70 Mississauga Road South & 181 Lakeshore Road West

Urban Transportation Considerations For OPA, ZBA and Draft Plan of Subdivision

City of Mississauga

Prepared For: Port Credit West Village Partners

August 25, 2017

© BA Consulting Group Ltd.
45 St. Clair Avenue West, Suite 300
Toronto, ON M4V 1K9
www.bagroup.com

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1.0 INTRODUCTION

BA Group is retained by Port Credit West Village Partnership ("the WVP") to provide urban transportation advisory services in relation to the property located at 70 Mississauga Road South and 181 Lakeshore Road in the City of Mississauga. The site is a 72-acre plot of land on the Port Credit waterfront, generally bounded by Mississauga Road to the east, an existing residential neighbourhood to the west, Lakeshore Road West to the north, and a strip of waterfront lands to the south that are not part of this application, as illustrated in **Figure 1**.

The site is currently vacant but was previously used as an oil refinery and storage facility that was decommissioned in 1990. The existing areas located to the east, west and north of the property are primarily residential, with some commercial land uses fronting onto Lakeshore Road West.

The lands are zoned as a "D" zone (Development) within the City of Mississauga's Zoning By-law 225-2007. According to the Zoning By-law, the D zone recognizes vacant lands not yet developed and/or permits the use that legally existed on the date of passing of this By-law, until such time as the lands are rezoned in conformity with Mississauga Official Plan. The WVP is seeking an Official Plan Amendment (OPA) to permit development of a mixed-use community on the subject lands, as well as submitting concurrent applications for a Zoning By-law Amendment (ZBA) and a Draft Plan of Subdivision.

A Master Plan, prepared by the WVP envisages approximately 2,500 residential units in the form of condominiums and townhouses, along with approximately 22,745 m² of commercial space (including community centre/institutional uses), approximately 13,820 m² of retail space and a significant portion of park land and open space. Several new public roads providing pedestrian, cycling, transit and automobile connections through the lands and to the existing transportation network are identified in the Master Plan to support the proposed development.

This report summarizes BA Group's review of the urban transportation elements of the mixed-use development proposal and the related OPA, ZBA and Draft Plan of Subdivision applications, which are required to permit the development of the lands as proposed.

1.1 SCOPE OF WORK

In consultation with the City of Mississauga's Transportation and Works department, the following scope has been adopted for this transportation study:

- A description of the existing transportation context of the site including vehicular, transit, cycling and pedestrian accessibility;
- a description of the concept Master Plan including proposed uses and densities, as well as a review of the proposed street and development block layout;
- a review of relevant planning documentation from a transportation infrastructure planning perspective;
- a review of the concept development plan from three frames of reference – the site, the local area, and the regional level;

- a review of the proposed vehicle parking, bicycle parking and loading facility provisions for the lands;
- trip generation forecasts for the development plan as proposed, including pedestrian, cyclist, transit and personal vehicle trips;
- a Transportation Demand Management (TDM) strategy for the site, which identifies potential measures to implemented as part of the development plan aimed at reducing auto-driver trips; and
- a review of weekday peak hour traffic operations (using the Synchro 9.1 software suite) under existing and future traffic conditions (at the 2027 horizon year) at the following intersections:
    - Lakeshore Road West / Loblaws/Retail Plaza Entrance (signalized);
    - Mississauga Road South / Port Street West (unsignalized);
    - Mississauga Road South / Lake Street (unsignalized);
    - Lakeshore Road West / Lake Street (future unsignalized intersection);
    - Lakeshore Road West / Site driveway west of Wesley Avenue (future unsignalized intersection); and
    - All internal public road intersections (unsignalized).

It is noted that this report is the first of two transportation studies completed in support of the OPA, ZBA and Draft Plan of Subdivision applications. The analyses conducted herein focus on operations at the proposed connections to the adjacent municipal streets (i.e. Lakeshore Road West and Mississauga Road South) and the proposed internal future public roads and intersections. This study combines the requirements for a Transportation Impact Study (TIS), Transportation Demand Management Strategy and a Parking Utilization Study.

A second transportation study that addresses transportation impacts on the broader local area network is currently underway and will be completed in coordination with the ongoing Lakeshore Connecting Communities study being undertaken by the City of Mississauga (see Section 5.0). The phased submission was discussed with City Staff as the best method to work in coordination with the Lakeshore Connecting Communities study.

In order to satisfy the established OPA, ZBA and Draft Plan of Subdivision transportation requirements of the City's Transportation and Works department, the forthcoming Phase 2 transportation study will include the following elements:

- Both Synchro (Highway Capacity Manual) and VISSIM (microsimulation) analyses;
- site trip generation analyses for at least two different modal split scenarios (i.e. low and medium transit use);
- analyses of the 2021, 2031 and 2041 planning horizon years;
- analyses of the broader local road network including:
    - All significant public road intersections on Lakeshore Road West between Lorne Park Road and Hurontario Street;
    - All significant public road intersections on Mississauga Road between Front Street North and Lake Street; and
    - All public road intersections on Port Street West, Bay Street, Lake Street, Peter Street, John Street and Front Street South;
- recommendations regarding the need for additional area transportation network improvements based on the analyses performed.

2.0 SITE DESCRIPTION AND AREA TRANSPORTATION CONTEXT

2.1 EXISTING SITE CONDITIONS

The subject site is an approximately 72-acre plot of land located southwest of the intersection of Mississauga Road South and Lakeshore Road West in the City of Mississauga. It is bounded to the west by the rear of residential properties on Pine Avenue South, and to the east by Mississauga Road South. The northern site boundary is Lakeshore Road West, and the southern boundary is a strip of waterfront lands that are not part of this application.

The parcel of land considered for development in this report (herby referred to as “the site” or “the proposed development” or “the development parcel”) is an unoccupied brownfield site that is fenced to prevent access, and so has no existing driveways or in-use circulation systems, with the exception of the Waterfront Trail that extends across the sites southern frontage along the Lake Ontario shoreline. A fenced vehicle access to the site exists on Mississauga Road South, generally in line with Port Street West.

The site location is illustrated in **Figure 1** and the site context in relation to the surrounding area is shown in **Figure 2**.

2.2 CURRENT ZONING DESIGNATION

The lands are zoned as a “D” zone (Development) within the City of Mississauga’s Zoning By-law 225-2007. According to the Zoning By-law, the D zone recognizes vacant lands not yet developed and/or permits the use that legally existed on the date of passing of this By-law, until such time as the lands are rezoned in conformity with Mississauga Official Plan.

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Site Location

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70 Mississauga Road South
7189-21 August 2017

Figure 1

Date Plotted: August 23, 2017 Filename: P:\7189\21\Graphics\Fig2-Site Context.dwg

Site Context

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70 Mississauga Road South
7189-21 August 2017

Figure 2

2.3 EXISTING AREA TRAVEL CHARACTERISTICS

To gain an understanding of existing travel mode characteristics for the area, the Transportation Tomorrow Survey (TTS) database was queried to derive the existing travel mode shares during the morning and afternoon peak periods, based on the most recent TTS data available (2011).

Table 1 sets out the existing modal split for the site area.

TABLE 1: EXISTING TRAVEL MODE SPLIT

Mode	Morning Outbound	Afternoon Inbound
GO Transit[1]	12%	12%
Mi-Way	2%	2%
Auto driver	66%	68%
Auto passenger	11%	9%
School bus	3%	2%
Walk	6%	7%
Total	**100%**	**100%**

Notes:
1. Either solely GO Transit or in combination with other transit providers i.e. Mi-Way & TTC.
2. Based on 2011 TTS data for home-based trips to/from TTS zones 3640-3642, 3646-3648, and 3877-3878 during the weekday peak travel periods.

The existing modal splits show that between 65% and 70% of all trips to and from these zones during the peak periods are via private car and between 15% and 17% are via public transit. Of the public transit trips, GO Transit rail represent approximately 12% of all trips during both peak periods.

2.4 EXISTING AREA STREET NETWORK

From a road connectivity perspective, Port Credit is served by four major corridors: Lakeshore Road which runs east-west through Port Credit, Mississauga Road which runs north from Lakeshore Road at the east boundary of the subject site, the Queen Elizabeth Way (Q.E.W.) highway, and Hurontario Street, which runs north from central Port Credit. All roads in the vicinity of the site are under the jurisdiction of the City of Mississauga, with the nearest regional arterial road being Cawthra Road to the east of Hurontario Street.

Traffic conditions along the Lakeshore Road corridor can become congested, particularly on left turn movements at signalized intersections, at times during the weekday peak hours due to the relatively high traffic volumes carried during these periods. An overview of the surrounding existing area street network is provided below. The surrounding street network is illustrated in **Figure 3**.

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Existing Road Network

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70 Mississauga Road South
7189-21 August 2017

Figure 3

LAKESHORE ROAD WEST

Lakeshore Road is an east-west major arterial roadway that extends through the entirety of the City of Mississauga, providing connections (in the vicinity of the West Village site) to the Queen Elizabeth Way at Southdown Road, Mississauga Road and Hurontario Street. Lakeshore Road turns into Lake Shore Boulevard at the east limits of Mississauga, where it continues east through the City of Toronto. In the vicinity of the West Village property, Lakeshore Road West forms the northern boundary of the site and operates with four travel lanes with a posted speed limit of 50 km/h, and with lay-by parking on both sides of the street. Near the site (and running from the west to the east), Lakeshore Road West has signalized intersections with Maple Avenue, the Credit Landing Shopping Centre, Mississauga Road, John Street, and Stavebank Road on the east side of the Credit River.

MISSISSAUGA ROAD

Mississauga Road is a generally north-south major collector (Scenic Route) roadway that intersects Lakeshore Road West on the west side of the Credit River. Mississauga Road runs north-south through the majority of the City of Mississauga, and provides access to / from the Queen Elizabeth Way. In the vicinity of the study area, Mississauga Road has two travel lanes with additional turning lanes at its intersection with Lakeshore Road West, and a posted speed limit of 50 km/h. South of Lakeshore Road, Mississauga Road South provides access to J.C. Saddington Park at Lake Ontario, and forms the eastern boundary of the West Village property. Mississauga Road changes classification south of Lakeshore Road West, and is designated as a minor collector road from Lakeshore Road West to Port Street West, and a local road south of Port Street West. Mississauga Road South permits on-street parking on both sides of the street for most of its length, with the exception of sections in proximity to Lakeshore Road West.

PETER STREET

Peter Street is a local road under the jurisdiction of the City of Mississauga that runs between Lakeshore Road West and Lake Street. It has a two-lane cross-section and posted speed limit of 50 km/h, and parking is permitted on both sides of the street. Peter Street has a truck prohibition posted for traffic entering from Lakeshore Road West. The intersection of Peter Street and Lakeshore Road West is stop controlled for traffic on Peter Street.

JOHN STREET SOUTH

John Street South is a local road under the jurisdiction of the City of Mississauga that runs between Lakeshore Road and Lake Street. It has a two lane cross-section and posted speed limit of 50 km/h. John Street South has a truck prohibition posted for traffic entering from Lakeshore Road West. The intersection of John Street South with Lakeshore Road West is signalized.

FRONT STREET

Front Street north of Lakeshore Road West is a minor collector road under the jurisdiction of the City of Mississauga. South of Lakeshore Road West, Front Street South is designated as a minor collector road from Lakeshore Road to Port Street West, and then a local road from Port Street West to Lake Street. It has a two lane cross-section and a posted speed limit of 50 km/h. On-street parking is permitted on both sides north of Port Street, and on the east side only from Port Street to Lake Street. Front Street South has a truck

prohibition posted for traffic entering from Lakeshore Road West. The intersection of Front Street and Lakeshore Road West is not signalized.

PORT STREET WEST

Port Street West is an east-west minor collector road under the jurisdiction of the City of Mississauga that runs between Mississauga Road South and Front Street. Port Street West has a two-lane cross-section and a posted speed limit of 40 km/h. On street parking is not permitted west of Peter Street, but is permitted on both sides from Peter Street to Front Street. Port Street West has a truck prohibition posted for traffic entering from Mississauga Road South.

BAY STREET

Bay Street is an east-west local road under the jurisdiction of the City of Mississauga that runs between Mississauga Road South and Front Street. Bay Street has a two-lane cross-section and a posted speed limit of 50 km/h. On street parking is not permitted on the south side of Bay Street, and is also not permitted on the north side between John Street and Front Street. Bay Street has a truck prohibition posted for traffic entering from Mississauga Road South.

LAKE STREET

Lake Street is an east-west local road under the jurisdiction of the City of Mississauga that runs between Mississauga Road South and Front Street. Lake Street has a two-lane cross-section and a posted speed limit of 50 km/h. On street parking is not permitted on the south side of Lake Street. Lake Street has a truck prohibition posted for traffic entering from Mississauga Road South.

HURONTARIO STREET

Hurontario Street is a north-south arterial road under the jurisdiction of the City of Mississauga and provides access between a number of key destinations throughout the City. From Lakeshore Road north, some key destinations include the Queen Elizabeth Way, the City Centre, and Highways 403, 401 and 407. In the study area, Hurontario Street has a four-lane urban cross section with a posted speed limit of 50 km/h. Auxiliary turn lanes are provided at major intersections.

2.5 CYCLING CONTEXT

Under existing conditions, with the exception of the Waterfront Trail, there is limited cycling-specific infrastructure in place within Port Credit. For example, there are no direct, bicycle-specific connections providing for commuter access to / from the Port Credit GO Station.

A brief description of existing cycling infrastructure is provided in the following section.

2.5.1 Existing Cycling Context

Existing cycling facilities run along the Mississauga waterfront, largely in the form of off-road multi-use paths. In the Port Credit area, the multi-use path and connecting links also make up part of the Great Lakes Waterfront Trail that (within its Mississauga section) runs along the north shore of Lake Ontario.

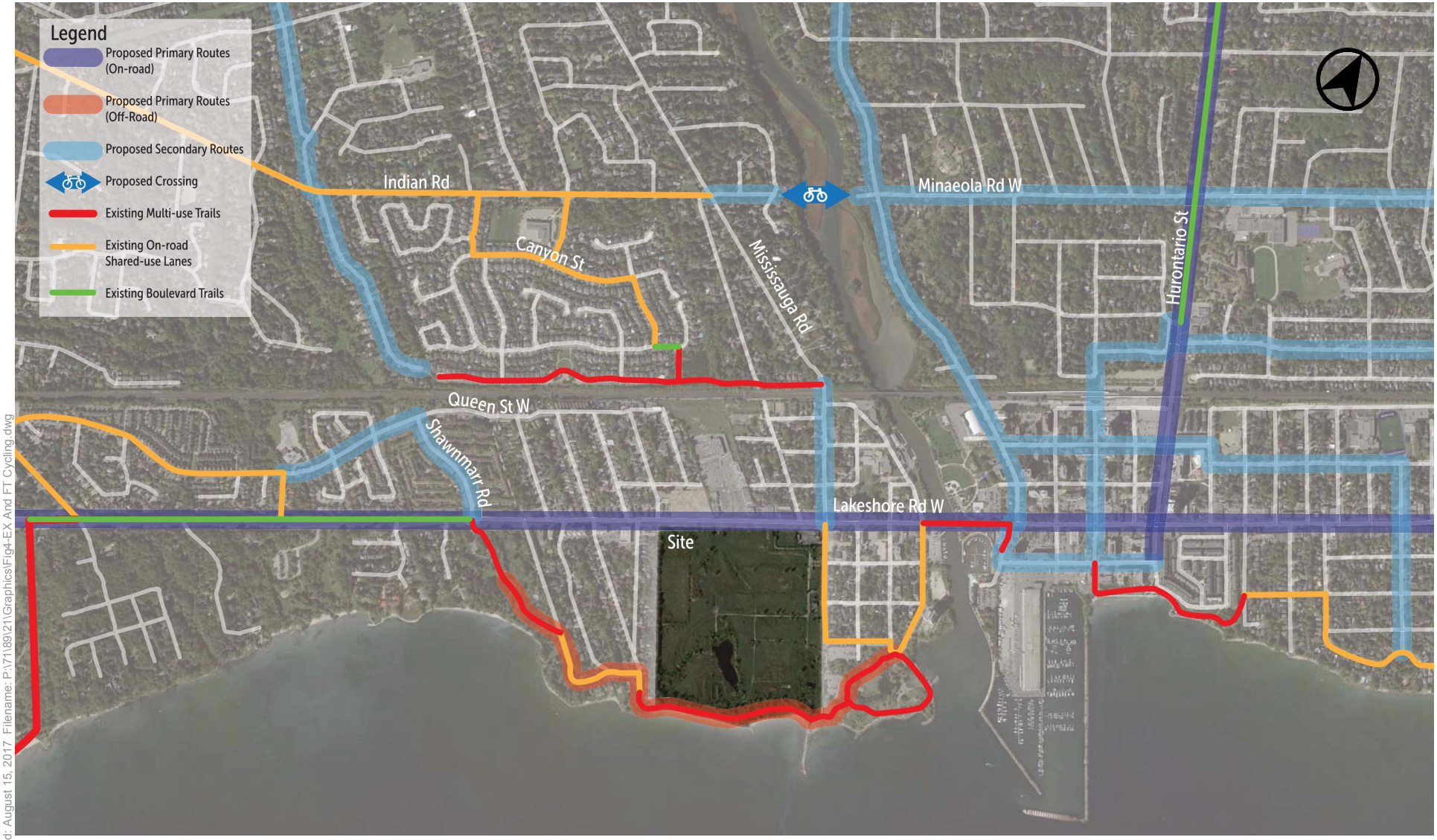
On-street connections to the Waterfront Trail (through shared lanes) are provided on Mississauga Road South, Lake Street and Front Street. Using the trail, and its separate bridge over the Credit River adjacent to Lakeshore Road, it is possible to travel from Mississauga Road South to the Port Credit GO Station via Memorial Park and High Street, or via Port Street East and Elizabeth Street. Under current conditions, cycling from Port Credit GO Station to the intersection of Mississauga Road South and Lake Street would take five minutes or less.

2.5.2 Future Cycling Context

There are plans, both at the municipal level and as part of the Mobility Hub strategy, to considerably improve and enhance the formal facilities provided within Port Credit to provide safe and convenient linkages for cyclists and encourage non-automobile travel.

The City of Mississauga is planning significant improvements to cycling and pedestrian infrastructure in the Port Credit area extending across the Lake Ontario waterfront and, significantly, to the Port Credit GO Station. In particular, Lakeshore Road is identified as a primary on-road cycling route in the City's Cycling Master Plan, and in the Official Plan.

The existing and proposed cycling context is illustrated in **Figure 4**.



