	D	**0.87**	41	D
	Westbound U-Turn/Left	**1.02**	116	**F**	0.83	53	D
	Westbound Through/Right	0.70	18	B	**1.11**	97	**F**
	Northbound Left	0.65	54	D	**1.15**	136	**F**
	Northbound Through/Right	0.48	44	D	0.52	40	D
	Southbound Left/Through/Right	**0.91**	90	**F**	**0.98**	117	**F**

Table 8-10 – Unsignalized Intersection LOS – Future Total (2041) Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Delay (s)	LOS	Delay (s)	LOS
Alexandra Avenue & Lakeshore Road East	Southbound Right	16	C	15	B
Lakefront Promenade & Rangeview Road	Eastbound Left/Through/Right	36	**E**	65	**F**
	Westbound Left/Through/Right	24	C	43	**E**
	Northbound Left/Through/Right	1	A	2	A
	Southbound Left/Through/Right	1	A	1	A
Montbeck Crescent/West Avenue & Lakeshore Road East	Eastbound Left	22	C	608	**F**
	Westbound Left	27	D	28	D
	Northbound Left	409	**F**	Err	**F**
	Northbound Through/Right	470	**F**	17	C
	Southbound Left	Err	**F**	Err	**F**
	Southbound Through/Right	12	B	15	C
Street H/Hydro Road & Rangeview Road	Eastbound Left/Through/Right	18	C	21	C
	Westbound Left/Through/Right	11	B	11	B
	Northbound Left/Through/Right	0	A	0	A
	Southbound Left/Through/Right	0	A	0	A
East Avenue & Rangeview Road	Westbound Left/Right	9	A	9	A
	Northbound Through/Right	-	-	-	-
	Southbound Left/Through	6	A	7	A

8.4 Future Total (2041) Modal Split Sensitivity Traffic Conditions

TMIG created a Future Total 2041 traffic model that reflected the Region of Peel's target of a 50% sustainable transportation mode split, as per Peel's STS. This model is provided as a sensitivity analysis to determine the degree to which automotive capacity at study area intersections would be affected by a decrease in peak hour traffic.

The overall effect of the 50% sustainable mode-share target, regardless of whether it is the transit, walking, or cycling percentage of the mode share, is that the auto-driver component will only represent 50% of the overall mode split. This is the percentage that is applied as an adjustment to both the residential and non-residential trip generation calculations in 2041 for the 50% mode split sensitivity scenario.

The following considerations were made to develop the 2041 modal split sensitivity model:

- Existing traffic volumes were not reduced
- Annual background growth rates supplied by the City were maintained
- Residential person-trip calculations were updated for both Lakeview Village and Rangeview Estates to reflect 50% auto driver modal split
- A 50% non-auto driver reduction was applied to trips generated by commercial land uses within Lakeview Village and background developments
- Mixed-use internal capture rates were recalculated to reflect the updated volumes of trips generated by Lakeview Village and background developments

8.4.1 Multi-Modal Demand Forecasting

The site trip generation methodology presented in Section 7.3 and of this report was also used to determine the number of trips that would be generated by the Lakeview Village development at 2041 full-build out if auto driver trips represented 50% of the modal split. Table 8-11 provides a summary of the updated 2041 Lakeview Village residential trip generation resulting from the adjusted modal split percentages.

The auto-driver modal split percentages for the a.m. and p.m. peak hours were both lowered to 50% from the existing 57.5% and 65.0% determined from 2011 TTS data, respectively. The 7.5-15% of residential trips no longer taken by auto drivers were reassigned to transit, increasing the transit modal split from 22.5% to 30.0% in the a.m. peak hour, and from 17.5% to 32.5% in the p.m. peak hour. The Rangeview Estates residential person trips were also updated using the modal split values in Table 8-11.

The non-auto driver reduction applied to auto trips generated by commercial land uses, as per ITE 10th edition trip generation rates, was increased to 50%. This is based on the assumption that most data used to create ITE trip generation rates are collected at baseline sites with little access to transit. As stated in Chapter 5 of the 3rd Edition of the ITE Trip Generation Handbook,

"Most data presented in the Trip Generation Manual data volumes are vehicle-based and have been collected at low-density, single-use, suburban developments with little or no transit service, limited bicycle access, and little or no convenient pedestrian access. These sites are called baseline sites because they are the starting points for vehicle trip generation estimation."

2041 Mixed-use internal capture calculations were updated for Lakeview Village, Rangeview Estates, and Serson North based on the modal split adjustments applied to site trip volumes. The total 2041 site trips generated by Lakeview Village and background developments presented in Table 8-12 incorporate modal split/transit adjustments and internal capture rates. Detailed trip generation calculations that account for a shift to 50% auto driver transportation mode split can be found in Appendix N.

Table 8-11 – 2041 Modal Split Sensitivity – Lakeview Village Residential Site Trip Generation

Component	Residential Peak Hour Trip Generation					
Number of Units	9,700					
Occupancy	Assume 100% Occupancy					
	Unit Occupancy of 1.96 persons/unit					
Number of Residents	18,965					
Residential Trips [1]	Assumed % of residents travelling during the weekday AM peak hour		18%	Assumed % of residents travelling during the weekday PM peak hour		20.5%
	# trips during AM peak		3,414	# trips during PM peak		3,888
Modal Split [2]	Split Percentage		Trips	Split Percentage		Trips
Transit	30%		1,024	32.5%		1,047
Auto-Driver	50%		1,707	50%		1,944
Auto-Passenger	12.5%		427	15%		583
Walk	6.5%		222	1.5%		58
Cycle	1.0%		34	1.0%		39
Directional Distribution [3]	Inbound	Outbound	Total	Inbound	Outbound	Total
	25%	75%	100%	61%	39%	100%
Person Trips						
Transit	256	768	1,024	771	493	1,264
Auto-Driver	427	1,280	1,707	1,186	758	1,944
Auto-Passenger	107	320	427	356	227	583
Walk	56	167	223	35	23	58
Cycle	9	26	35	24	15	39
Total Trips	855	2,561	3,416	2,372	1,516	3,888
Auto Trip Rate (veh trips/unit)	0.04	0.13	0.18	0.12	0.08	0.20
Mixed-Use Adjustment	6	33	39	64	48	112
Total Auto-Driver Trips used for analysis [4]	**421**	**1,247**	**1,668**	**1,122**	**710**	**1,832**

Notes:
1. Based on 2011 TTS Data for apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
2. Based on Region of Peel's 2041 50% sustainable transportation goal (Peel STS, 2018) and 2011 TTS Data for residential trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
3. Directional Distribution based on average of ITE 10e Multi-family Housing LUC 221 (mid-rise) and 222 (High-rise)
4. Minor discrepancies are present due to person trips being calculated at the development phase level and added together for analysis purposes compared to the example calculations of person trips for the entire development

Table 8-12 – 2041 Modal Split Sensitivity - Total Site Trip Generation with Mixed-Use Internal Capture Adjustments

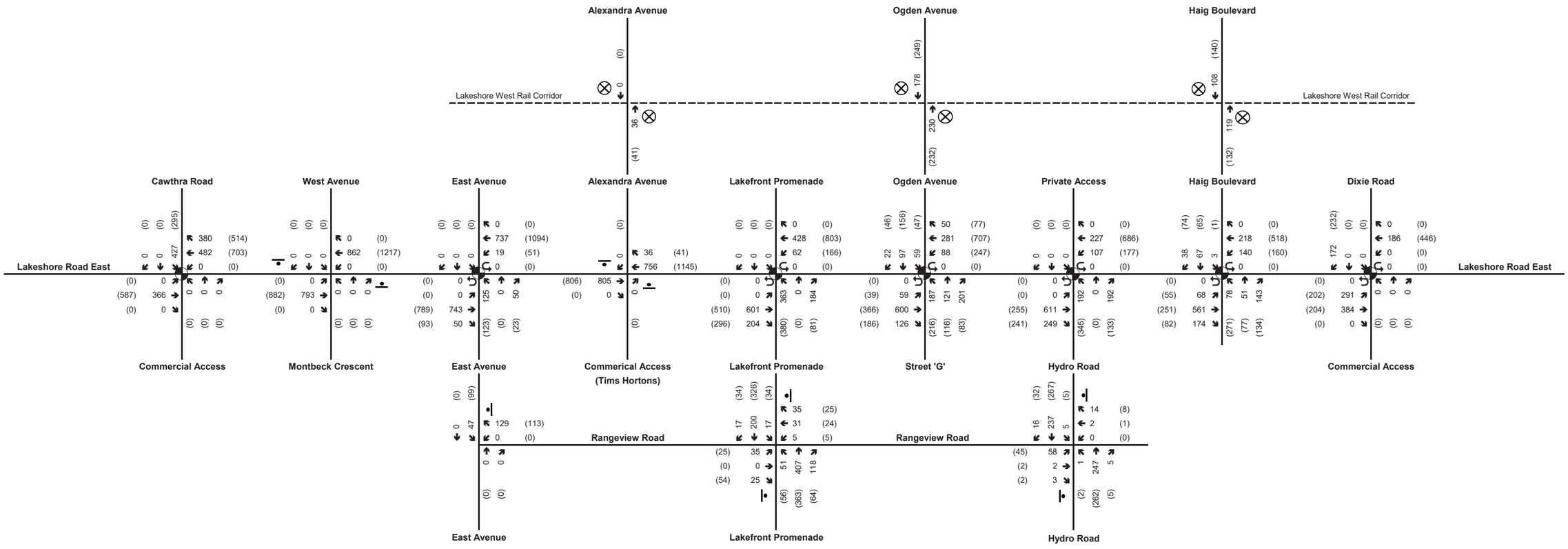
Development	Land Use	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Lakeview Village	Residential	Gross Auto-Driver Trips	427	1,280	1,707	1,186	758	1,944
		Mixed-Use Adjustment	6	33	39	64	48	112
		New Trips	421	1,247	1,668	1,122	710	1,832
	Non-Residential	Gross Auto-Driver Trips	1,448	439	1,887	818	1,843	2,661
		Mixed-Use Adjustment	122	73	195	118	152	270
		Transit Reduction	662	182	844	349	845	1,194
		New Trips	664	184	848	351	846	1,197
	Total Site	**Total New Trips**	**1,085**	**1,431**	**2,516**	**1,473**	**1,556**	**3,029**
Rangeview Estates	Residential	Gross Auto-Driver Trips	146	439	585	406	260	666
		Mixed-Use Adjustment	3	6	9	22	10	32
		New Trips	143	433	576	384	250	634
	Non-Residential	Gross Trips	170	76	246	159	209	368
		Mixed-Use Adjustment	16	11	27	28	55	83
		Transit Reduction	76	31	107	63	76	139
		New Trips	78	34	112	68	78	146
	Total Site	**Total New Trips**	**221**	**467**	**688**	**452**	**328**	**780**
Serson North	Non-Residential	Gross Trips	275	56	331	56	299	355
		Mixed-Use Adjustment	13	9	22	14	12	26
		Transit Reduction	131	23	154	20	143	163
	Total Site	Total New Trips	131	24	155	22	144	166
Total 2041 Developments		**Total Trips**	**1,437**	**1,922**	**3,359**	**1,947**	**2,028**	**3,975**

Under 2041 Total conditions, with the Region of Peel's 50% sustainable transportation goal taken into consideration, Lakeview Village, Rangeview Estates, and Serson North are expected to generate at total of 3,359 new two-way auto-driver trips during the a.m. peak hour consisting of 1,437 inbound and 1,922 outbound trips. During the p.m. peak hour, the Lakeview Village and the background developments are expected to generate a total of 3,975 new two-way auto-driver trips consisting of 1,947 inbound and 2,028 outbound trips.