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Existing and Future Cycling Context

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70 Mississauga Road South
7189-21 August 2017

Figure 4

2.6 EXISTING TRANSIT CONTEXT

The site is currently served by a number of bus routes providing transit connections to employment and education areas within Mississauga as well as to the nearest regional transit station (Port Credit GO Station), which provides broader transit connections. The Port Credit GO Station located west of Hurontario Street, which is an approximately 1.2-kilometre walk from the eastern boundary of the site.

The Regional Transportation Plan for the Greater Toronto and Hamilton Area (GTHA), otherwise known as "The Big Move", identifies Port Credit as a Mobility Hub. Mobility hubs are identified as major transfer points between all types of modes (transit, walk, cycle, drive) that provide connections to regional transportation systems and support intensification and centres of attraction at each hub.

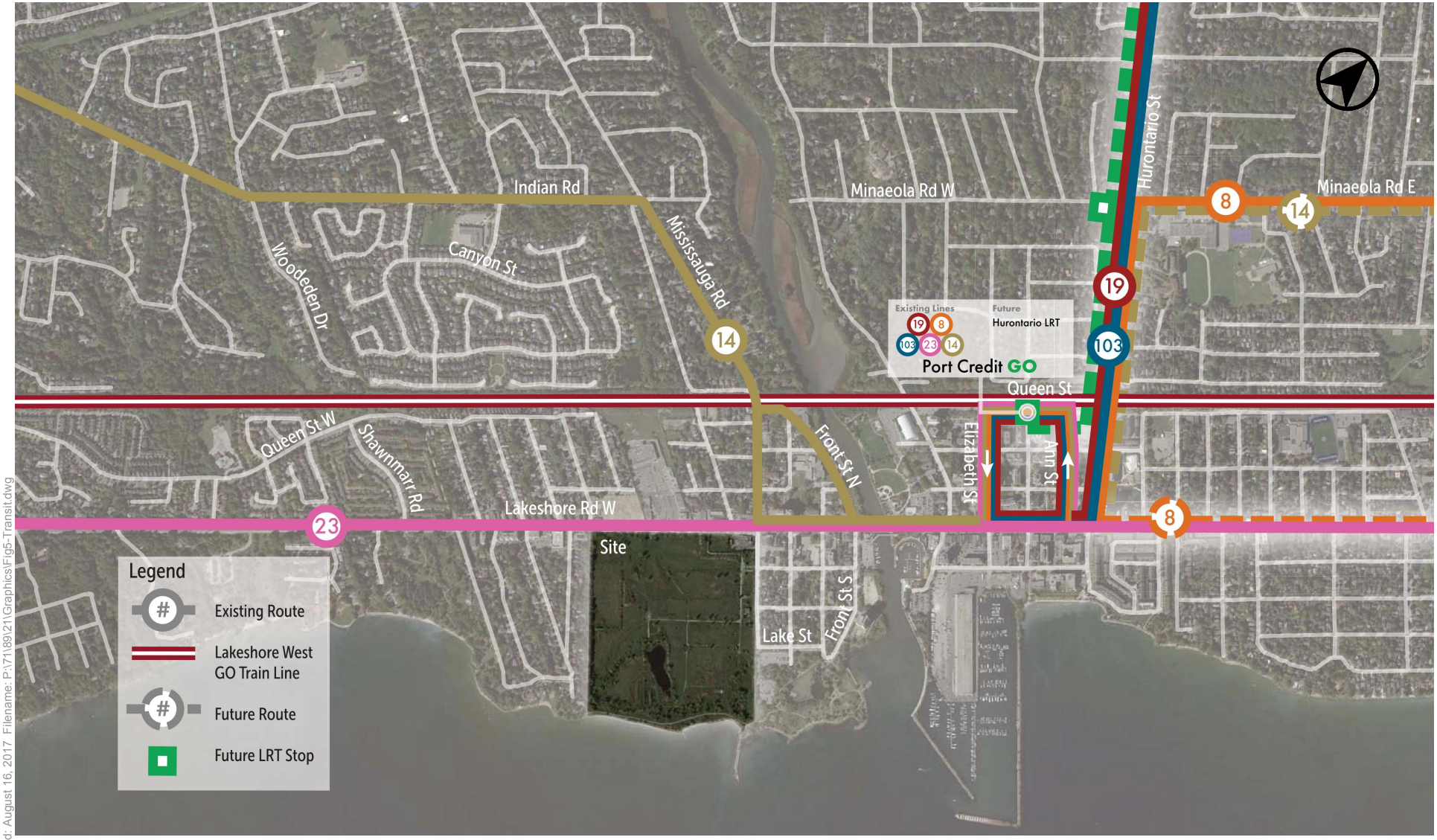
The existing transit context is illustrated in **Figure 5** and detailed in the section below.

2.6.1 GO Transit

Port Credit GO Transit station, which is a station on the Lakeshore West GO rail line, is located approximately 1.5 kilometres (km) from the centre of the site (a 5-minute drive or cycle from the site). Port Credit GO Station currently has 936 parking spaces comprising free, car-pool only and rented spaces.

In June 2013, Metrolinx introduced a 30-minute or better all-day two-way service on the Lakeshore West line between Aldershot and Union stations with more frequent services during peak periods. On weekdays, six trains serve Hamilton directly in the morning and the evening rush hour; four at Hamilton GO Centre, and two at West Harbour GO Station. Prior to June 2013, service on the Lakeshore West line operated hourly during off-peak periods with more frequent services during peak periods.

As part of Metrolinx's Regional Express Rail (RER) project, 15-minute two-way all-day service is planned for five GO rail lines including the Lakeshore West line. This service is expected to be in place once electrification of the GO network is completed by around the year 2024.



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Existing and Future Transit Context

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Figure 5

2.6.2 MiWay

MiWay is the City of Mississauga's municipal transit provider. The nearest bus stops to the site are located on Lakeshore Road at the access for Credit Landing Shopping Centre and at the intersection of Lakeshore Road and Mississauga Road. Both sets of bus stops are served by the following routes operated by Mi-Way:

- **23 Lakeshore** – operates daily between Clarkson GO Transit station to the west and Long Branch GO Transit station to the east via Port Credit GO Transit station at a peak period frequency of every 11 to 17 minutes.

- **335 Allan A. Martin** – a school service that operates on weekdays only during term time between several high schools to the east and Clarkson GO Transit station to the west with part of the route operating along Lakeshore Road past the site. This service operates eastbound only during the morning school run and westbound only during the afternoon school run.

- **14 Lorne Park** – operates on weekdays only between Clarkson station and Port Credit station predominantly via Mississauga Road and Indian Road at a peak period frequency of every 30 to 40 minutes (this route is only accessible via bus stops north of the Lakeshore Road and Mississauga Road intersection).

2.7 PLANNED TRANSIT INFRASTRUCTURE CONTEXT

2.7.1 MiWay 5 Year Plan

In 2015, MiWay published the *MiWay Five Year Transit Service Plan* outlining planned service improvements. The service plan includes providing more frequent service on main corridors, increasing the number of express routes and streamlining routes through transit corridors in a grid-pattern.

The improvements included in MiWay's 5-year plan would not directly increase the service level on the MiWay bus routes that currently access the site, but will make transit more attractive for trips across the City by resulting in a more efficient and connected network, in particular through service increases on Hurontario Street.

2.7.2 Metrolinx Regional Transit Plan

Metrolinx is an agency of the Government of Ontario and is responsible for coordinating regional transportation in the Greater Toronto Hamilton Area (GTHA). The Regional Transportation Plan (RTP) outlines a number of transit improvement programs, which includes building a higher-order transit system on the Hurontario-Main corridor, which is discussed in greater detail in Section 2.7.3.

The RTP also includes a number of other transit improvements in the area, which, in combination with a rapid transit program along Hurontario Street, would provide excellent and efficient access between Port Credit and Downtown Mississauga and other areas in the GTHA. These programs include the following:

- increased service on GO Transit lines and at area GO Stations (Port Credit, Brampton, and Cooksville);
- higher-order transit on Dundas Street between Waterdown and Kipling Station;

- the Mississauga Transitway along Highway 403 between Oakville and Renforth; and
- higher-order transit along Lakeshore Road between Hurontario Street and Union Station.

2.7.3 Hurontario-Main LRT

The Hurontario-Main Light Rail Transit (The Hurontario LRT) will be the most significant transit improvement to the proposed development site area. A new LRT line will be provided along the Hurontario Street corridor connecting Brampton's Gateway Terminal in the north and Port Credit GO Station in the south. The Hurontario LRT will run generally at grade in a segregated lane, separate from other road traffic and will use grade-separated crossings at rail lines and highways as required. The LRT plan proposes a total of 26 stops along Hurontario Street and Downtown Mississauga City Centre.

Initial planning and assessment of the alignment investigated continuing the Hurontario LRT south of Port Credit GO Station to a terminal station on Port Street at Elizabeth Street. The alignment that has been arrived at through the design process and which is planned for implementation has its southern terminus at the Port Credit GO Station.

Construction of the Hurontario LRT is anticipated to start in 2018. It is expected to be completed and fully operational by 2022.

The *Hurontario / Main Street Master Plan Report* (October 2010) considers the impact of the LRT line from a travel mode share perspective. The forecast for future transit mode share considers two land development scenarios. The base growth scenario considers population growth of 6 percent and employment growth of 14 percent along the corridor and the high growth scenario considers population growth of 21 percent and employment growth of 31 percent.

Existing and future mode share for northbound and southbound trips along the Hurontario corridor, as shown in table 3.6.3 of the Hurontario / Main Street Master Plan Report, are summarized in **Table 2**. As noted in **Table 2**, a considerable change in public transit use along the corridor is forecast together with a corresponding reduction in auto travel.

TABLE 2 FORECAST MODE SHARE ASSUMPTIONS

Mode Share for Hurontario between Hwy 407 and Hwy 401	Auto		Transit	
	Southbound	Northbound	Southbound	Northbound
Existing	90.1%	90.2%	9.9%	9.8%
Future (2031) Base LRT	43.9%	49.4%	56.1%	50.6%
Future (2031) High Growth	44.4%	48.4%	55.6%	51.4%

Notes:
1. Table source: *Hurontario / Main Street Master Plan Report, table 3.6.3 (p. 99).*

3.0 THE MASTER PLAN

The Master Plan identifies the subject site as a mixed-use development comprising residential, retail, community/institutional and office uses. A Draft Master Plan was prepared and submitted by West Village Partners in March 2017.

The Master Plan was informed by the framework laid out in the Inspiration Port Credit document (see Section 4.6), and shows how a mixed-use development could be realized on the site with consideration of good planning and urban design principles. Key consideration is given for transportation items including the provision of a mobility network that will support the site with pedestrian and cycling connections, and connections to existing and planned transit. The Master Plan is illustrated in **Figure 6**.

An overview of the Master Plan is provided below. An evaluation of the Plan considering three different perspectives – the site itself, local and regional – is provided in Section 6.0.

3.1 BUILDING PROGRAMME

In total, the Master Plan includes 2,500 new residential units, 13,819 m^2 of retail gross floor area (GFA), and 22,745 m^2 of commercial and community/institutional GFA. The residential units include traditional townhomes, stacked and back to back townhomes, and apartment units.

The Master Plan includes five different precincts within the site, each with a different character:

- Retail and commercial land uses are to be focused primarily along Lakeshore Road on the northern portion of the site, in the area referred to as the West Village Precinct.
- On the southern area of the site, the Campus precinct will contain community uses (a partnership with the YMCA is being explored along with other institutional and community uses) and higher density residential apartment uses.
- The Promenade precinct links the West Village and Campus precincts and contains low and mid-rise residential uses through the central area of the proposed Master Plan.
- To the east, the Old Port Transition precinct contains predominantly townhouse forms with a lower density.
- To the west, the Parkside precinct also contains predominantly townhouse forms with a lower density.

3.2 PHASING OF DEVELOPMENT

The proposed development will be phased to respond to site remediation needs, as well as market absorption for the various proposed land uses. It is anticipated that the full build-out of the Master Plan may take 8-10 years from commencement of work on the site to final occupancy of the last phase.

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West Village Master Plan

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70 Mississauga Road South
7189-21 August 2017

Figure 6

3.3 MASTER PLAN TRANSPORTATION PRINCIPLES

The proposed development plan provides a fine-grained network of streets and blocks, facilitating access by all modes of transportation by generally replicating the existing street network pattern. The network includes both municipal streets and private condominium roads to ensure a range of facilities are provided to accommodate the different needs of various parts of the site.

3.3.1 Vehicular Traffic Access Principles

It is important that any development plan established for the site does not rely upon a single point of access, to avoid a concentration of traffic at a single location, along with a consideration of limiting traffic volumes in the existing adjacent residential areas.

The adoption of multiple vehicular connections to Lakeshore Road West and Mississauga Road South, along with a network of condominium and municipal streets through the site will provide for vehicular circulation around the property, connections to on-site parking and loading facilities, and will enable a distribution of traffic activity on the area street system. With the exception of the campus area, the non-residential land uses are proposed to be generally focused on Lakeshore Road, limiting the extent to which traffic and parking impacts may occur in residential areas within and adjacent to the site.

It is intended that Port Street West and Lake Street will be extended as municipal streets into the subject site, with a non-automobile connection along the alignment of Bay Street. The main site access will be on Lakeshore Road West at the location of the existing traffic control signal that serves the existing retail plaza on the north side of the street. In addition, secondary vehicle access points will be provided on Lakeshore Road West, east and west of the main signalized intersection.

3.3.2 Transit Access Principles

The proposed development plan will capitalize on the available existing and planned transit facilities in Port Credit and adopt other strategies that seek to minimize auto-dependent travel, maximize transit usage and provide an environment that encourages pedestrian and cycling usage. This will include provisions for the future introduction of a bus-based transit route into the site on a loop created by the proposed municipal roads, as well as planning for a transit-supportive urban form, and a reduced parking provision to support the use of transit.

The transit strategy will also contemplate future provision of rapid transit on Lakeshore Road (in a form to be determined through the City's Lakeshore Connecting Communities study), anticipated within a 20+ year time frame.

3.3.3 Non-Automobile Access Principles

Non-automobile connections will be provided on the site that link to the existing Waterfront Trail to the south, with pedestrian and bicycle connections throughout the site that compliment the primary bike route along Lakeshore Road and support non-auto trip making for work and recreation. In terms of the City's Cycling Master Plan route network, the new cycling connections will provide a significant improvement in connectivity. Secure bicycle parking facilities will be provided for residents and employees of the development, along with bicycle parking facilities for visitors to the site.

The development plan will integrate a high quality, pedestrian-focused public realm that emphasizes walkability and is at a pedestrian scale. The additional pedestrian connections, along with mixed-use and community components of the proposed development will provide an increased permeability and accessibility between Lakeshore Boulevard and the Lake Ontario shoreline.

4.0 RELEVANT PLANNING DOCUMENTATION

Urban transportation policies and direction from the Provincial Policy Statement (2014), the Growth Plan for the Golden Horseshoe (2006), the City of Mississauga Official Plan (2015), and Moving Mississauga (2011) support the proposed Official Plan Amendment as discussed below. Further, the City's policies contained in the Port Credit Local Area Plan and the Inspiration Port Credit Master Plan provide more detailed guidance for the site development. The transportation-related elements of the above planning documents are summarized below.

4.1 PROVINCIAL PLANNING DOCUMENTS

The **Provincial Policy Statement** (PPS) is issued under the authority of Section 3 of the Planning Act. It provides direction on matters of provincial interest related to land use planning and development, and promotes the provincial "policy-led" planning system.

With respect to transportation systems, Part V of the PPS, through the Policies in Section 1.6.7, promote maintaining and improving connectivity within and among transportation systems and modes (1.6.7.3) as well as a land use pattern, density and mix of uses that minimize the length and number of vehicle trips and support current and future use of transit and active transportation (1.6.7.4). The integration of residential, retail and employment land uses, as proposed in the West Village Master Plan, supports this policy direction and encourages the residential mixing of land uses in a major regional employment node.

The **Growth Plan for the Greater Golden Horseshoe** (2006) provides a framework for implementing the Government of Ontario's vision for building stronger, prosperous communities within the Greater Golden Horseshoe area. The Plan directs growth within the Greater Golden Horseshoe area to existing urban areas in order to make better use of land and infrastructure. The intensification of existing built-up areas supports transit and infrastructure investment.

The Growth Plan, through policies in Section 3.2.2, supports a transportation system that exhibits connectivity amongst modes, a balance of modal choices for users of the system with priority given to walking, cycling, transit and, sustainability (i.e., economical and environmentally appropriate). Furthermore, the Growth Plan directs Transportation Demand Management (TDM) policies to be adopted by municipalities towards reducing trip distance and time and increasing modal share to alternatives other than the automobile.

The proposed West Village redevelopment fulfills a number of transportation related policy directions, by intensifying land use along a major transit corridor and mixing commercial and residential land uses to permit and encourage the uptake of active transportation options and ensure the viability of planned transit.

4.2 REGION OF PEEL OFFICIAL PLAN

The Region of Peel Official Plan provides coordinated planning in the Peel region through long-term policies with an intention of promoting sustainable forms of transportation.

Regional policies include Regional Intensification Corridors, which promote the development of urban areas within the region that support sustainable development through efficient use of land, densities supportive of

transit and pedestrian mobility, and complete urban communities containing living, working and recreational opportunities.

Policy 5.3.3 provides that Regional Intensification Corridors are characterized by the following:

- urban Growth Centres linked by public transit;
- high intensity, compact urban form with an appropriate mix of uses including commercial, office, residential, recreational and major institutional;
- transit-supportive and pedestrian-oriented urban forms; and
- opportunities for higher order transit;

The proposed West Village development is in line with development of the type of corridor listed above.

4.3 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.

Section 4.5 of the Official Plan puts an emphasis on direction growth towards higher order transit such as Hurontario Street.

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.

4.4 MOVING MISSISSAUGA

Moving Mississauga is the City's interim transportation strategy outlining the City's vision for movement of good and people through a safe and connected multi-modal transportation system. The document identifies actions that the City will undertake to achieve a viable multi-modal transportation system and address the

City's existing and future transportation needs. Moving Mississauga proposes a number of strategic directions to address the key transportation related issues facing the City. These directions include the following:

- advancing the development of a multi-modal transportation network;
- enhancing system capacity through design, network linkages, and new roads; and
- supporting the integration of context sensitive design and transportation.

The addition of new streets within the proposed mixed-use West Village development parcel is consistent with these policies.

4.5 PORT CREDIT LOCAL AREA PLAN

The Port Credit Local Area Plan includes a detailed section on how the development of the Port Credit area would support the creation of a "Multi-Modal City". The Plan focuses on the consideration of needs for all modes and all users of the transportation network.

The Port Credit Local Area Plan also documents issues related to peak hour travel times and queuing on Lakeshore Road, and refers to the City's Lakeshore Road Transportation Master Plan (now known as the "Lakeshore Connecting Communities Study"). The Plan notes that improvements to connectivity and provision of a fine-grained network may be identified through the Transportation Master Plan and lists a number of potential road connections in the Port Credit area.