8.4.2 Site Trip Distribution and Assignment

The 2041 site trip distribution and assignment methodologies discussed in Section 7.3.5, Section 7.5.1.2, and Section 7.5.2.2 of this report were also applied to the 2041 modal split sensitivity site trips for Lakeview Village, Rangeview Estates, and Serson North, respectively. The estimated site trips generated by Lakeview Village and background developments in

FUTURE TOTAL 2041 MODAL SPLIT SENSITIVITY LAKEVIEW VILLAGE, RANGEVIEW ESTATES, AND SEARSON NORTH SITE TRAFFIC VOLUMES



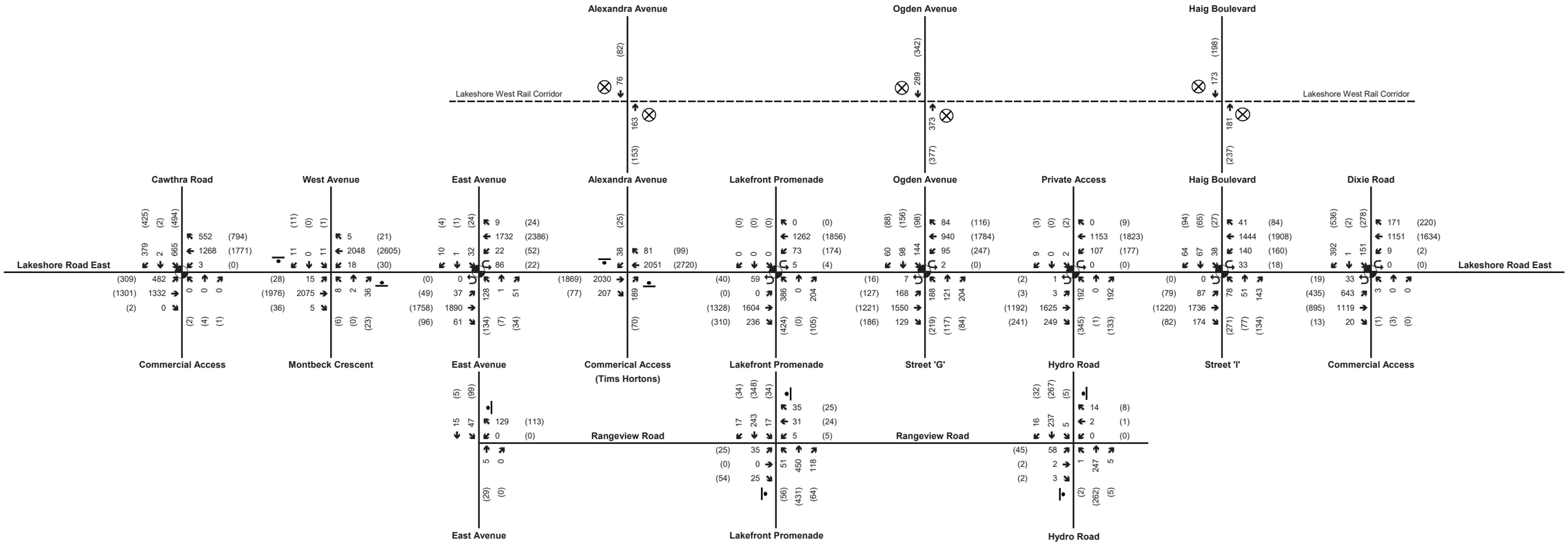
LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 8-1 – Future Total 2041 Modal Split Sensitivity Lakeview Village, Rangeview Estates, and Serson North Site Traffic Volumes

FUTURE TOTAL 2041 MODAL SPLIT SENSITIVITY
TOTAL TRAFFIC VOLUMES



LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 8-2 – Future Total 2041 Modal Split Sensitivity Total Traffic Volumes

2041, as summarized in Table 8-12, were assigned to the study area road network for the weekday a.m. and p.m. peak hours as shown in Figure 8-1. Figure 8-2 provides the Total 2041 traffic expected in the study area, which includes existing traffic, projected Lakeshore Road east-west growth, and 2041 site traffic from Lakeview Village, Rangeview Estates, and Serson North developments.

8.4.3 Capacity Analysis

The future total capacity analysis for signalized intersections during the a.m. and p.m. peak hour for the 2041 horizon year indicates that overall intersection operations and individual turning movements for all study intersections will operate below capacity with v/c ratios of less than 1.0 when a 50% sustainable transportation modal split is applied.

A number of individual movements at intersections within the study area are approaching or almost at capacity but do not exceed v/c ratios of 1.0. The number of individual movements approaching capacity is significantly lower than the number of movements at, or over, capacity in the Future Total 2041 scenario presented in Section 8.3.5.

Table 8-13 – Signalized Intersection LOS – Future Total (2041) Modal Split Sensitivity Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Commercial Access/Cawthra Road & Lakeshore Road East	Overall	**0.88**	38	D	**0.85**	24	C
	Eastbound Left	**0.95**	72	E	**0.89**	70	E
	Eastbound Through/Right	0.54	14	B	0.51	11	B
	Westbound Left	0.02	26	C	-	-	-
	Westbound Through	**0.88**	48	D	**0.90**	17	B
	Westbound Right	0.60	39	D	0.76	16	B
	Northbound Left/Through/Right	-	-	-	0.18	70	E
	Southbound Left	0.69	48	D	0.58	49	D
	Southbound Left/Through	0.71	49	D	0.63	51	D
	Southbound Right	0.48	23	C	0.68	39	D
Commercial Access/Dixie Road & Lakeshore Road East	Overall	**0.88**	38	D	**0.99**	52	D
	Eastbound U-Turn/Left	0.89	48	D	**1.02**	102	**F**
	Eastbound Through/Right	0.41	6	A	0.37	12	B
	Westbound U-Turn/Left	0.15	67	E	0.03	66	E
	Westbound Through	**0.91**	55	E	**0.99**	60	E
	Westbound Right	0.18	33	C	0.23	25	C
	Northbound Left/Through/Right	0.08	68	E	0.12	67	E
	Southbound Left	0.65	63	E	0.64	51	D
	Southbound Through/Right	0.27	56	E	**0.86**	70	E
East Avenue & Lakeshore Road East	Overall	0.77	25	C	**0.85**	27	C
	Eastbound U-Turn/Left	0.32	55	E	0.41	71	E
	Eastbound Through/Right	**0.91**	28	C	0.76	14	B
	Westbound U-Turn/Left	0.66	62	E	0.50	64	E
	Westbound Through/Right	0.79	15	B	**0.96**	33	C
	Northbound Left	0.41	44	D	0.50	57	E
	Northbound Through/Right	0.07	37	D	0.04	46	D
	Southbound Left	0.10	38	D	0.09	47	D
	Southbound Through/Right	0.01	36	D	0.01	46	D
Lakefront Promenade & Lakeshore Road East	Overall	**0.87**	26	C	**0.89**	35	C
	Eastbound U-Turn/Left	0.42	65	E	0.34	55	E
	Eastbound Through/Right	**0.89**	17	B	**0.88**	33	C
	Westbound U-Turn/Left	0.56	50	D	0.77	65	E
	Westbound Through	0.60	23	C	**0.86**	27	C
	Northbound Left	0.88	61	E	**0.90**	61	E
	Northbound Through/Right	0.28	36	D	0.07	32	C

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Table 8-13 – Signalized Intersection LOS – Future Total (2041) Modal Split Sensitivity Capacity Analysis (continued)

Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Street G/Ogden Avenue & Lakeshore Road East	Overall	**0.85**	27	C	**0.89**	42	D
	Eastbound U-Turn/Left	0.64	64	E	0.76	76	E
	Eastbound Through/Right	**0.88**	13	B	0.82	37	D
	Westbound U-Turn/Left	0.57	58	E	0.75	63	E
	Westbound Through/Right	0.62	21	C	**0.95**	42	D
	Northbound Left	0.52	35	D	0.79	57	E
	Northbound Through/Right	**0.85**	65	E	0.56	54	D
	Southbound Left	0.69	46	D	0.34	43	D
	Southbound Through/Right	0.48	47	D	0.84	78	E
Hydro Road/Laneway & Lakeshore Road East	Overall	0.81	15	B	**0.87**	29	C
	Eastbound U-Turn/Left	0.06	63	E	0.07	56	E
	Eastbound Through/Right	0.83	9	A	0.78	29	C
	Westbound U-Turn/Left	0.58	65	E	0.75	58	E
	Westbound Through/Right	0.47	5	A	0.82	20	B
	Northbound Left	0.80	65	E	0.89	64	E
	Northbound Through/Right	0.33	44	D	0.09	32	C
	Southbound Left/Through/Right	0.01	41	D	0.00	31	C
Street I/Haig Boulevard & Lakeshore Road East	Overall	0.83	20	C	**0.86**	31	C
	Eastbound U-Turn/Left	0.57	64	E	0.56	78	E
	Eastbound Through/Right	**0.87**	12	B	0.71	6	A
	Westbound U-Turn/Left	0.74	62	E	0.65	53	D
	Westbound Through/Right	0.63	14	B	**0.95**	35	D
	Northbound Left	0.49	47	D	0.88	64	E
	Northbound Through/Right	0.38	45	D	0.36	36	D
	Southbound Left/Through/Right	0.70	64	E	0.62	58	E

Table 8-14 – Unsignalized Intersection LOS – Future Total (2041) Modal Split Sensitivity Capacity Analysis

Intersection	Movement of Interest	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Delay (s)	LOS	Delay (s)	LOS
Alexandra Avenue & Lakeshore Road East	Southbound Right	15	C	13	B
Lakefront Promenade & Rangeview Road	Eastbound Left/Through/Right	22	C	19	C
	Westbound Left/Through/Right	18	C	20	C
	Northbound Left/Through/Right	1	A	1	A
	Southbound Left/Through/Right	1	A	1	A
Montbeck Crescent/West Avenue & Lakeshore Road East	Eastbound Left	19	C	55	**F**
	Westbound Left	20	C	20	C
	Northbound Left	236	**F**	865	**F**
	Northbound Through/Right	125	**F**	16	C
	Southbound Left	653	**F**	2523	**F**
	Southbound Through/Right	11	B	15	B
Street H/Hydro Road & Rangeview Road	Eastbound Left/Through/Right	14	B	14	B
	Westbound Left/Through/Right	10	B	10	B
	Northbound Left/Through/Right	0	A	0	A
	Southbound Left/Through/Right	0	A	0	A
East Avenue & Rangeview Road	Westbound Left/Right	9	A	9	A
	Northbound Through/Right	-	-	-	-
	Southbound Left/Through	6	A	7	A

It should be noted that the unsignalized intersection at West Avenue/Montbeck Crescent is expected to continue to operate with LOS F during the a.m. and p.m. peak hour.