For development site traffic, the Plan gives direction that traffic should be directed towards signalized intersections and vehicular turning movements consolidated at other locations. Further, the Plan requires that development applications will consider methods to limit impacts on the transportation network such as:

- Reduced parking standards;
- Transportation demand management;
- Transit oriented design;
- Pedestrian/cycling connections; and
- Access management plan.

The Port Credit Local Area Plan designates the subject lands as Special Site 3, and requires that a comprehensive master plan be prepared that addresses transportation, amongst other things. The Inspiration Port Credit Master Planning Framework was prepared by the City in consultation with the Port Credit community to describe a master plan framework for the subject site. The transportation elements of that framework are described in the following section.

4.6 INSPIRATION PORT CREDIT

The Inspiration Port Credit Master Planning Framework (November 2015) was prepared by the City of Mississauga to establish a framework to guide the renewal of the site. The mobility aspects of the Framework were described in Section 4.5.3 of the plan.

Key aspects of the Framework included support for a variety of transportation modes, prioritizing active transportation and consideration of the site's internal transportation network and a sensitivity to integrating the site's transportation network into the surrounding area. In particular, the Framework gave direction that:

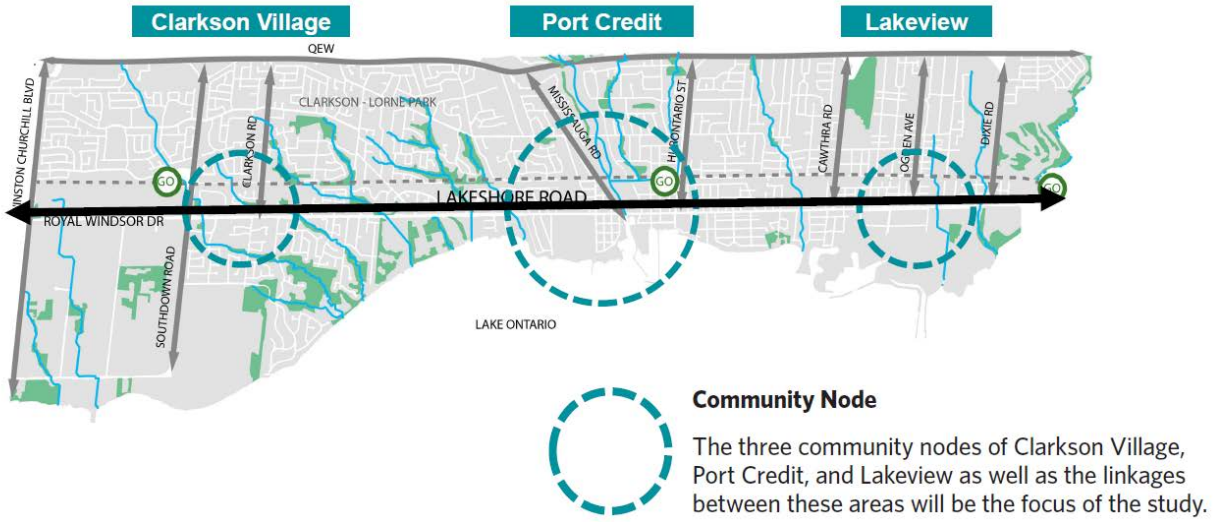
- Rapid transit supporting the site should be explored (noting that specific transit options will need to be coordinated with the City's Lakeshore Road Transportation Master Plan);
- Parking requirements should be appropriate for a mixed-use community and support transit-oriented development;
- A walkable fine-grained street network should include connections for pedestrians, cyclist and vehicles;
- Connections to adjacent areas need to be carefully considered and sensitive to the existing neighbourhood communities;
- An active transportation network should provide for many opportunities for pedestrian and cycling connections;
- The Waterfront Trail will be a key active transportation corridor through the site; and
- Mississauga Road South will be recognized as a street with special character.

The proposed development has been designed from a transportation perspective to be in line with the intent of the Framework. Descriptions of the proposed transportation connections, parking provision and transportation demand management measures are described in the following sections, along with the anticipated impacts on the adjacent transportation network.

5.0 LAKESHORE CONNECTING COMMUNITIES STUDY

The City of Mississauga is currently undertaking a Transportation Master Plan study along the Lakeshore Road / Royal Windsor Drive corridor named *Lakeshore Connecting Communities*. The intention of the study is to guide the planning and implementation of the transportation network along the Lakeshore corridor over the next 25 years, including decisions about optimizing roadways, improving transit, and enhancing cycling and walking connections.

The focus of the study is improving long-term mobility for the Clarkson Village, Port Credit and Lakeview communities located along the corridor.



The study will include detailed transportation modelling for existing and future conditions, with a review of network connectivity for all modes, and an investigation of opportunities to provide enhanced linkages at key locations. It is expected that preliminary transit recommendations for the corridor will be published in the fall of 2017.

At this juncture, in advance of the Lakeshore Connecting Communities study being completed, the Master Plan has been designed to be able to accommodate the integration of future higher-order transit within the site via the proposed internal public road network, as discussed in Section 3.3.2.

Going forward, the forthcoming subsequent transportation study related to the 70 Mississauga Road South OPA/ZBA/Draft Plan of Subdivision (see Section 1.1) will be coordinated with the Lakeshore Connecting Communities study, with the aim of being consistent with the methodology, assumptions and conclusions made in the City's study once it is complete. Likewise, it is anticipated that the Lakeshore Connecting Communities study will consider the transportation needs of the subject site.

6.0 REVIEW OF DEVELOPMENT CONCEPT – THREE FRAMES OF REFERENCE

The OPA/ZBA/Draft Plan of Subdivision for the West Village Master Plan seeks to introduce mixed-use development onto the site. The Master Plan is evaluated based upon three frames of reference; from the site planning (internal) perspective, from the local area (external) perspective, and from the regional perspective.

The three applications are being submitted concurrently to permit certain height, density, parking and other matters. The application will address the appropriateness of any specific development concept including its proposed intensity, form and supporting infrastructure to enable the proposal to be appropriately supported from a transportation perspective.

6.1 SITE PLAN CONSIDERATIONS

6.1.1 Internal Road Network

As part of the redevelopment of the site, a street network is required to service the property and provide connectivity to the existing surrounding transportation infrastructure. The concept Master Plan internal road network is illustrated in **Figure 7**.

A finer grain of local roads are provided in a 'grid' throughout the site, with key connections onto Lakeshore Road West to the north and Mississauga Road South to the east. The road network illustrated throughout the site is in line with Mississauga Official Plan objectives for Intensification Areas, which identify a creating a finer grained road network, and providing the completion of road network connections through site development.

The concept internal road network comprises a hierarchy of roads that provide network connectivity for all modes of travel. Each classification of road is described in the following sections.

6.1.1.1 Major Collector Roads

Avenue 'A' and Lake Street east of Avenue 'A' will be classified as Major Collector roads and intended to function as the main vehicular corridor through the Master Plan lands.

These roads will have a 20-metre right-of-way (ROW) width and include 3.5-metre-wide vehicle travel lanes in each direction with on-street parking on one side of the street. Pedestrian sidewalks (2.0 metres in width) will be provided on both sides of the road. At intersections with Lakeshore Road West and Mississauga Road South, these roads will widen to include exclusive left-turn lanes.

These roads will be designed to accommodate future transit service routes – likely bus service in the short-term horizon and potentially higher-order transit in the long-term horizon – servicing the development lands.

A concept cross-section of Avenue 'A' is shown in **Figure 8**.

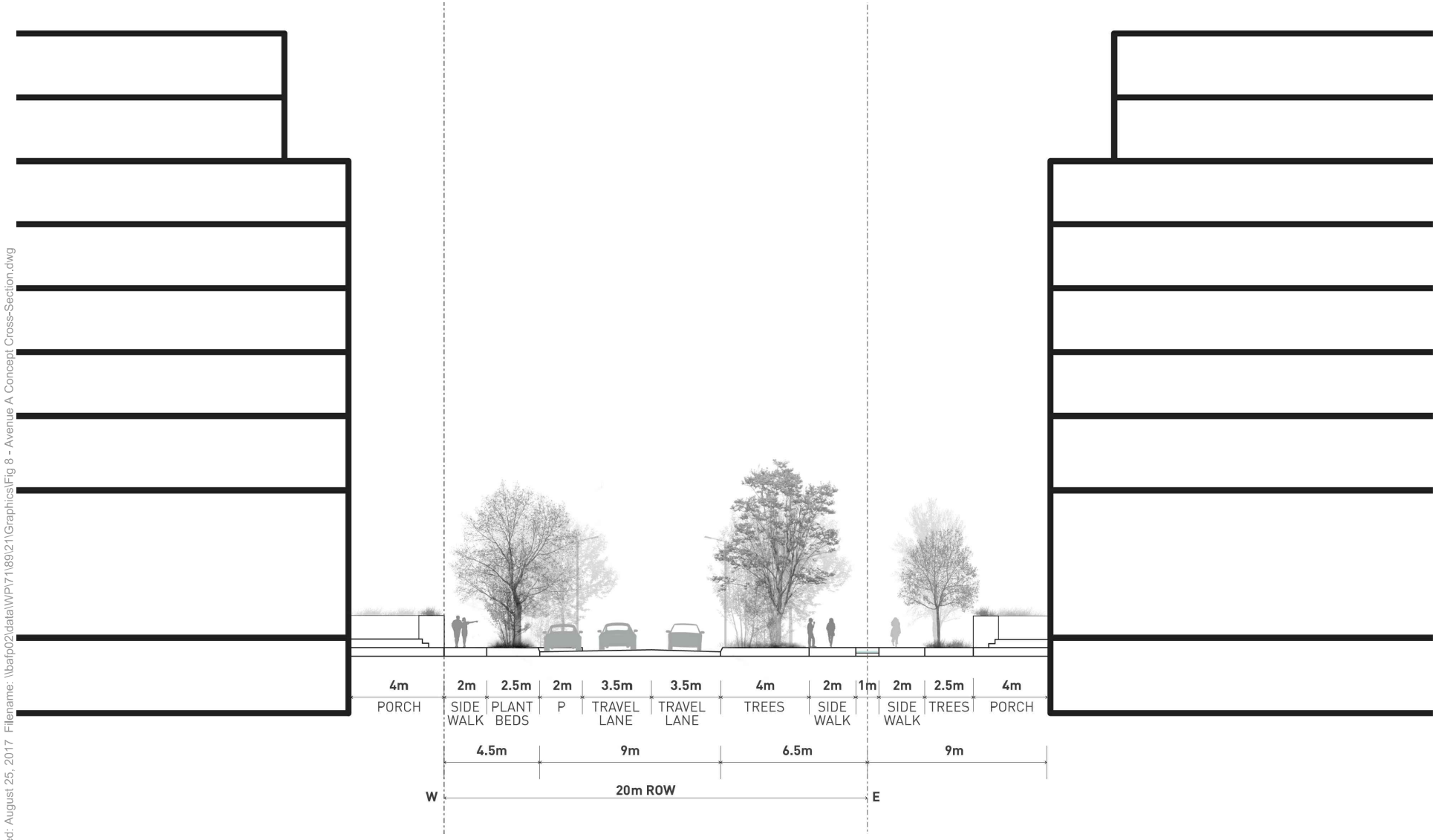
Date Plotted: August 21, 2017 Filename: P:\71\89\21\Graphics\Fig 7 - Master Plan Road Network.dwg

Master Plan Road Network

BA Group

70 Mississauga Road South
7189-21 August 2017

Figure 7



Date Plotted: August 25, 2017 Filename: \\bafp02\data\WP\7189\21\Graphics\Fig 8 - Avenue A Concept Cross-Section.dwg

Avenue 'A' Concept Cross-Section

BA Group

70 Mississauga Road South
7189-21 August 2017

Figure 8

6.1.1.2 Minor Collector Roads

Port Street West between Avenue 'A' and Mississauga Road South will be classified as a Minor Collector road. The primary function of the Minor Collector road is to accommodate vehicular travel, although it will carry a lower volume of traffic than the Major Collector roads.

This road will have a 20-metre right-of-way (ROW) width and include 3.0-metre-wide vehicle travel lanes in each direction with on-street parking on one side of the street. Pedestrian sidewalks (2.5 to 2.8 metres in width) and on-street cycle lanes will be provided on both sides of the road.

A concept cross-section of Port Street West is shown in **Figure 9**.

6.1.1.3 Local Streets

Lake Street between Avenue 'A' and Lakeshore Road West, Port Street West west of Avenue 'A', and Avenue 'B' will be classified as Local streets. Local streets are intended to carry low volumes of vehicular traffic and be ideal cycling and pedestrian travel routes.

These roads will have a 20-metre right-of-way (ROW) width and include 3.0-metre-wide vehicle travel lanes in each direction with no on-street parking. Cycle lanes and/or off-road bicycle paths are provided along with pedestrian sidewalks (2.5 to 5.5 metres in width) on both sides of the road.

A concept cross-section of Lake Street is shown in **Figure 10**.

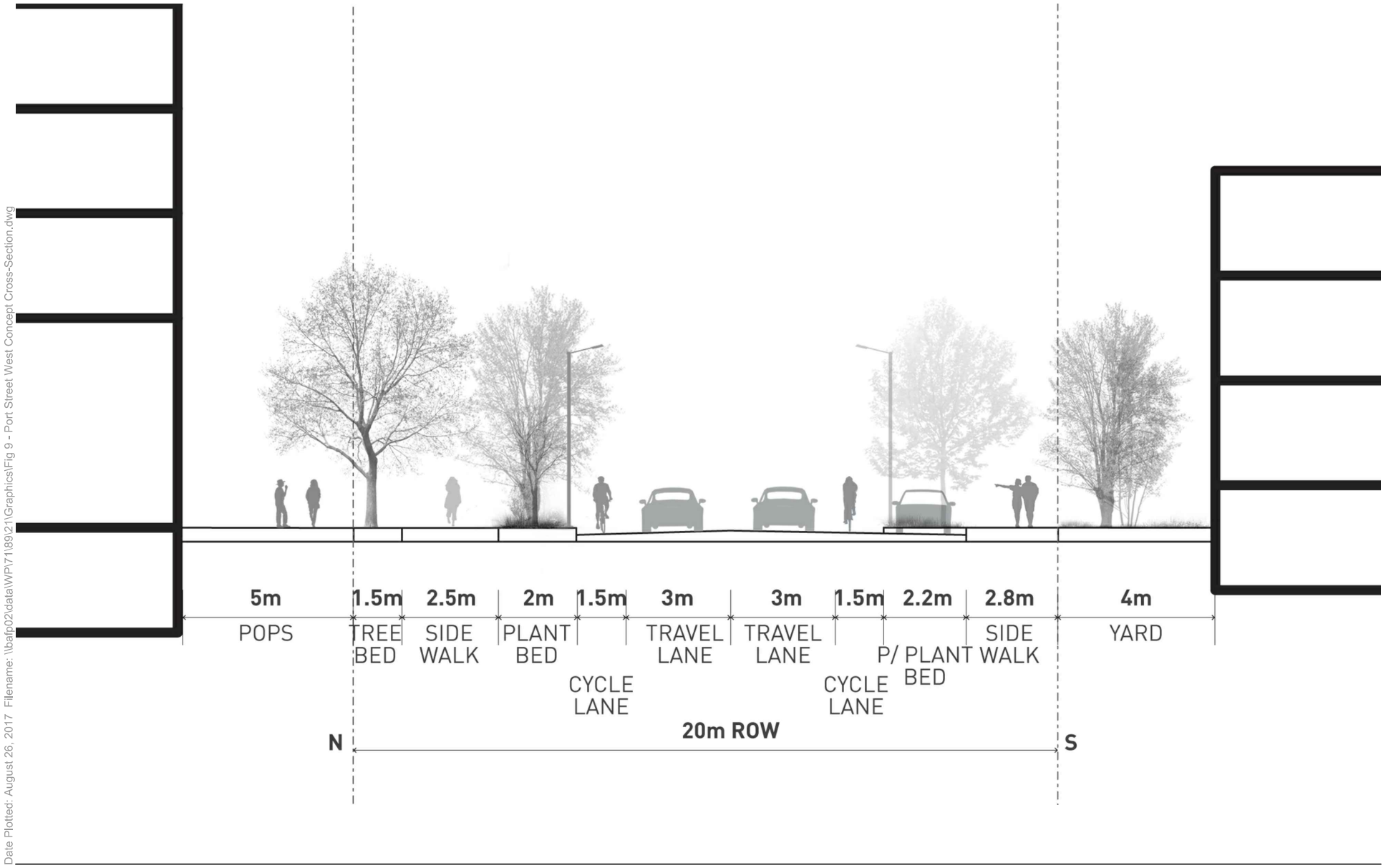
6.1.1.4 Condominium Roads

All other roads will function as condominium roads whose function will be primarily to provide direct access to the residential townhouses. These roads will carry low volumes of vehicular traffic and be ideal cycling and pedestrian travel routes. In some cases, condominium roads are provided above below-grade parking.

In general, the condominium roads will include 3.0-metre-wide vehicle travel lanes in each direction with no on-street parking. Pedestrian sidewalks (1.8 metres in width) will be provided on both sides of the road. In general, building setback distances will be reduced compared to the other road classes, given that mainly low-density residential housing will front onto these streets.