Table 8-13 and Table 8-14 summarize the movements of interest for the a.m. and p.m. peak hour at the signalized and unsignalized study intersections, respectively. Detailed capacity analysis outputs can be found in Appendix M6.

8.5 Regional Rail Crossings

8.5.1 Existing (2018), Business as Usual (2031) and Future Background (2031) Traffic Conditions

The existing capacity analysis for all three at-grade rail crossings during the a.m. and p.m. peak hours indicates that individual through movements will operate with acceptable LOS and delay. The predicted 95th percentile queue is a maximum of 25 and 27 metres during the a.m. and p.m. peak hour respectively, across all three corridors.

Under the business as usual traffic condition, capacity analysis for the at-grade rail crossings during the a.m. and p.m. peak hours indicates that individual through movements will operate with acceptable LOS and delay. However, the predicted 95th percentile queue at the Ogden Avenue crossing will increase significantly to 152 metres in the southbound direction during the a.m. peak hour.

Under Future Background conditions in 2031, capacity analysis for all three at-grade rail crossings during the a.m. and p.m. peak hours indicates that individual through movements will operate with acceptable LOS and delay. The predicted 95th percentile queue is a maximum of 36 and 42 metres during the a.m. and p.m. peak hour respectively, across all three corridors.

Table 8-15 summarizes the through movements for the a.m. and p.m. peak hour at the at-grade rail crossing study intersections. Detailed capacity analysis outputs can be found in Appendix M7.

8.5.2 Future Total (2031 & 2041) and Future Total Modal Split Sensitivity (2041) Traffic Conditions

The future capacity analysis at all three at-grade rail crossings during the a.m. and p.m. peak hours indicates that individual through movements will operate with acceptable LOS and delay under predicted future total and 50% sustainable transportation modal splits.

With the implementation of the BRT generating an anticipated higher transit ridership in 2031, the predicted queues at the at-grade crossings decrease in the future total scenarios compared to the 2031 BAU scenario where higher order transit is not present. Ogden Avenue will continue to experience the longest queues due to the volume of traffic a collector road is designed to accommodate and attract. Under future total 2041 traffic conditions, with the addition of Rangeview Estates, Serson North, and background growth, it is expected that 95th percentile southbound queues at the Ogden Avenue and Haig Boulevard crossing will increase significantly during the p.m. peak hour.

However,, the queues experienced under future total 2041 modal split sensitivity volumes are generally less than those experienced under future total 2041, and consistent with future total 2031, traffic conditions due to a decrease in vehicular traffic.

Table 8-16 summarizes the through movements for the a.m. and p.m. peak hour at the at-grade rail crossing study intersections. Detailed capacity analysis outputs can be found in Appendix M7.

Table 8-15 – Existing (2018), Business as Usual (2031) and Future Background (2031) Capacity Analysis

Intersection	Movement of Interest	Existing 2018			2031 Total BAU			2031 Background		
		Delay (s)	LOS	Queue (m)	Delay (s)	LOS	Queue (m)	Delay (s)	LOS	Queue (m)
Alexandra Avenue & Lakeshore West Rail Corridor	Northbound Through	6 (6)	A (A)	24 (21)	6 (6)	A (A)	25 (19)	11 (12)	B (B)	24 (25)
	Southbound Through	6 (6)	A (A)	14 (15)	6 (6)	A (A)	79 (23)	10 (12)	B (B)	16 (21)
Haig Boulevard & Lakeshore West Rail Corridor	Northbound Through	6 (6)	A (A)	11 (19)	6 (7)	A (A)	23 (26)	10 (12)	B (B)	17 (26)
	Southbound Through	6 (6)	A (A)	12 (10)	6 (6)	A (A)	26 (30)	10 (11)	B (B)	14 (18)
Ogden Avenue & Lakeshore West Rail Corridor	Northbound Through	6 (6)	A (A)	25 (27)	7 (8)	A (A)	52 (54)	11 (12)	B (B)	36 (42)
	Southbound Through	6 (6)	A (A)	20 (18)	7 (7)	A (A)	152 (62)	10 (12)	B (B)	25 (22)

A.M. Peak Hour (P.M. Peak Hour)

Table 8-16 – Future Total (2031 & 2041) and Future Total Modal Split Sensitivity (2041) Capacity Analysis

Intersection	Movement of Interest	2031 Total			2041 Total			2041 Total Modal Split		
		Delay (s)	LOS	Queue (m)	Delay (s)	LOS	Queue (m)	Delay (s)	LOS	Queue (m)
Alexandra Avenue & Lakeshore West Rail Corridor	Northbound Through	11 (12)	B (B)	32 (32)	11 (12)	B (B)	31 (31)	11 (12)	B (B)	31 (34)
	Southbound Through	10 (12)	B (B)	19 (23)	10 (12)	B (B)	19 (19)	10 (12)	B (B)	21 (24)
Haig Boulevard & Lakeshore West Rail Corridor	Northbound Through	11 (13)	B (B)	34 (42)	11 (13)	B (B)	40 (44)	11 (13)	B (B)	36 (43)
	Southbound Through	11 (13)	B (B)	34 (42)	11 (13)	B (B)	41 (257)	11 (12)	B (B)	35 (46)
Ogden Avenue & Lakeshore West Rail Corridor	Northbound Through	12 (15)	B (B)	65 (74)	13 (16)	B (B)	67 (74)	13 (14)	B (B)	70 (73)
	Southbound Through	12 (14)	B (B)	57 (70)	12 (15)	B (B)	70 (344)	12 (14)	B (B)	59 (67)

A.M. Peak Hour (P.M. Peak Hour)

8.6 Vissim Microsimulation

TMIG plans to include an update to the VISSIM analysis as part of future phasing and implementation plan analysis efforts, as a greater level of detail regarding land use and individual site statistics becomes available. Confirmation and general acceptance by City Staff of the assumptions and methods applied to the analysis included in this report will inform the fulsome VISSIM analysis.

ACTIVE TRANSPORTATION

Rendering of view south to Lake Ontario via Ogden Green

Active Transportation

The transportation system for Lakeview Village is designed to encourage a shift away from Single Occupant Vehicle (SOV) travel, and to embrace multimodal transportation options with an emphasis on transit and active transportation. This will reduce vehicle trip generation, reduce traffic delays, alleviate congestion, reduce energy consumption and emissions.

The Lakeview street system and the improvements currently in the planning stages for the surrounding transportation network will provide enhanced connectivity for transit, pedestrians, cyclists as well as private vehicles. It is essential to seamlessly link Lakeview Village to the neighbouring communities to achieve a cohesive fine grain network that allows for attractive and competitive route options and travel mode choice. The end result will be a community that will have a highly connected network of streets and routes for flexible and effective transit and active transportation to support walking and cycling.

The Lakeview Village Active Transportation Plan is shown in Figure 9-1.

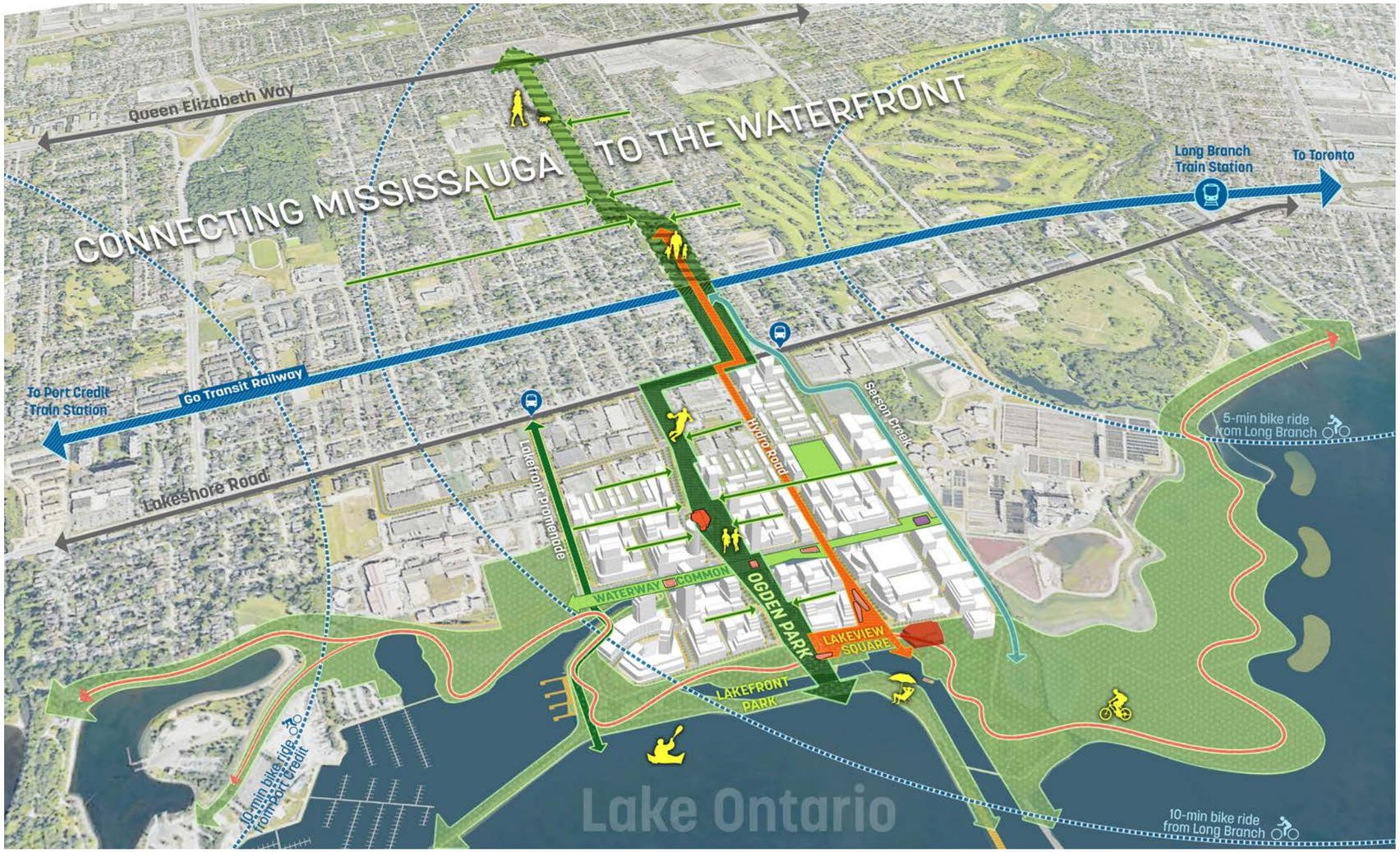

Figure 9-1 – Connecting Mississauga to the Waterfront
Source: Development Master Plan 3.0 (August 2019)