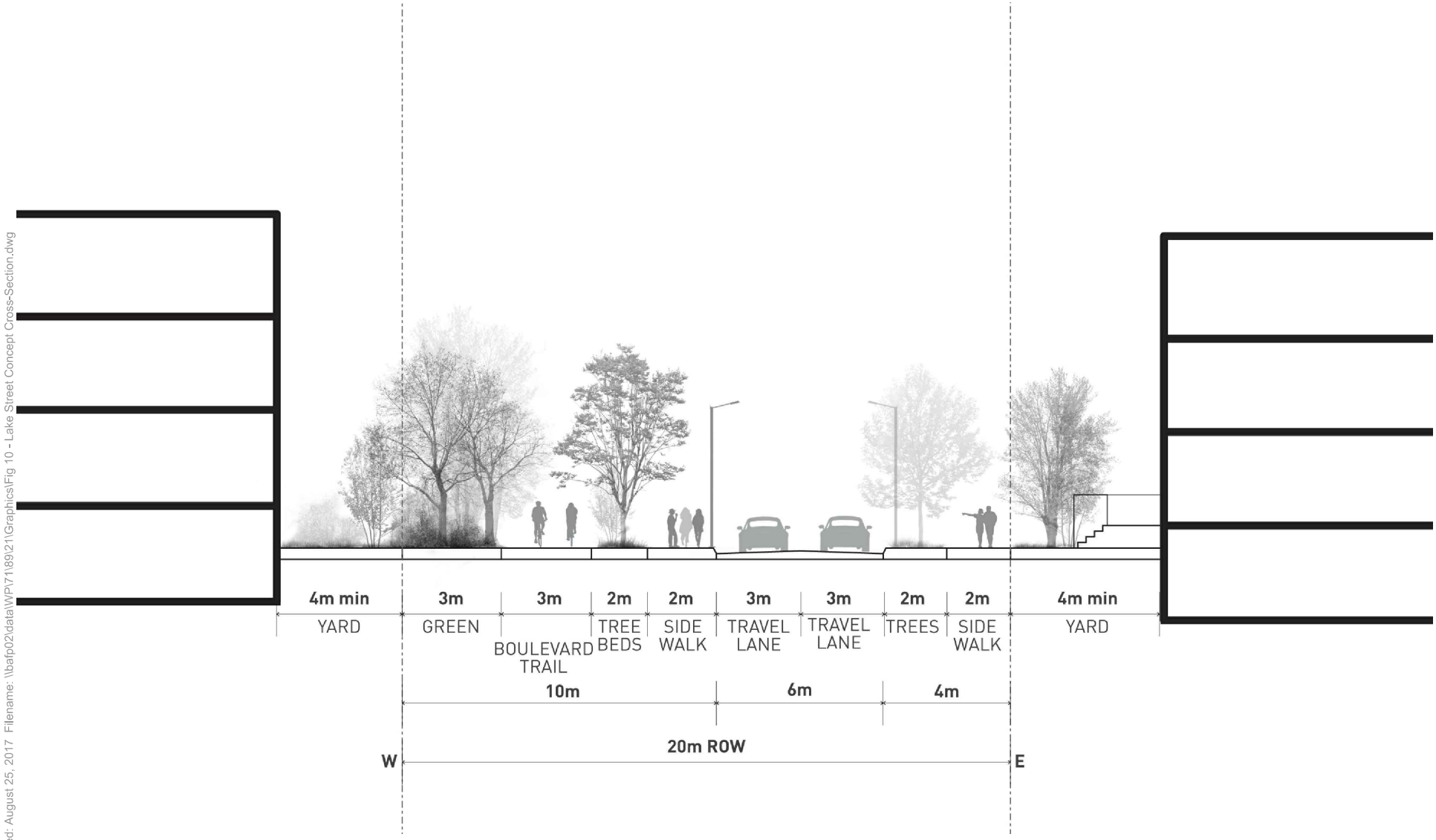
A pedestrian-focused route (woonerf) is also envisioned connecting between Avenue 'A' and the Waterfront through the southern Campus (Blocks T and U), providing access to the recreational Waterfront area for pedestrians, and also allowing for service vehicle access.

A concept cross-section of a typical condominium road is shown in **Figure 11**.



Date Plotted: August 26, 2017 Filename: \\bafp02\data\WP\7189\21\Graphics\Fig 9 - Port Street West Concept Cross-Section.dwg

Port Street West Concept Cross-Section



Date Plotted: August 25, 2017 Filename: \\bafp02\data\WP\7189\21\Graphics\Fig 10 - Lake Street Concept Cross-Section.dwg

Lake Street Concept Cross-Section

BA Group

70 Mississauga Road South
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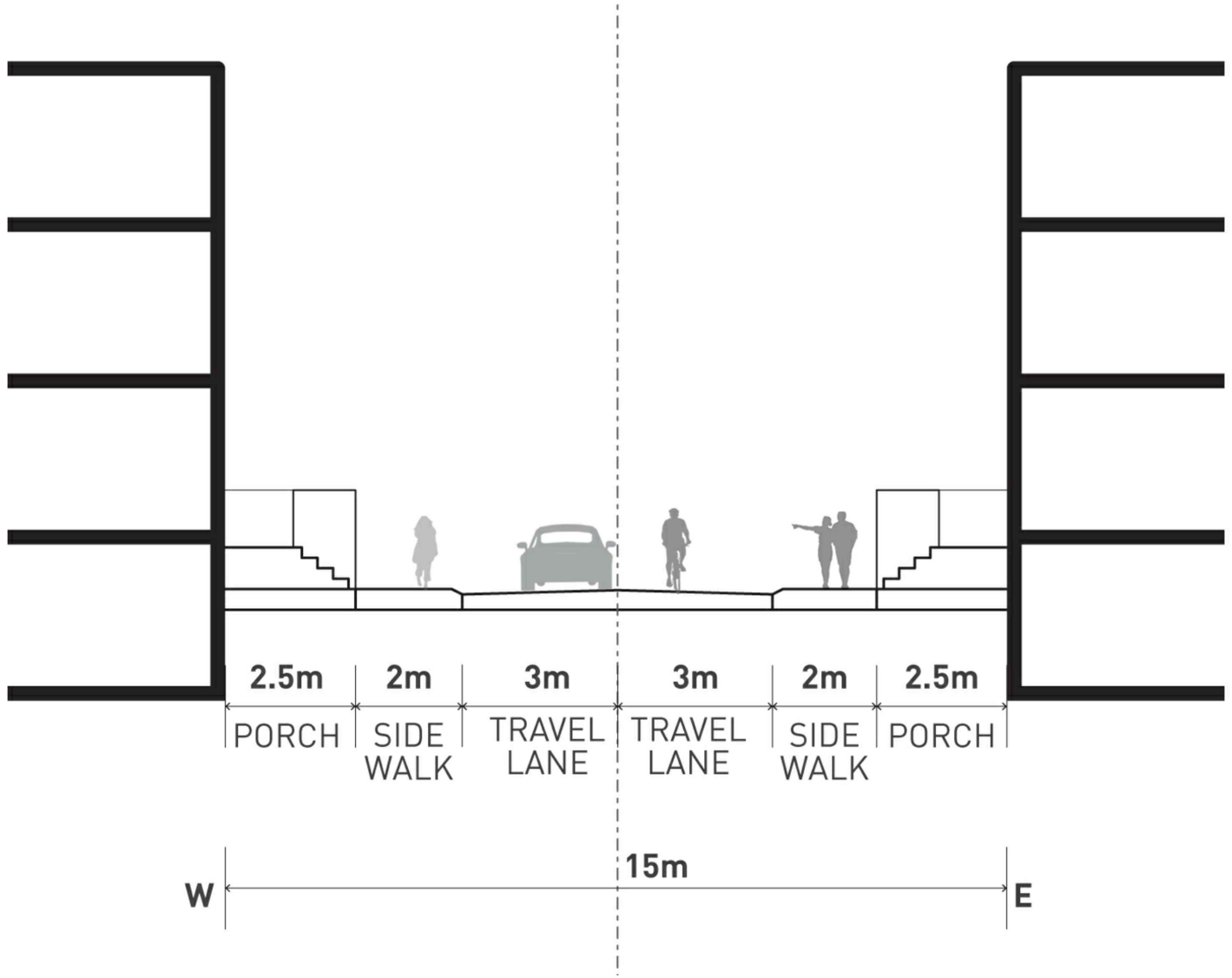
Figure 10

Date Plotted: August 25, 2017 Filename: \\bafp02\data\WP\7189\21\Graphics\Fig 11 - Condominium Road Concept Cross-Section.dwg



Condominium Road Concept Cross-Section

BA Group

70 Mississauga Road South
7189-21 August 2017

Figure 11

6.1.2 Internal Cycling Route Network

The internal cycling route network proposed as part of the Master Plan is illustrated in **Figure 12**.

There are two main components of the proposed internal cycling route network:

a) the off-road two-way route connecting between the existing Waterfront trail and Lakeshore Road West, running parallel to the future Lake Street extension; and
b) the on-street cycle lanes on Lake Street, Port Street West and Avenue 'B' connecting between the existing on-street cycle route on Mississauga Road/Lake Street and Lakeshore Road West.

The off-road two-way cycling lane is proposed to be 3.0 metres wide and will function primarily as a recreational route connecting to the Waterfront area.

The on-street cycle lanes will be a minimum of 1.5 metres wide and provide cycling connectivity throughout the site, linking to the existing Mississauga Road South/Lake Street on-street cycle routes. Furthermore, it is proposed that Mississauga Road South be reconstructed with an off-road west-side multi-use path as part of the Master Plan, providing another high-quality cycling route between Lakeshore Road West and the Waterfront.

The City of Mississauga's Draft Cycling Master Plan identifies Lakeshore Road West as a 'Special Study Area', indicating that the potential for cycling route along the corridor will be investigated as part of the Lakeshore Connecting Communities study.

6.1.3 Internal Pedestrian Route Network

The internal pedestrian route network proposed as part of the Master Plan is illustrated in **Figure 13**.

In general, pedestrian sidewalks and/or paths are provided along all public and private roads within the Master Plan lands. Additionally, the following pedestrian-focused elements are proposed:

a) A natural corridor running along the west border of the site, connecting between Lakeshore Road West and the Waterfront area;
b) a central pedestrian plaza located at the north end of Avenue 'A', connecting to Lakeshore Road West;
c) an east-west, off-road pedestrian connection between Mississauga Road and Avenue 'A', aligning with the existing Bay Street to the east;
d) a second pedestrian plaza centred on an around the southern Campus area (Blocks T and U), connecting to Mississauga Road South, the future Lake Street extension and the Waterfront; and
e) a pedestrian-focused 'woonerf' style connection between Avenue 'A' and the Waterfront through the southern Campus, serving as an access to the recreational Waterfront area.

Date Plotted: August 23, 2017 Filename: P:\7189\21\Graphics\Fig 12 - Master Plan Cycling Connections (pending).dwg

Master Plan Cycling Connections

BA Group

70 Mississauga Road South
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Figure 13

Date Plotted: August 21, 2017 Filename: P:\7189\21\Graphics\Fig 13 - Master Plan Pedestrian Connections.dwg

Master Plan Pedestrian Connections

BA Group

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Figure 13

6.1.4 Transit Accessibility

The site is within 1.2 kilometres of the Port Credit GO Station and existing bus service in the area running along Lakeshore Road West and Mississauga Road North. Furthermore, the future Hurontario LRT route terminating at the Port Credit GO Station will provide additional transit connectivity for the site.

The Master Plan transit context is illustrated in **Figure 14**.

Given the site's proximity to these facilities, it is anticipated that a significant portion of trips to/from the site will be transit oriented. As the plan seeks to provide a mix of uses on the vacant lands, it is anticipated that it will increase ridership at the Port Credit GO Station and on the MiWay bus service, and therefore provide greater utilization of planned infrastructure investments.

The Master Plan has been developed with the intention of accommodating a potential future transit route through the site via the proposed new public road connections. This potential route would loop through the site from Lakeshore Road West along the proposed Promenade, proposed Lake Street extension and Mississauga Road South.

In the short-term horizon, this will likely be a bus transit route – either MiWay, GO Bus or private shuttle bus to/from the Port Credit GO Station (a potential Transportation Demand Management strategy discussed in Section 9.0). In the long-term horizon, the route may utilize higher-order transit, subject to the findings of the ongoing Lakeshore Connecting Communities study.

6.1.5 Parking and Loading

The subject site is sufficiently large to accommodate the provision of the appropriate vehicular parking supply and service vehicle loading facilities that are required to support the proposed mixed-use development on the property.

Parking and loading operations on-site will be developed in a way so as to take maximum advantage of any shared parking / loading relationships between the contemplated mixed land uses in order to minimize the supply of both for the proposal as a whole.

Proposed parking and loading requirements for the site are discussed further in Section 7.0.

Date Plotted: August 21, 2017 Filename: P:\7189\21\Graphics\Fig 14 - Master Plan Transit Connections.dwg

Master Plan Transit Connections

BA Group

70 Mississauga Road South
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Figure 14

6.1.6 Broader Mixed-Use Site Plan Benefits

A mixed-use development on the site would address the following transportation objectives:

- Provide greater potential for the internalization / interaction of site traffic within the development site itself, as well as in the local area, thereby reducing external trip making while realizing similar or greater development intensity.
- Provide a greater variety of land uses and services within the site and immediate area thereby potentially reducing trip distances and encouraging active transportation.
- Provide potential for more interaction between the site and other area development activities including existing / emerging retail land uses, office development, and other employment land uses in the immediate vicinity.
- Provide for more efficient use of on-site infrastructure through shared:
  - general amenity space for employees, residents, and visitors to the proposed development;
  - parking supply between residential visitors, retail patrons and staff as well as other non-residential land uses, particularly during evening and weekend periods;
  - vehicular servicing / loading requirements – i.e., refuse collection, general delivery, and moving needs; and
  - pedestrian facilities / connections to public rights-of-way and public transit facilities (residential and employment peak directions are generally opposite to one another so there are economies of scale when considering peak direction loads).

6.2 LOCAL AREA PERSPECTIVE

6.2.1 Arterial Road Improvements

Improvements to Mississauga Road South along the site's frontage, between Lakeshore Road West and the Waterfront, are proposed as part of the Master Plan. A concept cross-section is shown in **Figure 15**.

The road will be reconstructed as a more pedestrian- and cyclist-focussed route connecting the Lakeshore Road corridor to the Waterfront and J.C. Saddington Park. Vehicle travel lanes (3.5 metres in width) will be provided in each direction with on-street parking on the east side of the street. Sidewalks (1.5 metres in width) will be provided on both sides of the road and a 3.0-metre-wide multi-use trail will be provided on the west side of road.

The south side of Lakeshore Road West along the frontage of the site will also be improved from a pedestrian standpoint with an increased boulevard width (3.0 metres) and 2.0- to 3.0-metre-wide sidewalks.

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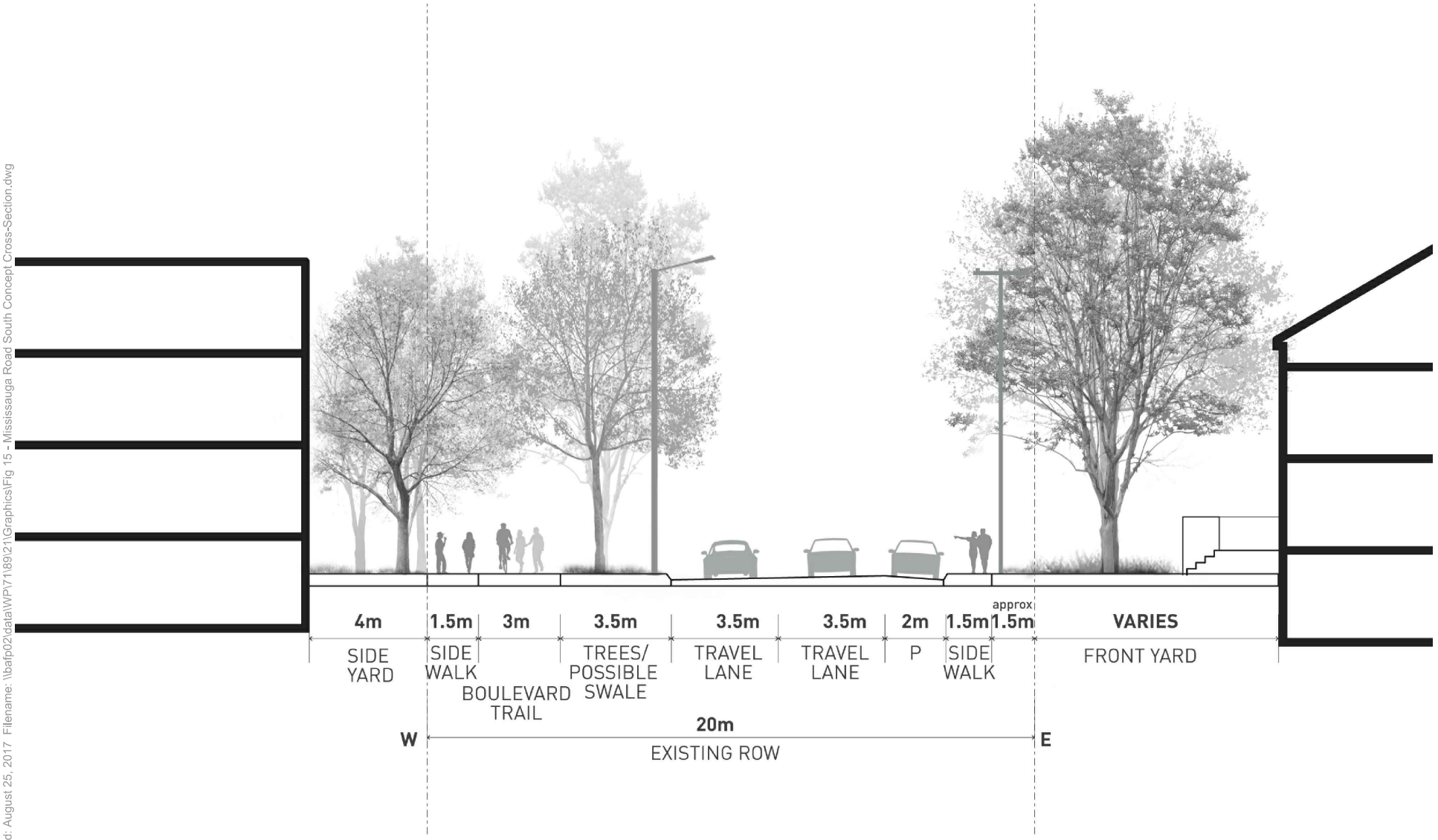

Mississauga Road South Concept Cross-Section

BA Group

70 Mississauga Road South
7189-21 August 2017

Figure 15

6.2.2 Travel Demand Forecasts

In order to assess the impacts of the type and intensity of development proposed in the Master Plan on the local area transportation infrastructure, travel demand forecasts were made for future walking, cycling, transit and automobile trips.

6.2.2.1 Residential Trips

Residential trip generation forecasts were based upon:

a) proxy trip generation surveys conducted at comparable residential townhouse and condominium developments located within a similar transportation context as the subject site (i.e. west of the downtown Toronto area with good access to transit and within approximately 1 kilometre of a GO station);
b) data from the ITE Trip Generation Manual for Land Use Code 230 – Residential Condominium/Townhouse;
c) trip generation rates utilized in the One Port Street transportation study conducted by BA Group in 2013; and
d) 2011 Transportation Tomorrow Survey (TTS) travel mode distribution data for home-based trips in the Port Credit area.

Trip generation forecasts for the proposed 1,962 and 538 residential units are summarized in **Table 3**.

6.2.2.2 Commercial Office Trips

Commercial office trip generation forecasts were based upon:

a) proxy trip generation surveys conducted at the Hatch Global office building located at 2800 Speakman Drive in Mississauga, which was selected as a proxy site because of its proximity to the Clarkson GO Station and access to local transit;
b) data from the ITE Trip Generation Manual for Land Use Code 710 – General Office Building; and
c) 2011 Transportation Tomorrow Survey (TTS) travel mode distribution data for work-based trips in the Port Credit area.

Trip generation forecasts for the proposed 13,627 m^2 of commercial office GFA are summarized in **Table 4**.

6.2.2.3 Community/Institutional Use Trips

The trip generation forecast for community/institutional uses was based upon ITE data, along with data from a YMCA site, since a YMCA is being considered as a potential use on the site. The trip generation approach was as follows:

a) proxy trip generation surveys conducted at the Oakville YMCA located at 410 Rebecca Street, which was selected as a proxy site because of its similar transportation context compared to the subject site;
b) data from the ITE Trip Generation Manual for Land Use Code 495 – Community Centre; and
c) 2011 Transportation Tomorrow Survey (TTS) travel mode distribution data for all trips in the Port Credit area.

Trip generation forecasts for the proposed community/institutional use (9,118 m^2 GFA in size) are summarized in **Table 5**.

TABLE 3 RESIDENTIAL TRIP GENERATION SUMMARY

Vehicle Trip Generation Rate Source		AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
		Vehicle Trip Generation Rates per Residential Unit					
Legion Road Condominiums[1]		0.02	0.24	0.27	0.17	0.09	0.26
Manitoba Street Condominiums and Townhomes[2]		0.08	0.44	0.51	0.38	0.23	0.61
Port Credit Townhomes[3 4]		0.17	0.36	0.52	0.66	0.55	1.22
ITE Trip Generation Manual[5]		0.05	0.23	0.27	0.23	0.11	0.34
One Port Street Transportation Study[6]		0.07	0.27	0.34	0.28	0.12	0.40
Selected Vehicle Trip Generation Rate (Apartment Units)		**0.05**	**0.25**	**0.29**	**0.23**	**0.11**	**0.33**
Selected Vehicle Trip Generation Rate (Townhouse Units)		**0.08**	**0.44**	**0.51**	**0.38**	**0.23**	**0.61**
Travel Mode	**Split[7]**	**Total Future Trips by Travel Mode – 1,955 Condominium Apartment Units + 539 Townhouse Units**					
Driver Trips	**67%**	**131**	**718**	**849**	**647**	**329**	**976**
Auto Passenger Trips	12%	24	132	156	119	61	180
Transit Trips	19%	37	206	243	185	94	280
Cycling/Walking Trips	2%	4	19	23	17	9	26
Total Person Trips	**100%**	**196**	**1,075**	**1,271**	**968**	**494**	**1,462**

Notes:
1. Survey conducted by BA Group on Wednesday, April 26, 2017 at 155 Legion Road North. Proxy site contains approximately 930 residential condominium apartments units in total.
2. Survey conducted by BA Group on Wednesday, April 26, 2017 at 210 Manitoba Street. Proxy site contains approximately 32 townhouse units and 310 residential condominium apartments units in total.
3. Survey conducted by BA Group on Thursday, June 1, 2017 at townhouse development bordered by St. Lawrence Drive in Port Credit. Proxy site contains 185 townhouse units (include 8 live/work units) in total.
4. Weekday afternoon trip generation rates not utilized, as they were found to be unusually high.
5. Based on trip generation data for Land Use Code 230 (Residential Townhouse/Condominium) contained in the ITE Trip Generation Manual, 9th edition.
6. Based on transportation study associated with the One Port Street development in Port Credit conducted by BA Group in 2013. The One Port Street Master Plan contemplated 1,500 new residential units.
7. Mode split based on 2011 Transportation Tomorrow Survey (TTS) data for home-based trips made during the weekday peak periods in the Port Credit area.

TABLE 4 COMMERCIAL OFFICE TRIP GENERATION SUMMARY

Vehicle Trip Generation Rate Source		AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
		Vehicle Trip Generation Rates per 100 m^2 GFA					
Hatch Global Office Site[1 2]		1.30	0.15	1.45	0.11	1.27	1.38
ITE Trip Generation Manual[3]		1.56	0.21	1.77	0.28	1.37	1.65
Selected Vehicle Trip Generation Rate		**1.43**	**0.18**	**1.61**	**0.20**	**1.32**	**1.52**
Travel Mode	**Split[4]**	**Total Future Trips by Travel Mode – 13,627 m^2 Commercial GFA**					
Driver Trips	**85%**	**210**	**26**	**236**	**29**	**194**	**223**
Auto Passenger Trips	10%	24	3	27	3	22	25
Transit Trips	3%	9	1	10	1	8	9
Cycling/Walking Trips	2%	6	1	7	1	6	7
Total Person Trips	**100%**	**249**	**31**	**280**	**34**	**230**	**264**

Notes:
1. Survey conducted by BA Group on Tuesday, April 25, 2017 at 2800 Speakman Drive. Proxy site contains approximately 11,700 m^2 of office-related gross floor area.
2. Trip generation rates reduced by a decreasing rate factor of 98% in the AM peak hour and 96% in the PM peak hour to account for the size difference between the proxy site and the proposed amount of commercial office (11,700 m^2 versus 13,627 m^2). These factors were calculated based on a comparison of ITE Trip Generation Manual (9th Ed.) vehicle trip generation rates for a General Office Building (Land Use Code 710) 11,700 m^2 and 13,627 m^2 in size.
3. Based on trip generation data for Land Use Code 710 (General Office Building) contained in the ITE Trip Generation Manual, 9th edition.
4. Mode split based on 2011 Transportation Tomorrow Survey (TTS) data for work-based trips made during the weekday peak periods in the Port Credit area.

6.2.2.4 Retail Trips

Retail trip generation forecasts were based upon:

a) proxy trip generation surveys conducted at Loblaws retail plaza located directly north of the site at 220 Lakeshore Road West;
b) data from the ITE Trip Generation Manual for Land Use Code 820 – Shopping Centre; and
c) 2011 Transportation Tomorrow Survey (TTS) travel mode distribution data for market-based trips in the Port Credit area.

Trip generation forecasts for the proposed 13,819 m^2 GFA (12,437 m^2 Gross Leasable Area) of retail space are summarized in **Table 6**.

TABLE 5 COMMUNITY/INSTITUTIONAL USE TRIP GENERATION SUMMARY

Vehicle Trip Generation Rate Source		AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
		Vehicle Trip Generation Rates per 100 m^2 GFA					
YMCA Oakville Site[1]		2.92	1.14	4.06	3.12	2.09	5.21
ITE Trip Generation Manual[2]		1.35	0.70	2.05	1.34	1.40	2.74
Selected Vehicle Trip Generation Rate		**2.14**	**0.92**	**3.06**	**2.23**	**1.74**	**3.97**
Travel Mode	**Split[3]**	**Total Future Trips by Travel Mode – 9,118 m^2 Community/Institutional Use GFA**					
Driver Trips	**74%**	**210**	**90**	**300**	**219**	**171**	**390**
Auto Passenger Trips	16%	43	18	61	45	35	80
Transit Trips	7%	21	9	30	22	17	38
Cycling/Walking Trips	3%	10	4	14	10	8	18
Total Person Trips	**100%**	**283**	**122**	**405**	**296**	**231**	**526**

Notes:
1. Survey conducted by BA Group on Tuesday, April 25, 2017 at YMCA Oakville. Proxy site contains approximately 4,140 m^2 of floor area.
2. Based on trip generation data for Land Use Code 495 (Community Centre) contained in the ITE Trip Generation Manual, 9th edition.
3. Mode split based on 2011 Transportation Tomorrow Survey (TTS) data for all trips made during the weekday peak periods in the Port Credit area.

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TABLE 6 RETAIL TRIP GENERATION SUMMARY

Vehicle Trip Generation Rate Source		AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
		Vehicle Trip Generation Rates per 100 m^2 GLA					
Loblaws Retail Site[1 2]		1.59	0.70	2.29	3.10	2.49	5.59
ITE Trip Generation Manual[3]		1.00	0.61	1.62	2.97	3.21	6.18
Selected Vehicle Trip Generation Rate		**1.30**	**0.66**	**1.95**	**3.03**	**2.85**	**5.88**
Travel Mode	**Split[4]**	**Total Future Trips by Travel Mode – 12,437 m^2 Retail GLA[5]**					
Driver Trips	**81%**	**149**	**76**	**225**	**358**	**336**	**694**
Primary Trips[6]		149	76	225	202	180	381
Pass-by Trips[6]		0	0	0	156	156	312
Auto Passenger Trips	15%	27	14	40	64	60	124
Transit Trips	1%	2	1	4	6	5	11
Cycling/Walking Trips	3%	5	2	7	12	12	24
Total Person Trips	**100%**	**184**	**93**	**277**	**439**	**413**	**852**

Notes:

1. Survey conducted by BA Group on Thursday, May 4, 2017 at the Loblaws retail plaza located at 240 Lakeshore Road West. Proxy site contains approximately 3,320 m^2 of retail gross leasable floor area. Vehicle trip rates exclude the Loblaws grocery store.
2. Trip generation rates reduced by a decreasing rate factor of 69% in the AM peak hour and 73% in the PM peak hour to account for the size difference between the proxy site and the proposed amount of retail space (3,320 m^2 versus 8,465 m^2). These factors were calculated based on a comparison of ITE Trip Generation Manual (9th Ed.) vehicle trip generation rates for a Shopping Centre (Land Use Code 820) 3,320 m^2 and 12,437 m^2 in size.
3. Based on trip generation data for Land Use Code 820 (Shopping Centre) contained in the ITE Trip Generation Manual, 9th edition.
4. Mode split based on 2011 Transportation Tomorrow Survey (TTS) data for market-based trips made during the weekday peak periods in the Port Credit area.
5. Gross Leasable Area (GLA) assumed to be 90 percent of Gross Floor Area (GFA).
6. A pass-by trip percentage of 45% was assumed in the PM peak hour based on pass-by trip data for Shopping Centres contained in the ITE Trip Generation Handbook, 3rd Edition. Pass-by trips are vehicle trips made to the site that are already on the road network on route to another destination. These trips are opposed to primary trips, which are trips made to the site where the site is the primary destination.

6.2.2.5 Total Site Trip Generation Forecasts

Total site trip generation was estimated by summing the trips generated by the individual proposed uses on-site – residential, office, community/institutional use, and retail uses – and applying an 'internalization' factor to account for a reduction in external home-based trips due to several common destination points being on-site.

An internalization factor of 5% was applied to the total amount of forecast residential person trips during the peak hours. These internal trips represent persons who would normally make an external trip to either a place of work, retail store or recreational destination if they lived on a site containing no other uses but residential,

who now only travel internally to the site, taking advantage of the mixed uses in their immediately local community.

Correspondingly, it was assumed that 50% of these internal trips displace external trips to the office and community/institutional uses on the site. The other 50% of internal trips are assumed to travel to the retail uses on the site, but don't displace any external trips associated with those uses – i.e. the internal trips are additive, not substitutional. These assumptions were made with the logic that the offices and community/institutional uses on the site have a more fixed person capacity compared to retail uses.

Total trip generation for the site is summarized in **Table 7**.

In total, the proposed 70 Mississauga Road South site as a whole is anticipated to generate approximately 2,138 and 2,995 new person trips during the critical weekday morning and afternoon peak hour periods, respectively. Of these trips, 1,548 and 1,898 are net new vehicle trips (i.e. new vehicles on the local road network) during the weekday morning and afternoon peak hour periods, respectively.

The above-noted number of trips forecasted assumes that people travel the same as they do today with respect to their travel mode of choice. In order to gain an understanding of future vehicle trip generation associated with the proposed site if future improvements to transit infrastructure resulted in a modal shift away from personal automobiles to transit, a sensitivity analysis was performed that considered a 5% mode shift from driver to transit. The 5% assumption was based on direction from City transportation staff, and is not intended to reflect a mode shift that may occur with introduction of rapid transit.

Total trip generation for the proposed site assuming this 5% modal shift is summarized in **Table 8**. In this scenario, the total number of net new vehicle trips on the local road network is reduced to 1,441 and 1,749 during the weekday morning and afternoon peak hour periods, respectively.

TABLE 7 TOTAL SITE TRIP GENERATION SUMMARY

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
	Residential					
Auto Driver	124	683	808	615	313	929
Auto Passenger	23	125	148	113	58	170
Transit	36	196	232	176	90	266
Cycle/Walk	3	18	22	16	8	25
Total Residential Person Trips	**186**	**1,023**	**1,209**	**921**	**469**	**1,390**
	Office					
Auto Driver	201	25	226	25	186	210
Auto Passenger	22	3	25	2	20	23
Transit	6	1	7	0	6	6
Cycle/Walk	6	1	7	1	5	6
Total Office Person Trips	**235**	**29**	**263**	**28**	**217**	**245**
	Community/Institutional Use					
Auto Driver	201	89	289	215	163	378
Auto Passenger	41	18	59	44	33	77
Transit	18	8	26	20	15	35
Cycle/Walk	10	4	14	10	8	18
Total Community/Institutional Use Person Trips	**269**	**120**	**389**	**289**	**219**	**508**
	Retail					
Auto Driver	149	76	225	358	336	694
Primary	149	76	225	202	180	381
Pass-by	0	0	0	156	156	312
Auto Passenger	27	14	40	64	60	124
Transit	2	1	4	6	5	11
Cycle/Walk	5	2	7	12	12	24
Total Retail Person Trips	**184**	**93**	**277**	**439**	**413**	**852**

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TABLE 9 TOTAL SITE TRIP GENERATION SUMMARY (CONTINUED FROM PREVIOUS PAGE)

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
	Total Trips					
Auto Driver	675	873	1,548	1,213	998	2,211
Primary	675	873	1,548	1,057	842	1,898
Pass-by	0	0	0	156	156	312
Auto Passenger	113	160	272	223	171	394
Transit	62	206	268	202	115	318
Cycle/Walk	24	26	50	39	34	73
Total Site Person Trips	**874**	**1,264**	**2,138**	**1,678**	**1,317**	**2,995**

Notes:

1. Assumes 5% of residential trips are internalized compared to residential trip forecasts made in Section 6.2.2.1. Half of internalized trips are deducted from the office and community/institutional use external trip generation forecasts estimated in Sections 6.2.2.2 and 6.2.2.3.

TABLE 8 TOTAL SITE TRIP GENERATION SUMMARY – 5% MODE SHIFT TO TRANSIT

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
	Residential					
Auto Driver	115	632	747	569	290	859
Auto Passenger	23	125	148	113	58	170
Transit	45	247	292	223	113	336
Cycle/Walk	3	18	22	16	8	25
Total Residential Person Trips	**186**	**1,023**	**1,209**	**921**	**469**	**1,390**
	Office					
Auto Driver	189	23	212	23	175	198
Auto Passenger	22	3	25	2	20	23
Transit	18	2	20	1	16	18
Cycle/Walk	6	1	7	1	5	6
Total Office Person Trips	**235**	**29**	**263**	**28**	**217**	**245**
	Community/Institutional Use					
Auto Driver	187	83	270	200	152	352
Auto Passenger	41	18	59	44	33	77
Transit	32	14	46	35	25	60
Cycle/Walk	10	4	14	10	8	18
Total Community/Institutional Use Person Trips	**269**	**120**	**389**	**289**	**219**	**508**
	Retail					
Auto Driver	140	71	211	336	315	651
Primary	140	71	211	180	159	339
Pass-by	0	0	0	156	156	312
Auto Passenger	27	14	40	64	60	124
Transit	12	6	17	28	26	54
Cycle/Walk	5	2	7	12	12	24
Total Retail Person Trips	**184**	**93**	**277**	**439**	**413**	**852**

Table continued on next page…

TABLE 10 TOTAL SITE TRIP GENERATION SUMMARY – 5% MODE SHIFT TO TRANSIT (CONTINUED FROM PREVIOUS PAGE)

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
	Total Trips					
Auto Driver	632	809	1,441	1,129	932	2,061
Primary	632	809	1,441	973	776	1,749
Pass-by	0	0	0	156	156	312
Auto Passenger	113	160	272	223	171	394
Transit	106	269	375	286	181	467
Cycle/Walk	24	26	50	39	34	73
Total Site Person Trips	**874**	**1,264**	**2,138**	**1,678**	**1,317**	**2,995**

Notes:
1. Assumes 5% of residential trips are internalized compared to residential trip forecasts made in Section 6.2.2.1. Half of internalized trips are deducted from the office and community/institutional use external trip generation forecasts estimated in Sections 6.2.2.2 and 6.2.2.3.
2. Assumes a 5% mode shift from auto driver trips to transit trips compared to the base trip generation estimates summarized in Table 7.

6.2.3 Master Plan Transportation Network Impacts Evaluation

The impacts of the Master Plan on the broader area transportation network will be evaluated as part of the Phase 2 transportation study to be conducted following the initial OPA/ZBA/Draft Plan of Subdivision application submission, which will build upon the travel demand forecasts made in this study.

The ability of the proposed Master Plan to accommodate the travel demand on the immediately local area transportation network – i.e. the proposed internal road system and its intersections with Lakeshore Road West and Mississauga Road South – are discussed in detail in Section 10.0.

Based on this review, the transportation elements of the Master Plan are able to appropriately accommodate its estimated future travel demand from a traffic capacity perspective, with a reasonable impact on the local area transportation network.

6.3 REGIONAL AREA PERSPECTIVE

The mixed-use nature of the proposal brings about land use synergies that will allow for a reduction in inter-regional vehicle kilometres travelled by creating local points of both origin and destination. The complement of uses on site reduce the need for residents and employees to travel outside of the local area to accomplish daily tasks and reduces the need for stop-over vehicle trips, thereby benefiting traffic conditions in the region at large.

A balance of uses on site will also achieve a more complete community that reduces the need for long-distance commuting and increases the proportion of travel by transit, walking and cycling, thereby lessening regional road congestion.

From a regional area transportation planning perspective, the concept Master Plan is consistent with the planning documents discussed in Section 4.0 with respect to:

- promoting, maintaining and improving connectivity within and among transportation systems and modes;
- minimizing the length and number of vehicle trips and supporting current and future use of transit and active transportation;
- the intensification of existing built-up areas to support transit and infrastructure investment;
- promoting a high intensity, compact urban form with an appropriate mix of uses including commercial, office, residential, recreational and major institutional;
- promoting transit-supportive and pedestrian-oriented urban forms;
- enhancing system capacity through design, network linkages, and new roads;
- creating new pedestrian and cycling connections;
- implementing reduced parking standards; and
- designing and implementing an effective transportation demand management strategy aimed at reduced the number of personal vehicle trips made.

7.0 MASTER PLAN PARKING CONSIDERATIONS

The Master Plan includes provision of parking in a manner that supports the proposed development but is also in line with sustainable transportation practices and the City of Mississauga's strategic direction towards a multi-modal city. The following section describes the prevailing current Zoning By-law requirements, parking policy context and rationale for the proposed parking provision.

7.1 ZONING BY-LAW PARKING REQUIREMENTS

The parking supply requirements for buildings in Port Credit and Lakeview are set out in Tables 3.1.2.1 and 3.1.2.2 in Part 3 of Mississauga Zoning By-Law 0225-2007. The predominant uses and associated requirements are summarized in **Table 9**.