9.1 Pedestrian Facilities

The Lakeview Village development incorporates generous sidewalks and walkways as well as a unified urban design vocabulary and plentiful space for public events.

The character of the pedestrian facilities shall be urban. This not only reflects the nature of the surrounding urban development, but also the fact that there are a variety of existing large parks in the immediate vicinity, such as Lakefront Promenade Park, Douglas Kennedy Park, RK McMillan Park, Marie Curtis Park and AE Crookes Park, that fulfill different functions. The Pedestrian Realm Network will also include trails (e.g. Waterfront Trail) and look-out opportunities on the existing breakwater and piers.

Lakeview Village will integrate a high quality of pedestrian focused public realm throughout the proposed development that emphasizes walkability and a pedestrian scale. The pedestrian connections will provide increased permeability and accessibility. Streets will be designed to incorporate active transportation and provide views and access to the waterfront. Wayfinding signage will be provided throughout the community that directs people to transit, various parks within and adjacent to the waterfront, and to Lakeshore Road.

All streets, specifically Lakefront Promenade, New Haig Boulevard, Street 'A', Street 'B', Street 'D', and Street 'G' will be designed with enhanced streetscapes that may include among other things; adjacent park access, wide sidewalks, street trees, planting, and furniture.

Pedestrian connections will be seen to promote and identify existing and planned trails in Lakeview Village, including municipal connections to the existing Waterfront Trail.

The pedestrian facilities/network will be constructed with the following attributes:

- Pedestrian amenities, such as backed seating, tables, washrooms, water features and waste receptacles shall be of a high quality and readily available;
- Will include high quality, barrier free, AODA-compliant programmable space that can accommodate the needs of users and facilitate socializing, special events and recreation;
- Shall be appropriately linked with off-site pedestrian and cyclist facilities.

The Lakeview Village Pedestrian Plan is shown in Figure 9.2.

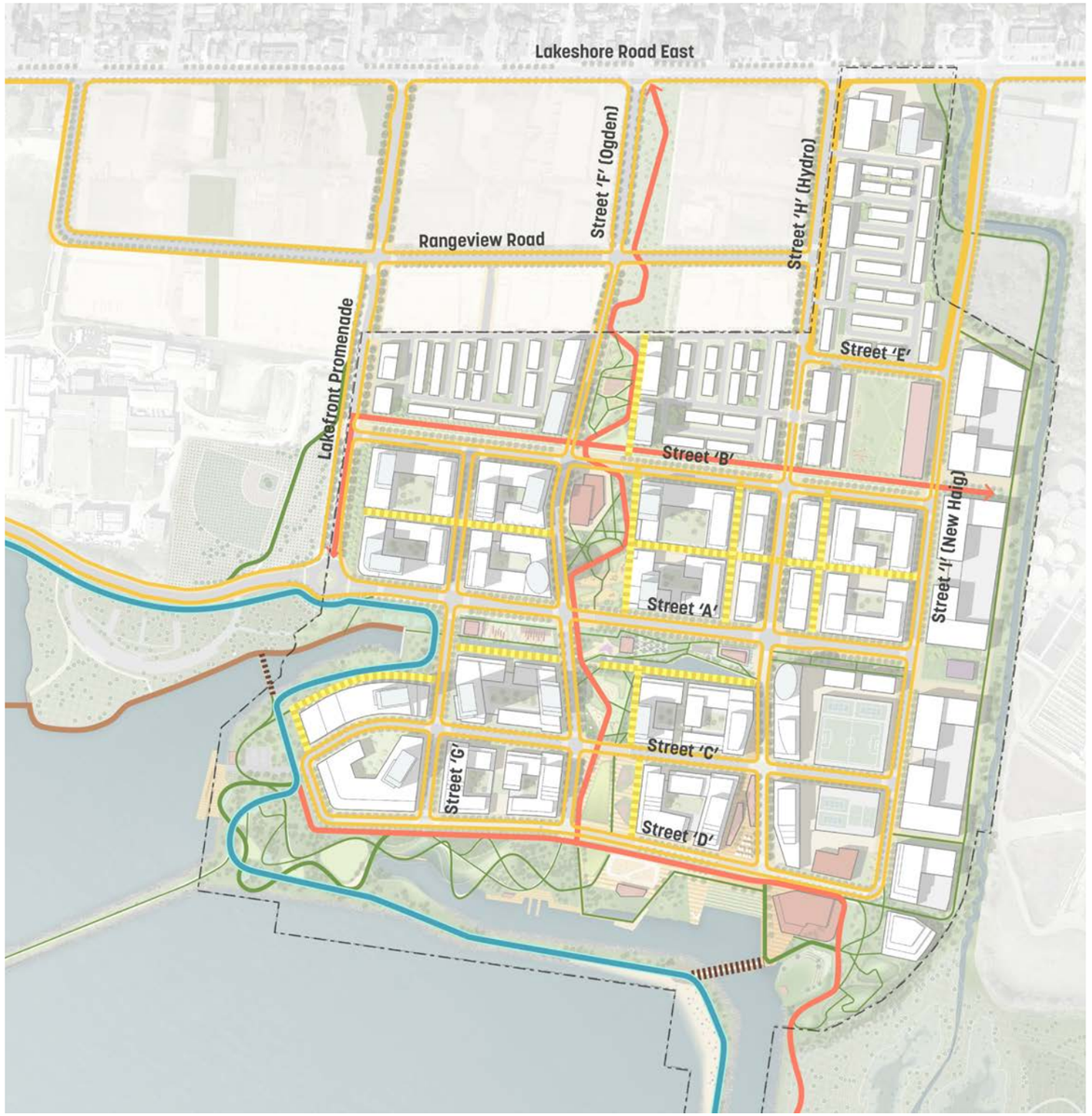

Figure 9-2 – Lakeview Village Pedestrian Plan
Source: Development Master Plan 3.0 (August 2019)

9.2 Cycling Facilities

In addition to new public spaces along the waterfront, the Lakeview Village DMP 3.0 includes a mix of public and open spaces that connect various neighbourhoods throughout Lakeview Village.

Linkages will comprise a variety of open space features and elements, including a hierarchy of park types, neighbourhood courtyard and mews conditions, and character streets. These will combine to form pedestrian and cycling connections.

This approach achieves a core principle of the community which is connectivity, particularly north-south bicycle connections, linking the entire Lakeview community and beyond to the waterfront and other key character districts and neighbourhoods identified within Lakeview Village. This high level of connectivity provides an opportunity to directly link residences to retail and employment uses.

DMP 3.0 proposes a *'cycling network for Lakeview Village that connects into the broader region through the Waterfront Trail. By providing cycle tracks along all north-south connector roads and park space, the district easily connects cyclists from Lakeshore Road to the Lakefront Park. Almost every single road found within Lakeview Village includes a cycle track, and where it is not, bicycle access is provided within the adjacent park space.'*

Cycling facilities to be implemented in the study area network as identified in, but not limited to, Figure 9-3 include:

- Single-sided raised cycle tracks in each direction on Lakeshore Road East;
- Raised single-sided cycle tracks in each direction on Lakefront Promenade, Hydro Road, and Streets 'A, F & I';
- Raised double cycle track on Street 'G';
- Potential on-street bike lanes on Rangeview Road and East Avenue;
- Bike sharrows on all local roads;
- Future Trail connections through green space within the study area running north /south from Lakeshore Road East down to the lakefront and east / west along the lakefront including the Waterfront Trail;
- Bike racks will be installed in all parks as part of the outdoor furniture program, including transit stops, to promote cycling connections throughout Lakeview Village; and
- Metrolinx recommends the introduction of a bike share program to service the Long Branch and Port Credit GO Rail Stations. The Access Plan also suggests the Lakeview planning area as a potential bike share location to work in conjunction with those located at nearby GO Rail Stations.