Much of the Port Credit commercial area is classified as a C4 zone. The C4 zone parking supply rates for some uses are lower than those for similar uses in other areas of the City in recognition that they tend to generate lower parking demands than typical suburban uses.

A shared parking schedule in **Table 10** is also provided in the general zoning regulations which allows the amount of parking for mixed-use development projects to be reduced by taking into account the different temporal parking characteristics for each use.

7.2 POLICY CONTEXT FOR PARKING

As part of the Mississauga Parking Master Plan and Implementation Strategy (PMPIS), a review of city parking policies, such as by-law parking requirements, was undertaken in the May 2017 "*Parking Matters – Mississauga Best Practices Overview"* report. In general, it was found that Mississauga's existing minimum parking standards were consistently found to be higher than municipalities such as Toronto, Vancouver, and Oakville. As Mississauga strives to shift towards becoming a multi-modal city, lower parking requirements and policies are required to further encourage the shift from auto-based modes of transportation to more active modes of transportation.

By way of context, recent studies indicate that the City of Mississauga general office parking standards (3.2 spaces / 100 m^2 of GFA) and general retail parking standards (4.0 spaces / 100 m^2 of GFA) are approximately 1.5 to 2 times higher than the office rates and more than 2 times the retail rates required by municipalities such as Toronto, Victoria, and Vancouver.

Lower parking minimums and the introduction of parking maximums help promote an urban, compact neighbourhood environment and foster the growth of more vibrant mixed-use neighbourhoods.

7.2.1 Port Credit Local Area Plan

Supplementary to the Mississauga Official Plan document, the Port Credit Local Area Plan provides policies for lands in south central Mississauga. Based on the language in the Local Area Plan, it is intended that larger redevelopment sites be self-sufficient in the provision of parking, with preference to the maintenance of pockets of small parking lots as opposed to large centrally located parking structures. However, it is noted that the above policies may not necessarily be in line with the sustainable development vision for the site.

TABLE 9 ZONING BY-LAW 0225-2007 PARKING REQUIREMENTS

Use	Zoning Requirement
Condominium Apartment Dwelling	1.00 resident / bachelor unit 1.25 resident spaces / one-bedroom unit 1.40 resident spaces / two-bedroom unit 1.75 resident spaces / three-bedroom unit 0.20 visitor spaces / unit
Rental Apartment Dwelling	1.00 resident space / bachelor unit 1.18 resident spaces / one-bedroom unit 1.36 resident spaces / two-bedroom unit 1.50 resident spaces / three-bedroom unit 0.20 visitor spaces / unit
Office	3.2 spaces / 100 m^2 of GFA [1]
Medical Office	6.5 spaces / 100 m^2 of GFA
Retail Store (in a C4 Zone)	4.0 spaces / 100 m^2 of GFA
Restaurant (in a C4 Zone)	9.0 spaces / 100 m^2 of GFA
Take-out Restaurant	6.0 spaces / 100 m^2 of GFA
Warehousing (Single Occupancy Building)	1.1 spaces / 100 m^2 of GFA up to 6975m^2 0.6 spaces / 100 m of GFA over 6975m^2
Marina	0.6 spaces / slip or berth
Art Gallery, Museum	3.6 spaces / 100 m^2 GFA
Financial Institution	5.5 spaces / 100 m^2 of GFA
Animal Care Establishment (in a C4 Zone)	4.0 spaces / 100 m^2 of GFA
Real Estate Office	6.5 spaces / 100 m^2 of GFA
Repair Establishment (in a C4 Zone)	4.0 spaces / 100 m^2 of GFA
Personal Service (in a C4 Zone)	4.0 spaces / 100 m^2 of GFA
Dwelling Unit (located above a commercial development with a max height of three storeys)	1.25 spaces / unit
Detached or semi-detached Townhouse	2.0 resident spaces / unit 0.25 visitor spaces / unit
Condominium Horizontal multiple dwelling (without exclusive use garage and driveway)	As for Condominium Apartment Dwelling

Notes:
1. Where the non-office uses are greater than 10% of the total GFA, separate parking will be required for all such uses in accordance with Table 3.1.2.2. of Zoning By-law 0225-2007.

TABLE 10 SHARED PARKING IN ZONING BY-LAW 0225-2007

Use	Percentage of Peak Period[1]			
	Morning	Noon	Afternoon	Evening
Office / Medical / Financial Institution	100 (10)	90 (10)	95 (10)	10 (10)
Retail Centre / Retail Store / Personal Service	80 (80)	90 (100)	90 (100)	90 (70)
Restaurant / Take-out Restaurant	20 (20)	100 (100)	30 (50)	100 (100)
Overnight Accommodation	70 (70)	70 (70)	70 (70)	100 (100)
Residential – Resident Residential – Visitor	90 (90) 20 (20)	65 (65) 20 (20)	90 (90) 60 (60)	100 (100) 100 (100)

Notes:
1. 00 – Indicates weekday peak period percentage, (00) indicates weekend peak period percentage.

7.2.2 Inspiration Port Credit

The "*Inspiration Port Credit"* planning document dated November 2015 provides the planning framework for 1 Port Street East and 70 Mississauga Road South. It is intended that the parking requirements for the 70 Mississauga Road South site be appropriate for a mixed-use community and support transit-oriented development.

7.2.3 Port Credit & Lakeview Parking Strategy

The study entitled *"City of Mississauga Parking Strategy – Phase II Port Credit & Lakeview"*, conducted by BA Group in June 2014 develops an effective parking strategy for the Port Credit and Lakeview areas that support's the City's urban design, economic, land use, and transportation objectives.

The study found that the peak commercial parking demand in the Port Credit commercial area was well below current Zoning By-law requirements, and noted that this is a common occurrence in main street commercial areas which tend to exhibit lower parking demand characteristics compared to similar suburban commercial centres, which are often used as the basis for establishing zoning requirements.

It was recommended that the City reduce parking supply requirements in the Zoning By-law to reflect actual need, achieve broader urban design objectives, and support good urban design.

7.2.3.1 Automobile Parking

The Port Credit & Lakeview Parking Strategy recommended reduced and consolidated Zoning By-law parking requirements for the Port Credit area. The study recommended the following revisions to the existing Zoning By-law rates for commercial uses be implemented for C4 zones, to be applied to land uses in a main street type setting:

- 3.0 spaces per hundred square metres GFA for retail, personal service, repair establishments, art galleries and museums;
- 4.85 spaces per hundred square metres GFA for financial institutions, real estate offices, medical offices and take-out restaurants; and
- 3.0 spaces per hundred square metres GFA for office uses.

For residential uses, the study recommended reducing parking requirements within the Port Credit Mobility Hub area (generally within 500 metre radius of the Port Credit GO Station) and also in proximity to the future extension of light rail through Port Credit. Within those areas, the study recommended a reduced residential parking requirement of:

- a minimum of 1.0 space per unit for residents; and
- a minimum of 0.15 space per unit for visitors

The Port Credit & Lakeview Parking Strategy also recommended a modified shared parking schedule to better reflect the temporal variations in demand found in main street commercial areas. The recommended shared parking schedule is shown in **Table 11** below.

TABLE 11 PORT CREDIT PARKING STRATEGY - RECOMMENDED SHARED PARKING SCHEDULE

Use	Percentage of Peak Period[1]			
	Morning	Noon	Afternoon	Evening
Office / Medical Office	100 (10)	90 (10)	95 (10)	10 (10)
Real Estate Office	90 (50)	80 (50)	100 (50)	50 (20)
Financial Institution	70 (90)	75 (90)	100 (90)	80 (20)
Retail Store / Personal Service/Art Galleries/Museums/Repair Establishments	50 (50)	50 (75)	70 (100)	75 (10)
Restaurant / Take-out Restaurant	25 (20)	65 (90)	25 (50)	100 (100)
Hotel - Rooms	50 (70)	25 (25)	25 (25)	65 (50)
Hotel – Function Space[2]	95 (95)	100 (95)	90 (90)	95 (95)
Residential – Resident Residential – Visitor	90 (90) 20 (20)	65 (65) 20 (20)	90 (90) 50 (60)	100 (100) 100 (100)

Notes:
1. 00 – Indicates weekday peak period percentage, (00) indicates weekend peak period percentage.
2. Hotel Function space includes restaurants, meeting rooms, banquet and conference facilities.

7.2.3.2 Bicycle Parking

The Port Credit & Lakeview Parking Strategy noted that the existing Zoning By-law 0225-2007 did not have bicycle parking requirements, but recommended noted that the bicycle parking requirement for the City Centre area developed in Phase I of the Parking Strategy developed be applied to new developments in the Port Credit and Lakeview areas.

TABLE 12 PORT CREDIT PARKING STRATEGY - RECOMMENDED BICYCLE PARKING REQUIREMENTS

Use	Bicycle Parking Requirement
Office Uses	0.17 spaces per 100 m² GFA staff plus 0.03 spaces per 100 m² GFA visitor
Retail Uses	0.085 spaces per 100 m² GFA staff plus 0.25 spaces per 100 m² GFA visitor
All other non-residential uses	4% for staff and 4% for visitors
Residential Apartments & Townhomes[1]	0.60 resident spaces per unit 0.15 visitor spaces per unit

Notes:
1. Residential requirement applies to apartments and townhouses that do not have an exclusive garage.

The Port Credit & Lakeview Parking Strategy also recommended that the City should implement a requirement for showers and change rooms in the Zoning By-law for any non-residential use to further encourage cycling in the Port Credit area and Lakeview. It was recommended that the City adopt shower and change room requirements for employment uses as shown in **Table 13** below. The study recommended that developments with less than 2,325 m^2 (approximately 25,000 ft^2) of office space and 4,700 m^2 (50,650 ft^2) of retail/restaurant/personal service uses should be exempted from the requirement for showers and change rooms.

TABLE 13 SHOWER AND CHANGE FACILITIES

Required No. of Employee Bike Spaces	Number of Shower Stalls per gender
0 - 4	0
5 - 29	1
30 - 59	2
60 - 89	3
90 - 119	4
120 - 149	5
150 - 179	6
over 179	7 plus 1 for each additional 30 bike spaces

Notes:
1. Each gender will also require a change and washroom facility, including storage lockers equal to 0.70 times the number of employee parking spaces provided.

7.3 PROPOSED PARKING PROVISION

Parking is a powerful tool that can be used to achieve a variety of community objectives. It is intended that the parking provisions on the site meet the projected the demands of the site such that the residents and visitors will be unlikely to disrupt off-site roadways and parking areas, but not provide so much parking as to discourage achievement of the City of Mississauga multi-modal objectives.

The proposed parking requirements will be appropriate for a mixed-use community and support transit-oriented development. Transportation demand management measures (discussed further in Section 9.0) such as maximum parking standards, shared parking, enhanced bicycle parking, and carpool / car share priority parking will complement the characteristics of transit-oriented mixed-use neighbourhood, support the increased use of non-automobile travel and reduce the need for car ownership.

7.3.1 Automobile Parking

7.3.1.1 Proposed Non-Residential Parking Supply

It is proposed to meet the non-residential parking requirements outlined in BA Group's *"City of Mississauga Parking Strategy – Phase II Port Credit & Lakeview"* report (summarized in Section 7.2.3.1), which represent a 25% reduction in parking spaces for retail, personal service, repair, real estate and medical office uses, a 19% reduction for take-out restaurants, a 17% reduction for art galleries and museums, a 12% reduction for financial institutions and a 6% reduction for office uses compared to current by-law rates. These rates more closely represent the rates outlined for non-downtown core areas in the City of Toronto in their new consolidated zoning by-law review.

On-street parking spaces are proposed where feasible along the new municipal streets, namely Avenue 'A' and the westward extension of Port Street, and on Mississauga Road South, to support the need for short-term visitor parking within the development.

7.3.1.2 Proposed Residential Parking Supply

Guidance in the Local Area Plan and Inspiration Port Credit gives direction to consider reduced and transit supportive parking requirement rates for residential developments in proximity to the Port Credit GO Station. As a matter of policy, and to reflect the intended transit supportive nature of the subject site, it is proposed to adopt minimum residential parking supply rates as follows:

- 1.0 resident spaces per unit for apartment units or multi-unit condo buildings
- 0.15 visitor spaces per unit for apartment units or multi-unit condo buildings
- 2.0 parking spaces for townhouse units with exclusive garages
- 0.3 spaces per unit for retirement home, long term dwelling and hospice dwelling
- 0.4 resident parking spaces per dwelling unit for apartment dwelling units secured as affordable housing

Reducing the parking supply requirement would recognize the potential for higher transit, walk and active transportation use in the area, and is in line with the sustainability objectives of the City. In addition, it would recognize a trend to a more urban lifestyle and minimise the cost of expensive underground parking for

residents who do not actually want or need it, while making the most efficient shared use of the parking capacity that is provided, including on-street parking for visitors to the site.

7.3.2 Bicycle Parking

It is proposed to meet the bicycle parking requirements recommended in the City of Mississauga Cycling Masterplan and bicycle parking requirements outlined in BA Group's *"City of Mississauga Parking Strategy – Phase II Port Credit & Lakeview"* report (summarised in **Section 7.2.3.2**).

It is intended that visitor bicycle parking spaces be placed at highly visible and publicly accessible locations and occupant spaces be located in secure and weather-protected facilities.

The provision of bicycle parking on site will encourage the use of sustainable and active modes of transportation to / from the site. Shower and change facilities will be provided for the office uses on the site.

8.0 MASTER PLAN LOADING CONSIDERATIONS

The provision of appropriate loading facilities is crucial to the functionality of the Master Plan from servicing perspective for both the proposed residential and non-residential uses.

It is proposed that loading facilities for the site be provided in accordance with the requirements of the prevailing City of Mississauga Zoning By-law 0225-2007. By-law 0225-2007 requires loading spaces be provided for the following uses:

- Retail store;
- Retail centre;
- Office;
- Medical office;
- Overnight accommodation;
- Restaurant;
- Convenience restaurant;
- Manufacturing facility;
- Warehouse/Distribution facility;
- Wholesaling facility; and
- Apartment dwellings containing a minimum number of 30 dwelling units.

The number of loading spaces required for each type of use is summarized in **Table 14**.

TABLE 14 ZONING BY-LAW 0225-2007 LOADING REQUIREMENTS

Use	Loading Space Requirement [1]	
	Gross Floor Area [2]/ Number of Units	Minimum Number of Off-Street Loading Spaces
Office / Medical Office	GFA ≤ 2,350 m^2	None
	2,350 m^2 ≤ GFA ≤ 11,600 m^2	1 space
	GFA ≥ 11,600 m^2	1 space plus 1 additional space for each 9,300 m^2 GFA or portion thereof
All Other Non-Residential Uses	GFA ≤ 250 m^2	None
	250 m^2 ≤ GFA ≤ 2,350 m^2	1 space
	2,350 m^2 ≤ GFA ≤ 7,500 m^2	2 spaces
	7,500 m^2 ≤ GFA ≤ 14,000 m^2	3 spaces
	GFA ≥ 14,000 m^2	3 spaces plus 1 additional space for each 9,300 m^2 GFA or portion thereof
Apartment Buildings	Number of Units < 30	None
	Number of units ≥ 30	1 space

Notes:
1. A loading space is defined as an unobstructed rectangular area with a minimum width of 3.5 metres and a minimum length of 9.0 metres.
2. Excluding mezzanine space

8.1 SHARED LOADING PROVISIONS

In addition to adopting the Zoning By-law 0225-2007 base loading requirements, it is also proposed that the sharing of loading spaces between uses located within the same development block be permitted on the Master Plan lands in order to facilitate the design of efficient, pedestrian-oriented buildings and spaces while still meeting the functional servicing requirements of the multiple uses on the site.

Specifically, it is proposed to allow the sharing of loading spaces in the mixed-used blocks between the residential uses and commercial/retail uses, as well the sharing of loading spaces between uses on the solely commercial/retail use blocks. This permitting of sharing is intended to be accomplished through provisions in the site-specific Zoning By-law for the Master Plan lands.

9.0 TRANSPORTATION DEMAND MANAGEMENT PLAN

A central element of the transportation strategy for the Master Plan will be the adoption of a sustainable transportation demand management (TDM) Plan for the project that will attempt to influence the way people travel to and from the site through a comprehensive suite of TDM strategies.

These measures will include the application of various site design elements, alternative transportation offerings, property management, and operational policies, each of which have the goal of redistributing and reducing the travel demand of the project. Specifically, the primary goal is to reduce the overall reliance on single-occupant vehicles (SOV) while promoting the use of more active and sustainable modes of transportation.

Generally, this TDM Plan has three primary objectives:

a) Reduce car dependence and the need for everyday SOV travel;
b) Make it easy and attractive for people to walk and cycle; and
c) Promote car-sharing and transit, each of which are low-carbon in comparison to car ownership and SOV travel.

The Site has the potential to set a sustainable precedent of urban development in Mississauga. The City of Mississauga's strategic plan – *Our Future Mississauga* – states the aspiration for the City to be one where people can travel without an automobile, where transit is promoted as a preferred, affordable, and accessible choice, and to provide all people with the choice to walk, cycle, or use transit because these options will be desirable and convenient. The TDM Plan aims to leverage the advantages imbedded within the design of the Master Plan (i.e. it will be a compact, mixed-use development) to achieve its objectives.

9.1 SITE LOCATION AND TRANSPORTATION CONTEXT

While the site currently has convenient access to Lakeshore Road West, Mississauga Road South, and Hurontario Street, it is also well located from a sustainable transportation perspective.

The site is located in close proximity to the Port Credit GO Station (approximately one kilometre from the northeastern corner of the site), itself a part of the GO Transit Lakeshore West line which provides frequent train service between Aldershot GO Station in Burlington to the west and Union Station in Toronto to the east. As was outlined in Section 2.6, the site is currently directly serviced by several local MiWay Transit routes that connect it (from Lakeshore Road West) to Port Credit GO Station. Providing more convenient access to the Port Credit GO Station to and from the site is considered within the TDM Plan.

In addition, the southern portion of the site is bordered by the Waterfront Trail which alternates between being a paved multi-use trail and a route that shares space with automobiles on residential streets, and travels the extent of the City of Mississauga along its waterfront. Providing more thorough walking and cycling connections to the surrounding area (and specifically to Port Credit GO Station) is a featured aspect of the TDM Plan.

9.2 TDM-SUPPORTIVE ELEMENTS OF THE MASTER PLAN

9.2.1 Mixed-use and Compact Development

The Master Plan includes a mix of land uses on the site and the introduction of a fine-grained network of streets and blocks. Each of these features are conducive to sustainable transportation behaviour. With retail and commercial facilities along Lakeshore Road and community/institutional uses being considered for the southern area of the site, a series of prominent destinations will serve residents that are located close enough to their residence that they will not need to drive. Further, shorter distances between residential blocks are conducive to walking activity.

9.2.2 Vehicular Parking

Sensible vehicular parking management and the provision of an extensive suite of TDM measures are mutually supportive. If vehicular parking is oversupplied on the site, residents and visitors would have less incentive to utilize the options that are available to them. Likewise, a modest parking supply without appropriate TDM measures would negatively affect local traffic and place undue parking demand on the surrounding area. This concept was taken into consideration in Section 7.0 of this Report where vehicular and bicycle parking standards were contemplated. A reduction in vehicular parking rates is supportive of the TDM measures discussed in this section.

9.3 TDM PLAN STRATEGIES AND INITIATIVES

The future site context provides for good public transit service as well as pedestrian and cycling connectivity. Additional strategies have been developed to further support the use of non-auto modes of travel, and to encourage a change in travel behaviour that reduces automobile travel.

Based upon the site context and proposed land uses, the following TDM strategies will be explored. These measures are summarized in **Table 15**. The table outlines which of the three general TDM Plan objectives the strategy is targeting. The following sections provide additional details regarding each proposed TDM strategy.

9.3.1 Travel Mode Information Packages

Marketing programs aimed at new residential unit purchasers should be implemented to ensure that new residents have comprehensive information on modal choices in the area now and in the future. These programs should be made available at the sales centres for the new residential buildings and also be available to residents of the building once it is occupied. Residents should have the option to opt-in to e-mailing lists dedicated to updates regarding their travel options and printed materials should also be available.

TABLE 15 RECOMMENDED SITE TDM MEASURES

Measure	Description	TDM Plan Objective	Cost Estimate
Travel Mode Information Packages	Implement marketing programs aimed at new residential unit purchasers to ensure that residents are aware of available modal choices in the area.	1. Reduce car dependence and the need for everyday travel. 2. Make it easy and attractive for people to walk and cycle. 3. Promote car-sharing and transit.	To be determined.
Shuttle to/from Port Credit GO Station	Explore opportunities to provide service on a shuttle route that loops within the site and travels to Port Credit GO Station to replace short vehicular trips.	1. Reduce car dependence and the need for everyday travel. 3. Promote car-sharing and transit.	To be determined.
Ride-Sharing Program	Explore opportunities to offer ride-sharing programs originating within the buildings. Online services are freely available and can be promoted on the site to facilitate carpooling activity.	1. Reduce car dependence and the need for everyday travel. 3. Promote car-sharing and transit.	To be determined.
Unbundled Vehicular Parking	Provide unbundled parking for all residential development on the site, allowing home purchasers to only pay for the amount of parking they require.	1. Reduce car dependence and the need for everyday travel.	None (likely an opportunity for revenue generation if resulting excess parking can be sold.)
Pedestrian Connections	Provide public pedestrian sidewalks on all new public streets within the Project's boundaries.	2. Make it easy and attractive for people to walk and cycle.	Integrated into overall development cost.
Bicycle Parking	Where possible, provide bicycle parking in excess of requirements outlined in Section 7.2.3.2.	2. Make it easy and attractive for people to walk and cycle.	Integrated into overall development cost.
Bike Repair Stations	Consider a bicycle repair / maintenance station on the site and/or smaller public facilities located where there is bicycle parking.	2. Make it easy and attractive for people to walk and cycle.	Integrated into overall development cost.
Bike Share / Bike Fleet System	Facilitate the implementation of a bike share system on the Site and in the surrounding area; make the site a catalyst for a larger bike share system in the Port Credit area.	2. Make it easy and attractive for people to walk and cycle.	Implementation: To be determined. Usage: Provide a subsidy to future residents

Table continued on next page…

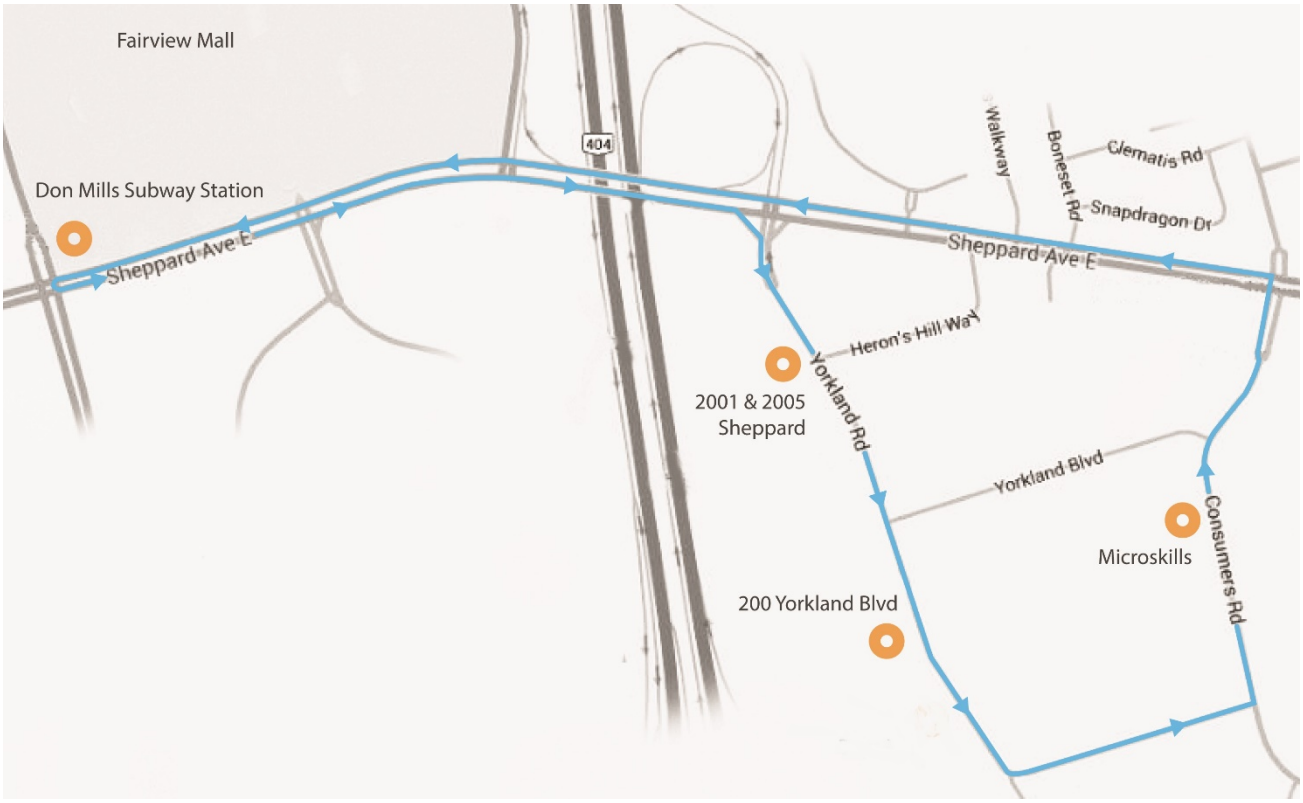
TABLE 17 RECOMMENDED SITE TDM MEASURES (CONTINUED FROM PREVIOUS PAGE)

Measure	Description	TDM Plan Objective	Cost Estimate
CAN-BIKE Cycling Course Subsidies	Provide subsidy/rebate towards a CAN-BIKE cycling course for purchases of residential units for the first two years of occupancy.	2. Make it easy and attractive for people to walk and cycle	Provide a subsidy to future residents
Shower and Change Facilities	For the office components of the Project, provide shower and change facilities in accordance with the Port Credit & Lakeview Parking Strategy recommendations, as outlined in Section 7.2.3.2.	2. Make it easy and attractive for people to walk and cycle	Integrated into overall development cost.
Transit Information Centres (with real-time Transit Screens)	Provide an information centre within all buildings that ensures current transit information (arrival times, route information, advisory notices) is conveniently available to all residents of and visitors to the Project. This information will be delivered electronically via a transit information screen located in a central location of each building.	3. Promote car-sharing and transit.	Integrated into overall development cost.
Car-Share Program	Explore opportunities to offer car-share service on the site, ideally with car-share stations (parking spaces) located within the parking area of every residential building within the Site and	1. Reduce car dependence and the need for everyday travel. 3. Promote car-sharing and transit.	Subject to which commercially-oriented ride-matching service can be provided on-site.
Pre-loaded PRESTO Cards	Provide PRESTO fare cards to purchasers of new condominium units for the first two years of occupancy.	3. Promote car-sharing and transit.	Provide one fare card pre-loaded with $100 per residential unit.
Electric Vehicle Charging	Provide electric vehicle charging stations within residential parking areas and in proximity to the non-residential land uses found within the site.	3. Promote car-sharing and transit.	Integrated into overall development cost
Community Outreach	Organize local events for residents once substantial occupancy has been achieved. At the events, attendees can receive information about the transportation options available to them, including all elements of this TDM Plan.	1. Reduce car dependence and the need for everyday travel. 2. Make it easy and attractive for people to walk and cycle. 3. Promote car-sharing and transit.	To be determined.

9.3.2 Shuttle to/from Port Credit GO Station

While the current local public transit service connecting the Site to Port Credit GO Station is adequate, greater incentive is likely required to successfully leverage the site's location in relation to the station. A shuttle service operating on a loop between the two locations would provide significant disincentive to car ownership and car usage for residents of the site who must use the Lakeshore West GO Rail service. A shuttle service would reduce the strain on parking demand at this GO Station if it is well-utilized. In addition, the future Hurontario-Main LRT service will terminate in Port Credit; a shuttle can deliver residents to this service as well.

The shuttle could be publicly or privately operated; there are more examples of the latter in the GTHA than there are of the former. In the North York, Smart Commute operates three shuttle services that operate on loops with Don Mills (subway) station as their origin and destination (more information on this service can be found here: http://smartcommute.ca/north-toronto-vaughan/get-me-there/corporate-shuttles/). Although that shuttle service is predicated on delivering commuters to workplaces in the area, a similar service can be provided to residents of the Site intending to access Port Credit GO Station.



Source:http://smartcommute.ca/north-toronto-vaughan/wp-content/uploads/sites/15/2014/07/dec-2014-map.jpg

9.3.3 Ride-Sharing Program

Explore opportunities to offer ride-sharing (carpooling) programs originating within the buildings. Carpooling services tend to be less effective at the residential end of the trip because it is likely that destinations will vary; residents are not likely to be travelling to the same destination. Nevertheless, ride-sharing services should be offered, perhaps informally, through the various property managers for each building. Free online ride-matching (with potential to upgrade to location-only matching services at cost) is widely available; www.explore.smartcommute.ca is an example that is entirely focused on the Greater Toronto & Hamilton Area.

9.3.4 Unbundled Vehicular Parking

Provide unbundled parking for all residential development on the site, allowing home purchasers to only pay for the amount of parking they require. Prospective residents should not be forced to own a parking space because if they are and are not inclined to use it, they can be expected to sell it. This can add traffic to the site and can be avoided if home purchasers are not required to purchase parking along with their unit.

9.3.5 Pedestrian Connections

High quality pedestrian connections within the site (and surrounding it) are one of the most important design features in the effort to ensure the viability of non-automotive modes of travel. Thus, it is critical for pedestrian and sidewalk infrastructure to enhance the pedestrian experience especially as it relates to safety and convenience. Children and elderly residents should feel comfortable walking within the site.

9.3.6 Bicycle Parking

Secure long-term bicycle parking should be provided in conveniently-located and accessible facilities within each residential building on the site. Short-term bicycle parking should be widely distributed across the site in conveniently-situated and readily accessible locations relative to key building entrances, open spaces, and destinations.

Proposed bicycle parking standard for the site are discussion in Section 7.3.

9.3.7 Bike Repair Stations

Public bike repair stations can be located throughout the site to allow cyclists to engage in timely repairs if required. Public stations can be spread throughout the site, ideally located alongside bicycle racks. A larger, more comprehensive bike repair station to service the entire site can also be considered.

9.3.8 Bike Share Systems

The introduction of a bike share system to the surrounding area is included in the Metrolinx GO Rail Station Access Plan for Port Credit GO Station. As a mixed-use development covering a large area in close proximity to this station, the Site is an ideal candidate to launch a bike share system within the area. There are several locations included in the Master Plan that would be ideal locations for bike share stations, including at the

community/institutional uses being considered on the Site's southern end, located adjacent to the Waterfront Trail.

A variety of service providers should be considered, including the following:

Bike Share Toronto: Operated by the Toronto Parking Authority, Bike Share Toronto currently does not extend west of High Park in Toronto. Nevertheless, it would be worthwhile to investigate the possibility of agency's first expansion outside of Toronto's city limits occurring on the Site and in the larger Port Credit area.

CycleLoan: Based in Mississauga and operated by SustainMobility, CycleLoan (www.cycleloan.ca) is a turnkey bike fleet program that requires minimal infrastructure to launch and operate. After launch, property management for residential buildings would likely be responsible for keeping the bike fleet operational on a daily basis.

City of Mississauga Bike Share: Mississauga does not have a municipally-operated bike share system although the Site and the Port Credit area are ideal locations to launch this type of program should the City decide to do so.

9.3.9 CAN-BIKE Cycling Course Subsidies

Cycling Canada's CAN-BIKE program is a series of courses for adults and children intended to educate participants on the safe and enjoyable use of a bicycle on the road.

Program development is coordinated through national instructor committees and Cycling Canada. Course delivery and administration takes place through CAN-BIKE Delivery Agents, such as provincial and territorial cycling associations, regional instructor committees, community associations, municipal departments, service groups and the efforts of individual/independent instructors.

Courses are offered frequently in several locations throughout the GTA (as can be viewed here: http://canbikecanada.ca/who-we-are-2/). It is recommended that a subsidy or rebate of approximately $100 be provided to purchasers of new units for the first two years of occupancy. This course subsidy will encourage the use of cycling by residents as a viable means of travel to and from the proposed subdivision.

9.3.10 Shower and Change Facilities

Shower and change facilities should be provided within office buildings and will be available for staff use in accordance with the rates discussed in Section 7.2.3.2.

9.3.11 Transit Information Centres (with real-time Transit Screens)

Given the proximity to a regional rail station and a future LRT terminus, at least one transit information centre should be located on the site and ideally, real-time transit screens should be provided in all multi-unit residential buildings. It should be maintained by the property manager of each building in tandem with the local transit service providers (MiWay and GO Transit). The objective of providing real-time transit information

is to enhance the convenience and comfort of using public transit. Bus arrival times, transit route information, and transit service advisory notices should be included among the information provided at these stations.

Multiple vendors provide real-time transit information boards, including *TransitScreen*. To obtain this service, there would be an initial capital cost for equipment and an ongoing subscription fee to keep it operational.

9.3.12 Car-Share Program

Car-sharing programs should be introduced through third-party providers (e.g. ZipCar, Car2Go, Enterprise CarShare, etc.) at each building on the site. It should be noted that the provision of a car-share program on-site is contingent on a service provider agreeing to locate car-share spaces on the Site. Car-share providers are currently active in Mississauga, including the following:

Enterprise CarShare: There are four cars available in Mississauga at three locations, all of which are located in the Downtown Mississauga (Square One) area.

Zipcar: There are 16 cars available in Mississauga at 10 locations, including GO Stations, the University of Toronto Mississauga, Credit Valley Hospital, Toronto Pearson Airport, and downtown Mississauga.

Car-sharing programs are an important TDM measure because it allows residents to use automobiles as needed without requiring them to own a vehicle. By nature, this means that they make less vehicular trips, directly reducing the amount of vehicular travel emanating from the site.

9.3.13 Pre-loaded PRESTO Cards

Considering the site's location relative to both existing local transit service, the Port Credit GO Station, and the future terminus of the Hurontario-Main LRT, it is recommended that pre-loaded PRESTO fare cards be provided to purchasers of new condominium units for the first two years of occupancy to encourage the use of transit to travel to and from the site. A fare card value of $100 per unit is recommended, which equates to approximately 33 MiWay Adult fares, or 16 GO Train trips into the downtown Toronto area.

9.3.14 Electric Vehicle Charging

Allocating vehicular parking spaces as electric vehicle (EV) charging stations is advised to accommodate growing demand as the site matures. Including EV charging stations within each residential parking garage and supporting the non-residential components of the site would support the broader environmental goals of the Project.

9.3.15 Community Outreach

Local events can be launched for residents of each building once substantial occupancy has been achieved. Residents would be invited to receive information about their transportation options including information on pedestrian, cycling and transit routes. The WVP would be required to coordinate the date of the meetings with Transportation Planning staff at the City of Mississauga so that a representative can attend to provide information packages to each new residential unit which contain information / pamphlets about cycling, walking, and transit options.

9.4 IMPLEMENTATION

Some of the measures being considered as part of the TDM Plan can be classified as ‘hard’ TDM measures; these are the physical infrastructure components and they include pedestrian connections, bicycle parking, bicycle repair stations, shower and change facilities, transit information centres, and electric vehicle charging stations. The implementation of these elements and the costs associated with them will be the responsibility of the applicant / land developer. After construction, their integration into the greater transportation network can be confirmed and monitored by planners and property managers.

Other measures can be classified as ‘soft’ measures, including travel mode information packages, a ride-sharing program, unbundled vehicular parking, CAN-BIKE cycling course subsidies, and pre-loaded PRESTO cards. Efforts to implement these measures should be the shared responsibility of property managers, City staff, and staff representing the relevant transit agencies.

The remainder of TDM initiatives included in the Master Plan involve connecting the site to other locations and are likely to be provided by third parties (i.e. Port Credit GO Station shuttle, bike-share system, and car-share program). Obtaining these services for the site will require negotiations with service providers and in some cases, minor infrastructure additions will be required for implementation (i.e. signs marking car-share parking spaces), and it is anticipated that the City would be involved in implementing such measures.

10.0 MASTER PLAN TRAFFIC OPERATIONS

This section provides details regarding the traffic analysis that was performed as part of this study to assess the impacts of the contemplated Master Plan on the immediately local area road network and confirm acceptable traffic operations on the proposed future internal public road network.

Note that a Phase 2 transportation study that will assess the impacts of the Master Plan on the broader area traffic network will be completed subsequent to this study and the initial submission of the OPA/ZBA/Draft Plan of Subdivision application for the 70 Mississauga Road South and 181 Lakeshore Road West site. This analysis will utilize both the Highway Capacity Manual methodology and a VISSIM micro-simulation model and will consider the 2021, 2031 and 2041 horizon years. This study will be coordinated with the ongoing Lakeshore Connecting Communities study being undertaken by the City of Mississauga with respect to model inputs and future traffic volume assumptions.