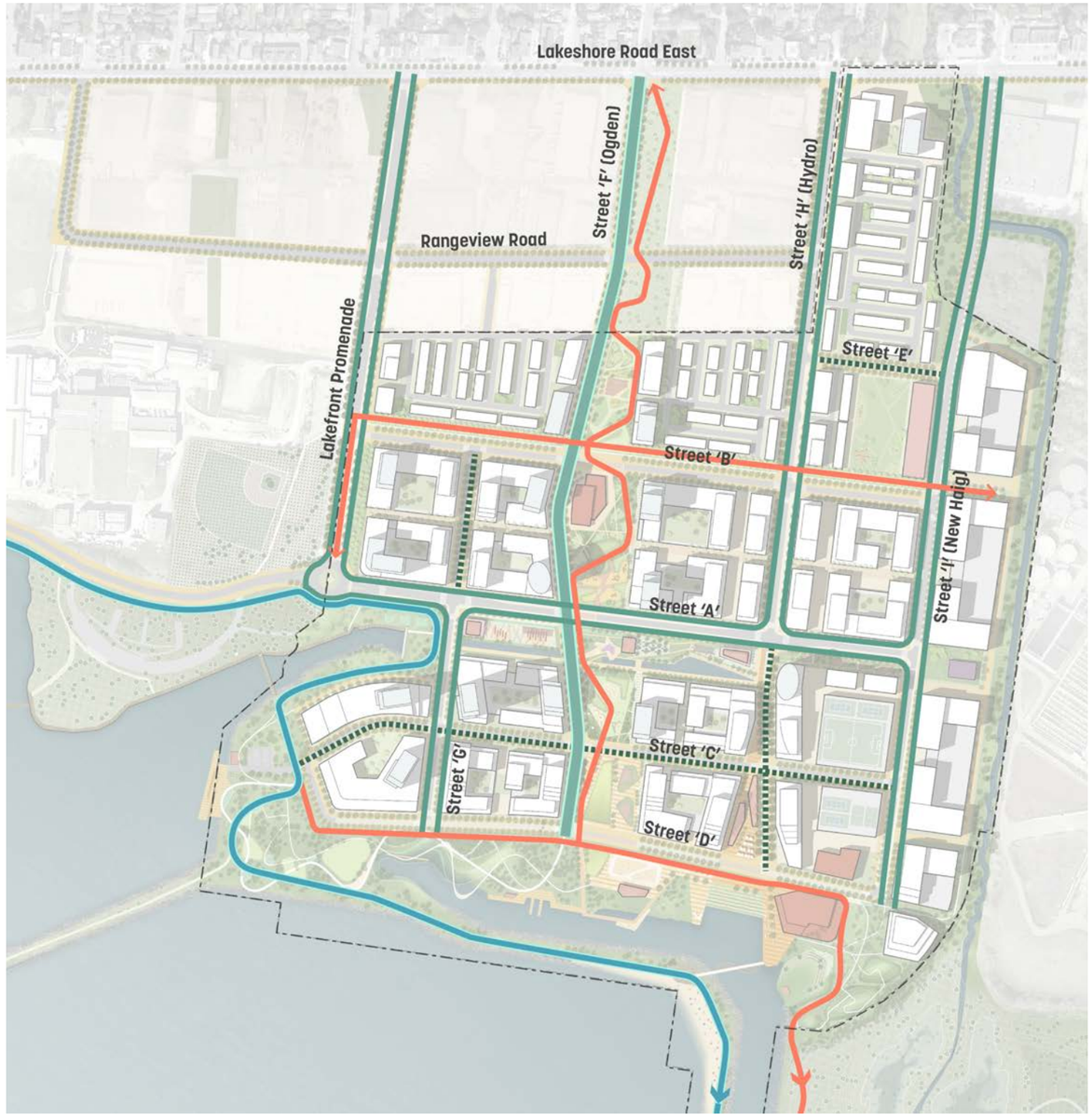

Figure 9-3 – Lakeview Village Bike Plan
Source: Development Master Plan 3.0 (August 2019)

9.3 Trails Plan

An extensive network of parks and open space provides a range of opportunities for attractive views both within Lakeview Village and towards the lake. Important views and viewsheds, combined with linkages to the green corridors will enhance permeability through the village and connectivity between its open spaces and parks system. Throughout the master planning process, these potential view opportunities have influenced the configuration of land uses, building siting, and layout of the street network.

Emphasis has been placed on locating open space amenities along potential view corridors and architectural built form is also located, oriented, and designed to maintain and emphasize views.

A major north-south view corridor (Ogden Park) has been allocated through Lakeview Village, starting at Lakeshore Road East, running through Rangeview Estates and Ogden Green to the Cultural Waterfront. The park system has been strategically aligned with this corridor connecting a series of linear parks perpendicular to the street including several significant parks, including New Aviator Greenway, Waterway Common, and Lakefront Park.

A continuously linked waterfront open space system is at the core of the vision for the Lakeview Village, providing an uninterrupted water's edge connection from east to west, linking with existing park systems on both sides with the new waterfront amenity and the emerging Jim Tovey Lakeview Conservation Area immediately to the east.

A key component of achieving the continuous connection is the linking of the existing Waterfront Trail to the east and west of Lakeview Village, resulting in a complete and improved recreation trail integrated along the shore of Lake Ontario. The trail will provide access to retail, recreational, community, and employment uses just beyond Lakeview Village.

Figures 9-2 and 9-3 illustrate the proposed multi-use trail network and its connectivity with the proposed open space, pedestrian and cycling network, completing a highly connected active transportation network.

The plan conveys 67 acres of land to the City of Mississauga. Much of this remediated land will be converted into a new waterfront park, with multimodal trails that will form part of the Waterfront Trail, and active waterfront spaces. The plan protects public access along the waterfront throughout the length of the property. Figure 9-4 illustrates the Lakefront open space network context.

Figure 9-4 – Open Space Network Context
Source: Development Master Plan 3.0 (August 2019)

TRANSPORTATION DEMAND MANAGEMENT

10

Rendering of Lakefront Promenade at street level

Transportation Demand Management

10

10.1 Objectives

A Transportation Demand Management (TDM) Plan is proposed to guide the provision of viable alternative personal transportation options beyond the single-occupant, private vehicle (SOV). Consistent with the Region of Peel and City of Mississauga Official Plan, this Plan intends to support the development plan by outlining TDM measures and suite of strategies under consideration to promote the use of more active and sustainable transportation modes, respond to the mobility needs of residents, employees and patrons of the site, and reduce dependence on the private automobile, especially SOV travel.

10.1.1 Guiding Principles

City of Mississauga Official Plan

Per the City of Mississauga Official Plan Policy 8.5 "Transportation Demand Management (TDM) measures encourage people to take fewer and shorter vehicle trips to support transit and active transportation choices, enhance public health and reduce harmful environmental impacts. TDM is most effective when supported by complementary land use planning, good urban design and transit improvements." Typical TDM measures highlighted in the City's Official Plan include:

- To encourage TDM strategies that promote transit use and active transportation, and reduce vehicle dependency, single occupant vehicle travel, trip distance and time and peak period congestion.
- To manage parking in intensification area to encourage the use of alternative modes of transportation and the reduction of vehicular congestion;
- To encourage land uses permitted by this Plan that make efficient use of the transportation system and parking facilities during off-peak hours.
- In appropriate areas, to encourage a fee for parking and the separation of parking costs from other costs, such as transit fares, building occupancy and residential unit prices.
- Prior to approval of development applications, particularly those that will generate significant employment opportunities, a TDM plan may be required that demonstrates, among other things, the following:
  - building orientation that supports transit service;
  - minimize distance between main building entrances and transit stations/stops;
  - development that is integrated into the surrounding pedestrian and cycling network;
  - parking facilities designed to provide safe and efficient access for pedestrians and cyclists emanating from the surrounding transit and active transportation network; and
  - secure, conveniently located, weather protected, on-site bicycle storage facilities, and associated amenities such as showers, change rooms and clothing lockers.

As per MOPA89 Policy 13.4.7, Multi-Modal City, an area-wide transportation study is required that will examine TDM.

Region of Peel Official Plan

Policy 5.9.9 of the Region of Peel Official Plan (OP) states "Growth in population end employment in Peel Region has led, and will continue to lead, to increased travel demand through the construction of new roads and the widening of existing roads. Such "supply side" solutions, however, will not be enough in the future. Exclusive dependence on roads is neither sustainable nor desirable. It is necessary to also consider "demand side" solutions, such as Transportation Demand Management measures. While TDM alone cannot be expected to meet the future growth in demand, it is an important component of the range of solutions that will be needed to meet forecast travel demand."

Peel Region TDM objectives include:

- To reduce auto dependency by promoting sustainable modes of transportation;
- To provide a range of transportation services to meet the diverse needs of the population;
- To maximize the capacity of the transportation system to move both people and goods

It is the policy of Regional Council to:

- Encourage area municipalities to:
  - Provide land uses and site design which foster the use of sustainable modes of transportation;
  - Promote infrastructure to encourage teleworking;
  - Promote a balance of jobs and housing in communities to reduce the need for long distance commuting; and
  - For new development in designated greenfield areas, create street configurations, densities and an urban form that support walking, cycling and the early integration and sustained viability of transit services and create high quality public opens spaces with site design and urban design standards that support opportunities.
- Work with all levels of the public and private sectors to develop programs that place primary consideration on the reduction or elimination of trips and the increased use of sustainable modes of transportation and to develop programs for implementing these and other travel demand management strategies.
- Work with the area municipalities, local Transportation Management Associations and school boards to evaluate and measure to progress of TDM programs and to develop new innovative strategies and initiatives.
- Work with the public and private sectors to develop and support outreach and marketing programs that promote sustainable transportation alternatives, such as active transportation and transit, to affect changes in peoples' travel behaviour and to encourage increased use of these alternatives.

- Work with the area municipalities to promote and support the development and implantation of TDM strategies and programs within the Regional and area municipal governments.
- Encourage area municipalities, local Transportation Management Associations and the private sector to develop parking management strategies that make more efficient use of parking resources and that encourage the use of sustainable modes of transportation.
- Encourage area municipalities to update their parking and zoning by-laws to support and facilitate transportation demand management measures.

Region of Peel Sustainable Transportation Strategy

The Sustainable Transportation Strategy (STS), approved by Regional Council in February 2018, sets a goal of a 50% sustainable mode share by 2041.

The Peel Region Sustainable Transportation Strategy provides a framework for how the Region will:

- increase the current 37% share of trips by walking, cycling, transit, carpooling and telework in Peel Region, to achieve a 50% sustainable mode share by 2041;
- accommodate growth in a way that prioritizes environmental, societal and economic sustainability; and
- contribute to a Regional transportation system that is safe, convenient, efficient, multi-modal, well-integrated and sustainable.

The Region's STS includes "ambitious mode share targets for transit, walking, cycling, carpooling and telework in 2041, aiming to maximize the role of sustainable modes in serving the Region's projected 40% growth in travel demand. Achieving these targets will require substantial improvements in major transportation infrastructure (notably facilities for rapid transit, walking and cycling) and services (notable regional and local public transit services, and maintenance of walking and cycling facilities)".

The STS has two accompanying implementation plans, one focusing on active transportation and another focusing on transportation demand management. With their 2018-2022 timelines, the implementation plans lay out the short-term priorities of the STS, such as:

- the locations of new and upgraded walking and cycling infrastructure;
- encouraging and supporting cycling and walking to and from schools, transit hubs, and other community destinations;
- implementation of new carpool lots and targeted carpooling promotion;
- the development of a teleworking toolkit; and
- guidance for new development.

Key themes for long-term action in the STS include:

- Strengthen the multi-modal function of Regional roads;
- Promote walking across the Region;
- Provide comfortable, continuous cycling facilities;
- Improve connections to transit; and
- Explore new technologies and business models to support carpooling.

10.2 Transportation Demand Management

Transportation Demand Management can be defined as a broad set of strategies that strive to either reduce or reallocate private SOV travel to achieve benefits such as reduced roadway congestion, improved air quality, reduced energy use and greenhouse gas emissions, reduced parking demand, improved public health for those biking or walking, and reduced commuting and travel costs.

TDM may include the following types of strategies:

- Physical – The infrastructure required to support mode shift or trip reduction, e.g., parking reductions, pedestrian and bicycle infrastructure, transit facilities, on-site amenities;
- Operational – Actions to facilitate mode shift or trip reduction, e.g., ride-sharing/matching software, transit services, real-time travel information;
- Financial – Using economics to affect trip choice, e.g., parking pricing, cash-out parking, pre-tax or discounted transit passes; and
- Organizational – Efforts that bring activities and institutions together to implement TDM, e.g., education and information distribution, employer promotion of telework or alternative work schedules, land use planning, and transportation management associations (TMA) such as Smart Commute.

TDM promotes the strategies listed above to reduce number of single-occupant vehicles and reduce private vehicle dependency to create a sustainable transportation system by encouraging non-auto modes of travel. Other benefits of TDM strategies include the following:

- Reduced auto-related emissions to improve air quality
- Decreased traffic congestion to reduce travel time
- Increased travel options for businesses and commuters
- Reduced personal transportation costs and energy consumptions
- Support Region's Sustainable Transportation Strategy (STS) objectives

The combined strategies and benefits listed above will assist in creating a more active and liveable community through improvements to overall active transportation facilities for the local residents, businesses and surrounding community.

TDM is most effective when it provides alternatives to driving alone that are attractive from a time, cost, and/or convenience standpoint. Long trip distances, localized congestion, limited parking at some destinations, and rising fuel costs are all factors potentially supporting TDM in Mississauga, as are compact, walkable communities, and environmental values held by residents.

10.3 TDM Opportunities Identification

10.3.1 Public Space Connectivity

The Lakeview Village DMP 3.0 includes a mix of public and open spaces that connect various precincts and neighbourhoods throughout Lakeview Village.

Throughout the Plan, a comprehensive approach to the layering of parks and open space features is proposed providing a robust network of green and water related public and private outdoor spaces that result in significant north-south and east-west linkages throughout Lakeview Village. In addition to the linkages planned throughout the Village, a variety of open space features and elements, including a hierarchy of park types, neighbourhood courtyard and mews conditions, and character streets, will be encompassed in the Lakeview Village DMP 3.0. These will combine to form pedestrian and cycling connections, as well as view corridors, that deliver a network of distinctive cultural, multifunctional open spaces with integrated innovative sustainable (LID) features.

This Plan achieves these core principles of public space connectivity in the community through the north-south connections, linking the entire Lakeview community and beyond to the waterfront and other key character precincts and neighbourhoods identified within Lakeview Village. Figure 9-4 and 9-5 (Section 9.3) illustrates the proposed green network of public and open space.

10.3.2 Cycling

The City of Mississauga 2018 Cycling Master Plan envisions a comfortable, connected and convenient cycling network that includes separated bike lanes, cycle tracks, multi-use trails, conventional bike lanes and shared routes.

The report identifies the following proposed cycling network projected long term over a 20-year planning horizon:

- Cycle tracks / separated bike lanes - bicycle lanes that are physically separated from other traffic lanes by flexible posts, planters, parking stalls, curbs, or other barriers. Reserved for bicycle use only.
- Bike lanes - signs and pavement markings. Reserved for bicycle use only.
- Multi-Use Trails (boulevard) - paved trails in the boulevard beside major roadways, shared by cyclists and pedestrians.
- Multi-Use Trails (parks) - paved trails in park lands, shared by cyclists and pedestrians.
- Shared Routes - a route shared between cyclists and motorists. Includes signs and sharrow pavement markings. May also include traffic calming, low speed limits and design elements to prioritize bicycles.

The aforementioned cycling facilities have been implemented in the study area network as identified in Figure 9-3 (Section 9.2). Facilities include:

- Single-sided raised cycle tracks in each direction on Lakeshore Road East;
- Raised single-sided cycle tracks in each direction on Lakefront Promenade, Hydro Road, and Streets 'A, F & I';
- Raised double cycle track on Street 'G';
- Potential on-street bike lanes on Rangeview Road and East Avenue;
- On-street bike routes delineated with sharrows on all local roads;
- Future Trail connections through green space within the study area running north /south from Lakeshore Road East down to the lakefront and east / west along the lakefront including the Waterfront Trail; and
- Bike racks will be installed in all parks as part of the outdoor furniture program, including transit stops, to promote cycling connections throughout Lakeview Village.

10.3.3 Transit (City of Mississauga)

Local services provide the greatest opportunity to drive ridership at the neighbourhood level. The future Lakeview transit route will be very similar to many of the existing local routes, operating at similar levels of service and headways. Transit riders will use the existing routes to access local destinations, such as schools or shopping, and for longer trip connections to other corridor routes, riders will use the GO Stations (Port Credit & Long Branch), TTC, and the future Hurontario-Main LRT.

The long-term local transit plan utilizes the planned major collector road network in the north-south and east-west directions. These roads will form part of a circuitous route accessing Lakeshore Road East between Lakefront Promenade and Street 'I' (north south), with an internal east-west connection via Street 'A'. In the interim, transit routing will be located on Hydro road until the Street 'I' connection to Lakeshore Road East is fully realized.

10.3.4 Bus Rapid Transit (BRT)

City Council endorsed the Lakeshore Connecting Communities Transportation Master Plan (LCC Study) in June 2019. The LCC Study is considering Bus Rapid Transit (BRT) along Lakeshore Road through the Lakeview community. The study provides an opportunity to develop improvements along the major arterial and other transit supportive corridors so that people living or working in Lakeview Village have an attractive and competitive alternative to private auto travel.

The proposed infrastructure improvements envision BRT service on Lakeshore Road between Mississauga Road and East Avenue. Within proximity of the Lakeview community, express buses in dedicated median lanes is preferred from East Avenue to Deta Road, the BRT service will continue to Long Branch GO Station in mixed traffic. The LCC Study identifies median express bus stops within dedicated transitway at Lakefront Promenade and Haig Boulevard on Lakeshore Road East.

Lakeview Village plans to continue to work with partners from other levels of government, including Metrolinx and the private sector, to explore sustainable transportation solutions. The area's proximity to existing and expanded all day two-way GO Rail transit service, proposed higher order transit along Lakeshore Road East and future enhanced transit into the site will provide increased levels of service and significant person carrying capacity enhancements.

10.3.5 Sidewalk Connectivity

Lakeview Village's interconnected street/block layout in a modified grid pattern is designed to facilitate movement and permeability throughout the pedestrian-scaled village. With a primary emphasis on pedestrian comfort, smaller block lengths and convenient direct pedestrian linkages reinforce a walkable, urban village environment. Neighbourhood/precinct amenities such as parks, transit stops, and greenways are located within a reasonable walking distance, which corresponds with an approximate five-minute (or 400-metre) walking radius. With an emphasis on permeability for pedestrians, the modified grid layout reduces travel distance, and increases the opportunity for a variety of experiences.

All streets, specifically Lakefront Promenade, Street 'A', Street 'B', Street 'G' and Street 'D', will be designed with enhanced streetscapes that may include among other things; adjacent park access, wide sidewalks, street trees, planting, and furniture.

Pedestrian connections will be seen to promote and identify existing and planned trails in Lakeview Village, including municipal connections to the existing Waterfront Trail.

The pedestrian facilities/network will be constructed with the following attributes:

- All privately owned, publicly accessible elements of the pedestrian network will be safe, secure and accessible to the public.
- Pedestrian amenities such as backed seating, tables, washrooms, water features and waste receptacles shall be of a high quality and readily available;
- Will include high quality, barrier free, AODA-compliant programmable space that can accommodate the needs of users and facilitate socializing, special events and recreation;
- Shall be appropriately linked with off-site pedestrian and cyclist facilities.

10.3.6 Trails Plan

A key component of achieving the continuous connection is the linking of the existing Waterfront Trail to the east and west of Lakeview Village, resulting in a complete and improved recreation trail integrated along the shore of Lake Ontario.

The plan conveys approximately 67 acres of land to the City of Mississauga. Much of this remediated land will be converted into a new waterfront park, with multimodal trails that will form part of the Waterfront Trail, and active waterfront spaces. The plan protects public access along the waterfront throughout the length of the property.

10.3.7 Car Share

The transportation system for Lakeview Village will be designed to encourage Smart Commute, Ride Share, and Carpooling. This will reduce vehicle trip generation, reduce traffic delays, alleviate congestion, and reduce energy consumption and emissions. However, the owner in collaboration with the property manager will investigate the provision of a shared vehicle parking space on the subject property. The availability of a shared vehicle would allow future residents who would not normally need a vehicle for daily activities to be comfortable with the decision not to own a vehicle, as access to a vehicle would be available. There are several car share companies operating within the City of Mississauga that can provide this service.

10.4 Proposed TDM Measures

The TDM approach proposes a mix of hard and soft measures to meet the objectives and targets to reduce vehicular demand and encourage passenger, transit, cycling, and walking. Details are reviewed with each of the following TDM measures.

10.4.1 Active Transportation

Lakeview Village will be a healthy community with pedestrian friendly streets and neighbourhoods, amenities within walking distance, an active lifestyle encouraged through bike lanes, trails, parks, waterfront facilities, as well as a detailed retail program and associated cultural amenities. Further detail is provided in Section 9.

10.4.2 Pre-construction

The developer(s) to consider providing content and materials for inclusion into marketing material to distribute to prospective residents on available travel options (i.e. walking, cycling, carpooling and transit).

10.4.3 Information Distribution

City of Mississauga and Metrolinx in collaboration with the developers to provide contents and materials for inclusion into an information package for all new residents on available pedestrian trails, cycling, and transit facilities and carpool options including community map, regional and municipal transit (MiWay) route maps, GO Transit route map and schedules, and information on the City of Mississauga Smart Commute organization and its programs.

10.4.4 Commuter Options Brochure

The developer(s) to consider a customized commuter options brochure for new residents. This brochure will contain details on a variety of travel options such as: local/regional transit, parking information, location of HOV lanes and cycling routes and bicycle parking.

10.4.5 Transit Incentives

Given the location of the site is adjacent to transit options, the developer(s) to consider providing each residential dwelling unit with a pre-loaded PRESTO card (value to be determined) as an incentive to promote transit usage.

The developer shall consider advising all potential purchasers of the existing transit services within proximity of the development. This includes current and potential transit routes, bus stops and shelter locations. This shall be achieved through distribution of information/marketing material (MiWay route maps, future plan maps and providing MiWay website contact information) at the rental office.

10.4.6 Shuttle to/from GO Stations

Local public transit within the vicinity of the Lakeview Village site is currently operating at satisfactory service levels, however, additional service from Lakeview Village to Port Credit and Long Branch GO Stations would support and promote the use of local transit services for short and long-distance travel by residents, employees and visitors. The developer(s) shall consider a shuttle service loop operating between the development and nearby GO Stations would assist in discouraging car usage and ownership for Lakeview Village residents who would otherwise travel by car to access the Lakeshore West GO Rail service. A shuttle service loop to connect residents to Lakeshore Road East BRT stops would also be advantageous, providing a convenient connection to MiWay's transit system until transit demand within Lakeview Village is able to support a local MiWay bus route through the development.

The shuttle service would also increase awareness of the utility, practicality and viability of transit travel options for both commuting and recreational travel. The shuttle service would connect residents to the wider transit network to access a range of locations across the city and region and would reduce parking demand at the Port Credit and Long Branch GO Stations. In addition to providing direct travel to the Lakeshore West GO Rail route, the Lakeview Village shuttle servicing the Port Credit GO Station would also provide a convenient connection to the future Hurontario Main LRT service terminating at Port Credit.

10.4.7 Parking

10.4.7.1 Reduced Parking Provisions

Obtaining zoning by-law permissions to permit reduced parking rates and / or adopt maximum parking standards should and will be considered throughout the development at the Draft Plan of Subdivision and/or Site Plan Application stage, in conjunction with the provision of enhanced transit and active transportation facilities. Mixed-use developments, that blend / share parking supply strategies should also be encouraged / situated where appropriate throughout the development. The extent of the parking reductions shall be considered through specific zoning applications and site-specific parking demand proposals, but should also consider the 'destination effect' of the proposed Lakeshore community facilities.

10.4.7.2 Unbundled Resident Parking

The developer should also consider separate (or unbundled) resident parking to separate the cost of parking from the cost of each residential unit. This will make visible the often-hidden cost of driving and encourage residents to make informed active transportation decisions that may create opportunities for the use of more sustainable modes of transportation.

Indeed, waiting on the results of pre-sale interest before deciding on the ultimate parking provision for a given building(s) might be one way to try and avoid an over-supply of parking spaces. We see the parking supply evolving as Lakeview Village develops and as broader transit initiatives that affect resident's travel patterns come on line, but at the same time it will be important to encourage alternative modes of travel at the outset of development so that such travel habits are formed early.

10.4.7.3 Public Parking

Parking TDM strategies include reducing the available supply of public parking and increasing the cost of same. Parking fees are a disincentive TDM strategy implemented to discourage the use of single occupancy vehicles in the area. Limiting the amount of free parking may encourage individuals to take transit, walk, cycle, or carpool with friends or co-workers.

The presence of hourly parking pricing also reduces dwell time and encourages faster turnover of vehicles, which increases the capacity for vehicles to enter and exit Lakeview Village.

10.4.7.4 Employee Parking Cash Out

Employers offering free or subsidized parking to employees can implement parking cash out. Under a parking cash out program, an employer gives employees a choice to keep a parking space at work, or to accept a cash payment and give up the parking space.

Parking cash out programs are one of the most effective means to encourage employees not to drive alone to work. Cash out programs are an effective means of allocating scarce parking or managing a growing demand for more parking.

Parking cash out programs benefit employees because they allow employees to choose whether or not to continue driving alone. Employees perceive these programs as fair since nobody is forced to stop driving or give up free parking, but those who do are rewarded financially.

Although any employer who pays for parking can implement parking cash out, it works best for employers who lease, rather than own, parking.

10.4.8 Technology Trends

The goal is to build effective connections between people and places through a street network that accommodates diverse ages and abilities by using multiple travel modes and shared mobility options, and a high-quality digital network providing equitable connectivity.

This will be achieved through a focus on:

- Street Network
  - Street network designed to accommodate all modes of transportation with a strong emphasis on pedestrian and bicycle corridors.
  - Street network designed to accommodate people with a diverse range of age and ability.
- Mobility
  - Shared mobility options are to be available through shared car and shared bicycle facilities.
  - A shuttle bus service (potentially using alternative fuels or a hybrid / electric) will be available to assist residents and employees in accessing the higher order public transit on Lakeshore Road until such time when public transit is extended into the community.

Beyond traditional bus transit methods, new technologies and initiatives are presenting alternative options that focus on first and last mile issues and have recently emerged as real considerations for new community development. These include micro transit

options, shared private services (such as uberPool or Lyft), and even autonomous vehicle services. Regardless of the ultimate (or phased-in) method selected, the focus will remain on introducing a transit model that will promote significant increases in the modal split to transit and away from private car use.

10.4.8.1 Ride-share / Carpooling / Smart Commute

The transportation system for Lakeview Village will be designed to encourage Smart Commute, Ride-share, and carpooling to reduce vehicle trip generation, traffic delays, energy consumption and emissions, and to alleviate congestion.

Carpooling is a travel option that allows commuters to share journeys, thereby reducing the travel costs for each participant, with benefits of savings on tolls, fuel costs and vehicle wear and tear. Additional benefits include the travel option being environmentally friendly and sustainable with reduction in carbon emissions, congestion, parking requirements and driving stress.

Smart Commute is a carpool option available in the Greater Toronto and Hamilton Area that helps local employers and commuters explore different commuting choices like carpooling, cycling and transit. It provides incentives allowing carpools registered with Smart Commute reserved parking spaces provided at some business, offices and other institutions.

Carpooling can be used for everyday work commutes, elderly residents, as well as people with physical limitations who may be prevented from getting to their destination on their own. In these instances, carpooling and shuttle services are important transportation options. The marketing of these opportunities and availability of the services should be provided in further detail to better inform these individuals.

Ride-Sharing programs should be encouraged and explored within Lakeview Village. Operation and management of a ride-share program on-site could include providing information and communication items that outline the availability of the on-site ride-share services as well as broader taxi / Uber / other ride provider service networks.

10.4.8.2 Car-Share Program

Car-share services allow members to make use of a vehicle on a daily / hourly basis as required and offers such access without the need for residents / tenants to own a vehicle themselves. This, in turn, reduces the need for residents / tenants to own a private vehicle which lowers parking space needs and also contributes to a reduction in automobile use for day-to-day commuting activity.

The introduction of car-share programs to the Lakeview Village development should be considered, as car-share companies already operating in Mississauga, such as Enterprise CarShare and ZipCar, do not currently have car-share locations within vicinity of the site. The developer and City should consider the feasibility and benefits of locating car-share facilities within Lakeview Village, and potential credits towards reduced parking provisions.

10.4.8.3 Electric Vehicle Charging

A portion of residential and commercial parking spaces throughout Lakeview Village should be outfitted with electric vehicle charging capabilities. Providing electric vehicle charging stations / parking spaces will assist in promoting the use of electric vehicles and falls in line with the sustainability goals outlined in the Lakeview Village Development Master Plan.

10.4.9 Cycling

10.4.9.1 Pedestrian and Bicycle Network Facility Network Map/Exhibits

People who cycle for recreational purposes are good groups to target as potential commuter cyclists. They have access to a bicycle and may already be familiar with the City's network of cycling and trail facilities. Many residents, however, may have simply never tried cycling and could be unfamiliar with appropriate routes, techniques and advice for commuting to work / school by bike. This could be reinforced through a Bicycle Network Way-finder Map for residents that could be handed out as a pamphlet during regular communications throughout the year (i.e. Board meetings.).

Short-distance commuters could be targeted with messages focusing on the convenience, cost and health benefits of walking or cycling to work. In addition, practical advice regarding route selection, bike parking, and remaining active in cold or wet weather would be useful and affective. This information could be provided to residents during regular communications throughout the year

Elderly residents as well as people with physical limitations may be prevented from getting to their destination on their own. In these instances, carpooling and shuttle services are important transportation options. The marketing of these opportunities and availability of the services should be provided in further detail to better inform these individuals.

10.4.9.2 Bicycle Parking

The provision of bicycle parking throughout Lakeview Village will encourage the use of bicycles as an alternative travel mode beyond the private automobile. Both long-term and short-term bicycle parking will be required to serve the needs of both residents and visitors to Lakeview Village.

Secure, readily accessible long-term bicycle parking should be available in all residential buildings, and, dependent on demand, allowances should be made for long-term parking in commercial buildings for employees as well. Short-term bicycle parking should be made readily available throughout the site within close proximity to building entrances, open spaces, cultural hubs, and retail locations.

Off-street and below ground parking facilities for bicycles will be provided as a component of the new development. City of Mississauga, in collaboration with the developers, to provide:

- Comfortable, continuous cycling facilities
- Improve year-round maintenance of cycling facilities
- Expand bicycle parking and end-of-trip facilities
- Promote cycling across the City and Region

The short-term and long-term bicycle parking requirements for both residential and non-residential land uses will be identified in the by-law amendment specifically tailored to the Lakeview Village development. A calculation of the specific number and the type of bicycle parking spaces required for each phase (or block, or building) of development would be more appropriate at the individual site plan application stage.

10.4.9.3 Bike Repair Stations

Public bike repair stations will be located throughout the site to allow cyclists to perform repairs should the need arise and will provide items such as common tools and an air pump. These public bicycle repair stations would be best located adjacent to main bicycle parking areas. A bicycle repair shop/supplier of bicycles and accessories could be chosen as one of the retailers in Lakeview Village so that residents are not required to travel off-site for more involved repairs.

10.4.9.4 Bike Share Systems

In their 2016 GO Rail Station Access Plan, Metrolinx recommended the introduction of a bike share program to service the Long Branch and Port Credit GO Rail Stations. The Access Plan also suggests the Inspiration Lakeview planning area as a potential bike share location to work in conjunction with those located at nearby GO Rail Stations.

Recognizing the current deficit of bike share programs in the City of Mississauga, Metrolinx recommended that the City and Bike Share Toronto/Toronto Parking Authority investigate the potential expansion of Bike Share Toronto operations and infrastructure beyond city limits into the Long Branch, Lakeview Village, and Port Credit areas.

At the time of this report, the western most Bike Share Toronto station is located at Humber Bay Shores Park along the Waterfront Trail. If Bike Share Toronto service were to be extended to Lakeview Village in Mississauga, there is great potential to place additional Bike Share stations along the Waterfront Trail to provide a full linkage to existing service for bicyclists.

The City could also work with SustainMobility, a non-profit social enterprise, to expand their existing CycleLoan bike share program in Mississauga. CycleLoan uses a turnkey bicycle fleet program that seeks to encourage employees to use active, healthy, and sustainable transportation.

At present, Mississauga does not have a municipally-operated bike share system. Should the City seek to create a bike share program, Lakeview Village's high connectivity to the Waterfront Trail and future bicycle lanes along Lakeshore Road East to the north of the site make it an ideal launching location for such a program.

10.4.9.5 Shower and Change Facilities

Provisional upon operational feasibility, to encourage tenants / employees to cycle for their commute, employees should be provided with a place to shower, change and / or store clothes (commuters who cycle may often arrive wet, dirty or sweaty).

10.5 Trip Reductions

The potential impacts of proposed TDM measures on the modal split shift in the Study's trip generation assumptions in Section 7.3 is supported by evidence

Table 10-1 – Trip or VMT Reductions from Literature and Other Practice Examples

TDM Measure	Source	Percent Trip or VMT Reduction
PHYSICAL		
Increase local/neighborhood density	CAPCOA	0.8-30%
Increase location efficiency (CBD or infill site)	CAPCOA	10-65%
Increase diversity (mixed-use area)	CAPCOA	9-30%
Improve design of development	CAPCOA	3-21%
Bus stop/shelter/improvements	DelDOT	0.5-1%
Transit shelter	Sacramento	2%
Design site to support transit	DelDOT	1-2%
Bicycle storage	DelDOT	0.5%
Bicycle showers and lockers	Sacramento	2-5%
Bicycle paths	DelDOT	0.5-1%
All bike facilities	CAPCOA	1-5%
Pedestrian pathways	DelDOT	0.5%
Pedestrian network improvements	CAPCOA	0-2%
Parking management (charging, limiting, cash-out)	DelDOT	2-5%
Limit parking supply	CAPCOA	5-12%
On-site amenities	DelDOT	0.5-2%
OPERATIONAL		
Flextime	Berkeley	<4%
Compressed work week	CAPCOA	0.1-3.8%
Telecommuting	CAPCOA	0.2-5.5%
Meeting guidelines to support CP/VP and transit	DelDOT	0.5%
Preferential parking for carpools and vanpools	DelDOT	0.5-1%
Preferential parking	Sacramento	5%
On-site ridematching	ORDEQ	1-2%
Provide or contribute to shuttle service	DelDOT	1.0-3.5%
Vanpool or shuttle service	CAPCOA	0.3-13%
On-site carsharing	Berkeley	<2%
Combined services	Fairfax	1-10%

TDM Measure	Source	Percent Trip or VMT Reduction
FINANCIAL		
Provide value incentive/disincentive	DelDOT	0.5-2%
Gifts/awards for alternative mode use	ORDEQ	0-3%
Parking pricing (office), unbundle parking costs (residential)	Berkeley	5-40%
Parking pricing ($1-$6 per day)	CAPCOA	0.5-20%
Parking pricing	N/N	20-30%
Parking pricing	Sacramento	10%
Parking management program (charging, limiting spaces, cash-out)	DelDOT	2-5%
Parking cash-out	CAPCOA	0.6-7.7%
Parking cash-out	ORDEQ	2-9%
Unbundle parking costs	CAPCOA	2.6-13%
Subsidized/discounted transit	CAPCOA	0.3-20%
Combined financial incentives	Fairfax	1-15%
Combined financial incentives	N/N	8-18%
ORGANIZATIONAL		
Marketing/information program	DelDOT	1-3%
Marketing/information program	CAPCOA	0.8-4%
Join a TMA	DelDOT	2%
Join a TMA	Sacramento	5-10%
Coordinate with other employers	DelDOT	1-2%
Combined information/support	Fairfax	<3%

on reductions in vehicle-trips from a variety of TDM measures.

Table 10-1 presents a summary of trip reductions assigned by other municipalities (specifically in the U.S.A.), as well as evidence on reductions in vehicle-trips and/or vehicle miles of travel (VMT) from a variety of TDM measures, as taken from literature sources. Literature sources are provided in Appendix O.

Some sources provide ranges of effectiveness, recognizing that the effectiveness of individual strategies can vary widely depending on factors such as the geographic context, site characteristics, and level of application.

The California Air Pollution Control Officers Association, Quantifying GHG Mitigation Measures (2010), describes VMT as follows:

This source reports impacts in terms of VMT reductions, not trip reductions. It is included because it provides a recent comprehensive review of the literature on VMT impacts of TDM, transit, land use, and other transportation measures. The VMT reductions are often – but not always – proportional to trip reductions. For example, VMT reductions associated with compact land use are due to shorter trip lengths as well as non-auto trips. Walk and bike improvements will give proportionally smaller VMT reductions than trip reductions, since walk and bike trips are typically shorter than driving trips. VMT reductions for ridesharing and vanpooling may exceed trip reductions on a percentage basis, since these trips tend to be longer than average.

As listed above in Table 10-1, a variety of TDM measures provide varying degrees of vehicle trip rate reductions. The recommended trip rate reductions vary depending upon the area type/geographic context, reflecting the fact that it is easier to reduce vehicle trips in areas with a mix of uses in close proximity to competitive, convenient transit service. Different land use types may benefit from different sets of TDM measures.

Given the sensitivity of the residential trip generation based on the assumptions in Section 7.3, particularly the proportion of trips made during each peak hour by residents, the proposed TDM measures to be implemented within Lakeview Village further supports the multi-modal site trip generation methodology and provides some justification to the proposed auto-driver trip percentage (i.e. trip reduction) and the estimated total vehicular volume generated by Lakeview Village.

10.6 Implementation and Compliance

The majority of the proposed transportation demand management measures are classified as 'hard' measures, such as pedestrian infrastructure, electric vehicle charging stations, bicycle parking and repair stations, and shower and change facilities. These will be the responsibility of the developer, as these measures will be constructed as a part of the Lakeview Village development.

The implementation of other transportation demand management 'soft' measures discussed earlier, such as the commuter options information brochure, transit initiatives, and ride-sharing programs, will be directed by City staff, applicable transit agencies, and the developer and property managers. However, all costs are to be borne by the applicant.

Different parties may be responsible for implementing different types of strategies.

- Physical strategies are typically implemented by the developer (as part of new development).
- Operational strategies may be implemented by a property management company, tenant, or association of tenants (e.g., local ride-share or car/vanpooling arrangement). They may also be implemented by off- site service providers, such as a transit agency, ride-share brokerage, carshare or bikeshare operator, or Smart Commute serving businesses and institutions in a defined geographic area.
- Financial strategies may be implemented by a property owner or manager (e.g., parking pricing), business (e.g., subsidized transit passes for employees), or by the service provider.
- Organizational strategies may be implemented from any level (from a business or property manager to a municipal agency) and often involve cooperation across multiple agencies.

It is proposed to reduce the Lakeview development's estimated trip generation by incorporating TDM measures in the design of the project, and/or by establishing commitments for the property owner or manager to continue to implement TDM measures serving occupants of the site.

Any provisions for monitoring and enforcing compliance with these TDM measures may be subject to development permit conditions of approval. This guidance recommends reporting to track implementation of commitments at the end of the first and identified subsequent years after an occupancy permit is issued, at which time the overall effectiveness of the TDM measure should be evaluated and adjustments made if necessary.

A municipal land use permit, could establish any actions that may be required to monitor compliance with the TDM commitments set forth in the permit, including monitoring actions. Such actions could include TDM Implementation Progress Reports at the end of the first year and at identified subsequent years after an occupancy permit is granted. A TDM Implementation Progress Report could include:

- Identify TDM activities that were undertaken during the reporting period;
- Provide any available evidence (quantitative and/or qualitative) on their effectiveness;
- Identify any committed TDM activities that were not undertaken, and explain why not; and
- Note any recent or anticipated changes to TDM activities.

A review of the TDM report should be conducted at established intervals after the project is completed, or at an agreed upon occupancy. If TDM measures are determined to be consistently and effectively implemented, further TDM Implementation Progress Reports may not be required. If TDM measures are not being implemented or are not found to be effective, options for further action should be considered.

If the property manager and/or tenants are members of a local Transportation Management Association (TMA) such as Smart Commute Mississauga, the TMA could be a resource to assist with producing the TDM Implementation Progress Report. Smart Commute monitors membership, maintains commuter profiles for participating organizations, and conducts implementation and mode share surveys. A TMA program report could be attached as part of the progress report. The progress report could also include information on any measures that were committed to in addition to TMA membership.

10.7 TDM Monitoring and Assessment

10.7.1 Site Assessment

The City of Mississauga should consider scheduling an onsite assessment with the property manager of each new development to understand infrastructure accessibility of all commuting modes and surrounding land uses (trails and cycle lanes etc.). The review will help guide cost-effective transportation strategies that reduce auto trips.

10.7.2 Baseline Commuter Survey

The City of Mississauga in collaboration with the property managers to consider conducting a confidential transportation survey amongst all tenants in the proposed buildings. The comprehensive survey will provide a measure of current commuter traffic patterns, modes of transportation, behaviours and perceptions for the new buildings.

Results will also assist in identifying the demand for sustainable transportation options and opportunities to provide better site access and reduce auto trips (such as, a resident initiated car-pooling program).

10.7.3 Follow-Up Commuter Survey

The City of Mississauga in collaboration with the property managers to consider conducting a follow-up TDM survey at the end of the first year and the third year after an occupancy permit, or two years after the baseline commuter survey. Results will identify areas of success and improvement for sustainable options for the development and surrounding area. A revised work plan should be developed with strategies to improve sustainable transportation that meet the needs of the residents.

10.7.4 Monitoring Effectiveness of TDM Measures

After construction, the effectiveness of the TDM measures mentioned above and their level of success integrating with the larger transportation network as a whole could be monitored by planners and property managers.

Consistency between actual and projected vehicle trip generation should not be the basis for determining the effectiveness of a TDM plan. Actual vehicle trip generation is influenced by many factors, not just TDM measures, and may vary among different locations, and the time period during which traffic counts are collected. Therefore, traffic counts to monitor the effect of TDM program impacts on trip generation should not typically be required. However, the permittee should be encouraged to collect other data to demonstrate the effectiveness of the TDM programs. Such data can be valuable in learning which efforts are most effective and refining and improving TDM activities. Examples include:

- Transit passes distributed;
- Utilization of bicycle parking;
- Participation in incentive programs, carpool-matching, ride-share, etc.;
- Results of mode share surveys; and
- Actual vehicle trip generation.

TMAs can assist with monitoring effectiveness through their database and reporting systems.

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