10.1 STUDY AREA

Based on the foregoing, the following study area was adopted for this analysis:

- Lakeshore Road West / Loblaws Retail Plaza Access / New Avenue ‘A’ (signalized)
- Lakeshore Road West / New Lake Street
- Lakeshore Road West / Northeast Block Driveway
- Mississauga Road South / Northeast Block Driveway
- Mississauga Road South / Port Street
- Mississauga Road South / Lake Street
- New Avenue ‘A’ / New Port Street
- New Lake Street / New Port Street
- New Lake Street / New Avenue ‘A’
- New Lake Street / New Avenue ‘B’
- New Port Street / New Avenue ‘B’

10.2 HORIZON YEAR

A specific build-out date and phasing timeline for the Master Plan will be determined by market factors as well as the length of time necessary to satisfy the requirements of the municipal approvals process. Preliminary estimates regarding the phasing timeline for the development are that development may take place within a range of 8-10 years.

For the purpose of this analysis, a horizon year of 2027 (i.e. a 10-year build-out period) was assumed.

10.3 TRAFFIC VOLUMES

10.3.1 Existing Traffic Volumes

Levels of existing vehicular traffic volumes on the area road network have been assessed using turning movement count data collected in 2016 and 2017. This data is summarized in **Table 16**.

TABLE 16 EXISTING TRAFFIC VOLUME DATA SOURCES

Intersection	Count Date	Count Times	Source
Lakeshore Road West / Mississauga Road South	Thursday, May 4, 2017 Wednesday, March 30, 2016	7:30am–9:30am 4:00pm–6:00pm	Spectrum Traffic Data
Lakeshore Road West / Loblaws Retail Plaza Access	Thursday, May 4, 2017	7:30am–9:30am 4:00pm–6:00pm	Spectrum Traffic Data
Mississauga Road South / Port Street West	Thursday, May 4, 2017	7:30am–9:30am 4:00pm–6:00pm	Spectrum Traffic Data
Mississauga Road South / Lake Street	Thursday, May 4, 2017	7:30am–9:30am 4:00pm–6:00pm	Spectrum Traffic Data

All of the amassed vehicle turning movement data was considered to create a comprehensive base existing traffic network that is meant to represent typical traffic volumes on that area road network during the peak hour periods. Although a capacity analysis was not performed for the intersection of Lakeshore Road West / Mississauga Road South in this study, both 2016 and 2017 volumes from turning movement counts performed at the intersection were utilized in establishing the based traffic volumes along Lakeshore Road West and Mississauga Road South assumed in the analysis.

It is noted that the site currently does not generate any significant volume of traffic, as the gas station located on the site at the southwest corner of Lakeshore Road West / Mississauga Road South is no longer in operation. The adopted existing area road network traffic volumes are illustrated in **Figure 16**.

10.3.2 Future Background Traffic Volumes

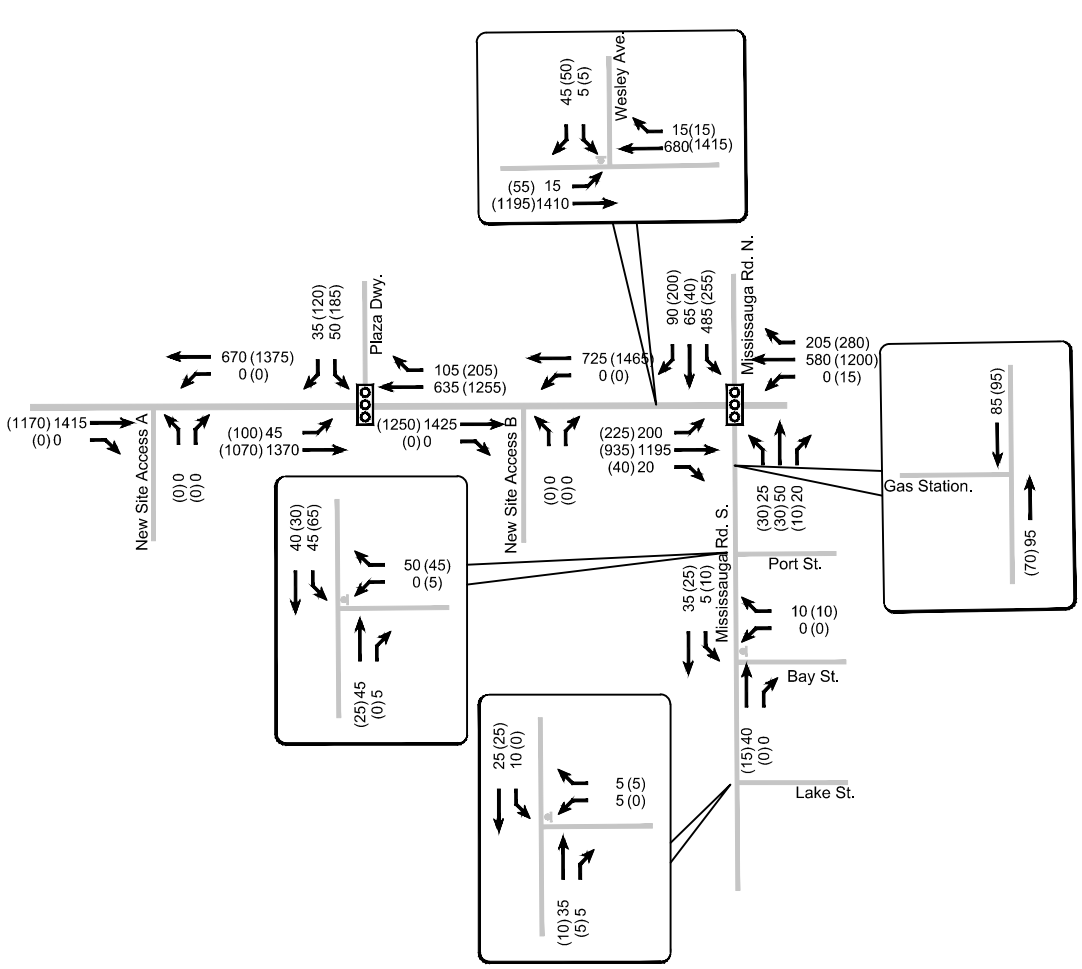
Future background traffic volumes were established based on a review of area developments that are planned or under construction and historical corridor growth.

10.3.2.1 Background Developments

A number of area developments that are planned or under construction have been considered in the traffic analysis model. The background developments included in this study are summarized in **Table 17**.

TABLE 17 BACKGROUND DEVELOPMENTS CONSIDERED

Site	Development Programme
5-7 Benson Avenue	139 residential apartment units 170 rental retirement units 16 townhouse units
8 Ann Street	70 residential condominium apartment units 2 townhouse units
21-27 Park Street East	142 residential condominium units
Total	**539 residential units**



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EXISTING AREA TRAFFIC VOLUMES

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70 Mississauga Road South
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Figure 16

Traffic volumes allowances made for background developments estimated made based on the residential vehicular trip generation methodology discussed in Section 6.2.2.1 and the residential traffic distribution summarized in Section 10.3.3.

10.3.2.2 Corridor Growth

In addition to considering specific allowances for area developments, based on consultation with the City of Mississauga's Transportation and Works department, the annual compounded traffic growth rates summarized in **Table 18** were applied to forecast future corridor traffic volumes on Lakeshore Road West at the 2027 horizon year.

TABLE 18 LAKESHORE ROAD WEST CORRIDOR TRAFFIC VOLUME GROWTH RATES

Peak Period	Direction	Growth Rate per Annum
Weekday Morning Peak Hour	Eastbound	0.25%
	Westbound	1.75%
Weekday Afternoon Peak Hour	Eastbound	1.25%
	Westbound	0.5%

Future background traffic volumes, which are developed by adding traffic volume allowances made for area background developments to existing traffic volumes are illustrated in
Figure 17.

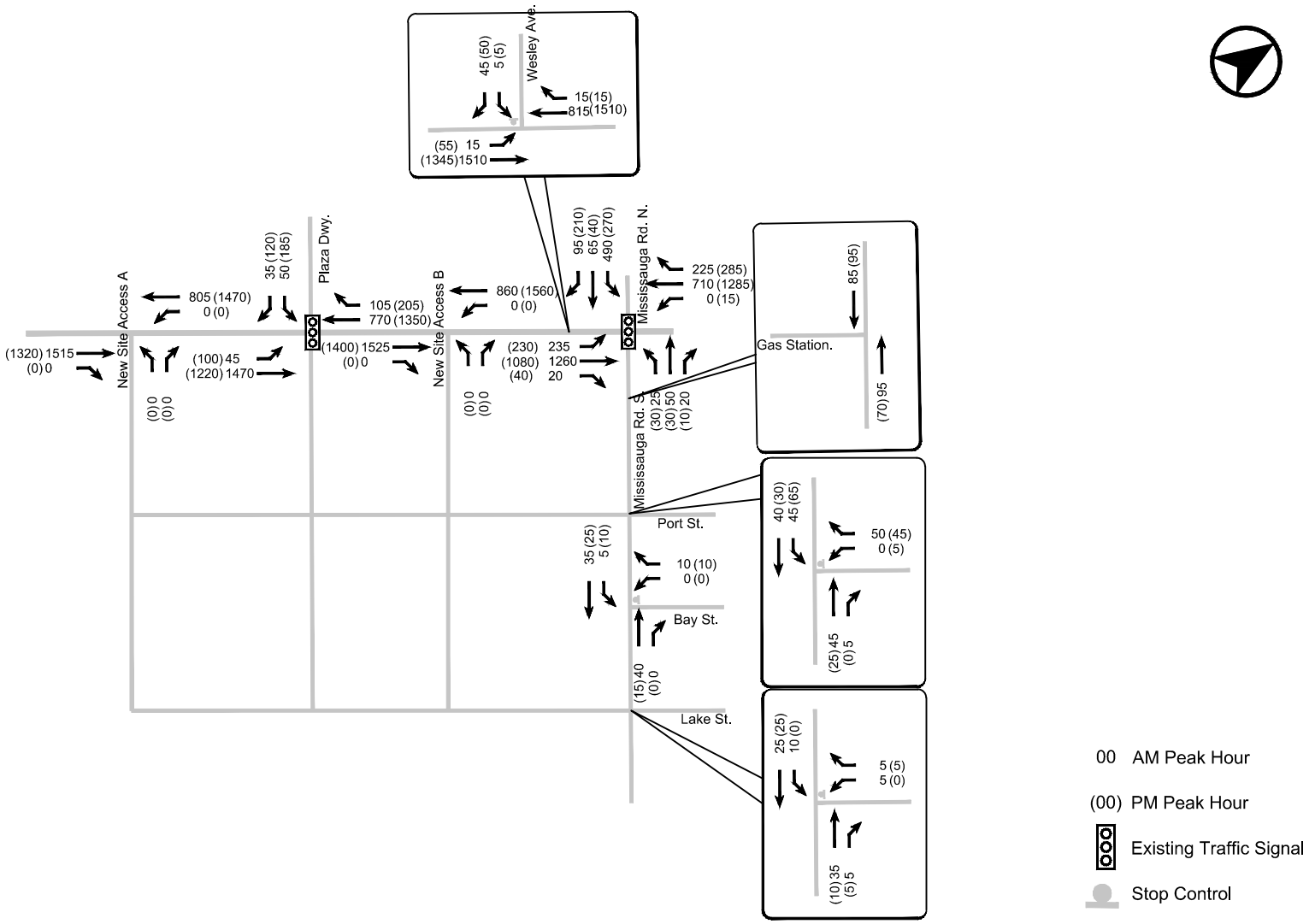
10.3.3 Site-Generated Traffic Volumes

Person-based trip generation forecasts have been developed in order to quantify the estimated number of new driver, passenger, transit, cycling and walking trips associated with the proposed Master Plan during the critical weekday morning and afternoon peak travel hours. Details regarding the person trip generation analysis are provided in Section 6.2.2.

The vehicular trip generation forecasts for the Master Plan as proposed are summarized in **Table 19**. As discussed in Section 6.2.2, a sensitivity analysis was performed that considered a 5% modal shift from auto driver to transit. Vehicular trip generation forecasts for this scenario are summarized in **Table 20**.

New site traffic is distributed to the traffic network based on a review of the 2011 Transportation Tomorrow Survey (2011 TTS) data for home-based, work-based and market-based trips to/from the local area during the weekday peak travel periods. Traffic generated by the community/institutional uses was distributed based on existing area traffic patterns. The adopted traffic distribution is summarized in **Table 21**.

Site-generated traffic volumes assigned to the area road network for the base and improved transit mode split scenarios are illustrated in **Figure 18** and **Figure 19**, respectively.



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FUTURE BACKGROUND TRAFFIC VOLUMES

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7189-21 August 2017

Figure 17

TABLE 19 MASTER PLAN VEHICULAR TRIP GENERATION SUMMARY

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Residential Driver Trips	124	683	808	615	313	929
Office Driver Trips	201	25	226	25	186	210
Community Centre Driver Trips	201	89	289	215	163	378
Retail Driver Trips	149	76	225	358	336	694
Primary Trips	*149*	*76*	*225*	*202*	*180*	*381*
Pass-by Trips	*0*	*0*	*0*	*156*	*156*	*312*
Total Driver Trips	**675**	**873**	**1,548**	**1,213**	**998**	**2,221**
Primary Trips	***675***	***873***	***1,548***	***1,057***	***842***	***1,898***
Pass-by Trips	***0***	***0***	***0***	***156***	***156***	***312***

TABLE 20 MASTER PLAN VEHICULAR TRIP GENERATION SUMMARY – 5% MODAL SHIFT

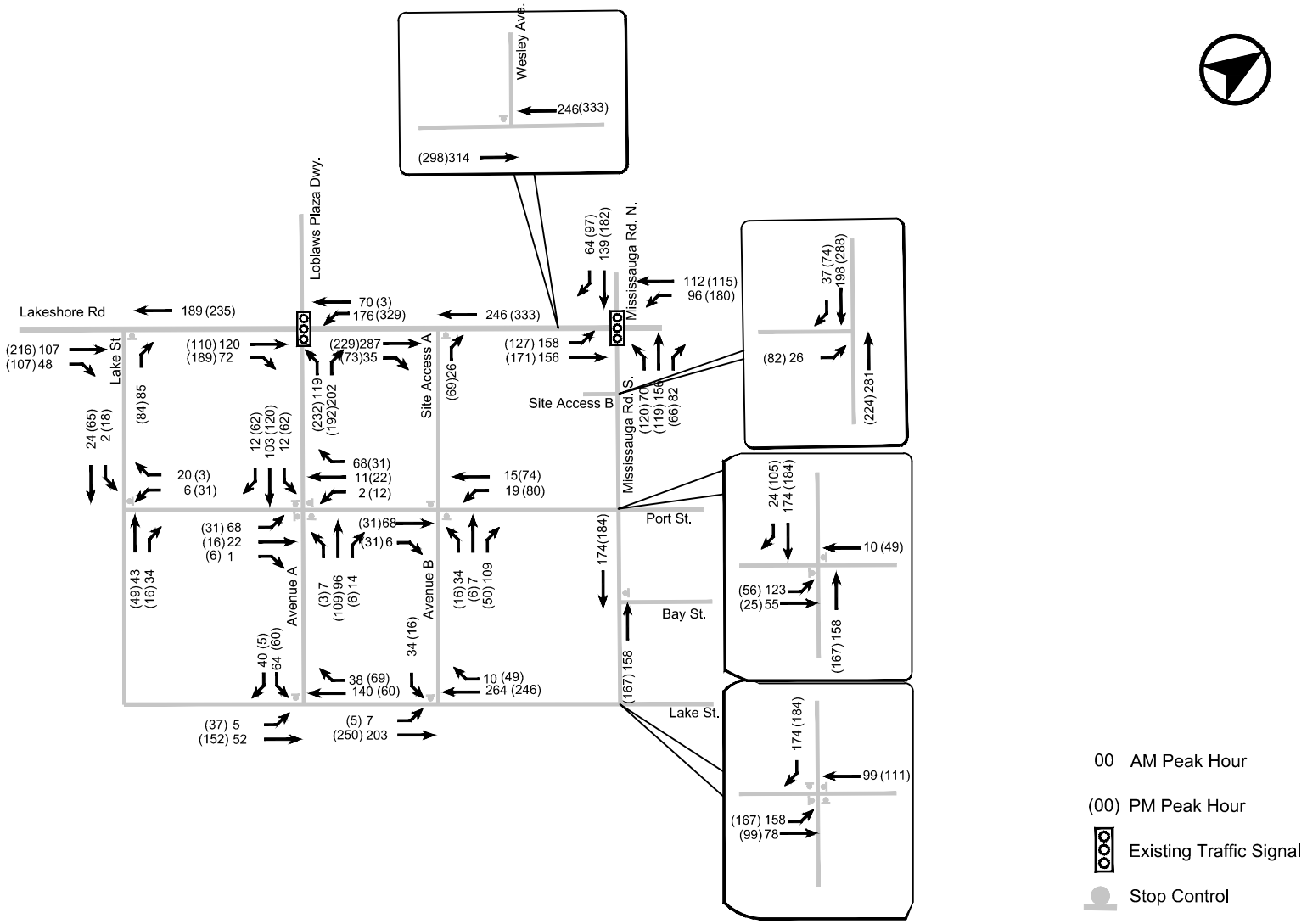
	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Residential Driver Trips	115	632	747	569	290	859
Office Driver Trips	189	23	212	23	1745	198
Community Centre Driver Trips	187	83	270	200	152	352
Retail Driver Trips	140	71	211	336	315	651
Primary Trips	*140*	*71*	*211*	*180*	*159*	*339*
Pass-by Trips	*0*	*0*	*0*	*156*	*156*	*312*
Total Driver Trips	**632**	**809**	**1,441**	**1,129**	**932**	**2,061**
Primary Trips	***632***	***809***	***1,441***	***973***	***776***	***1,749***
Pass-by Trips	***0***	***0***	***0***	***156***	***156***	***312***

TABLE 21 SITE TRAFFIC DISTRIBUTION

To/From Route	Residential		Office		Retail Store		Community/Institutional	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
East on Lakeshore Road	15%	15%	10%	10%	30%	20%	30%	30%
West on Lakeshore Road	30%	20%	15%	15%	40%	45%	50%	50%
North on Mississauga Road	30%	40%	45%	45%	15%	20%	10%	10%
North on Hurontario Street	25%	25%	30%	30%	15%	15%	10%	10%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

10.3.4 Future Total Traffic Volumes

Future total traffic volumes are developed by adding traffic generated by the proposed Master Plan to future background traffic volumes. Future total traffic volumes for the base analysis scenario and 5% modal shift to transit scenario are illustrated in **Figure 20** and **Figure 21**, respectively. As noted previously, the assumption of a 5% modal shift was a result of direction from City staff and is not intended to reflect a longer term modal shift that may occur with introduction of rapid transit on Lakeshore Road. The Phase 2 transportation submission will look in more detail at the impacts of higher shifts in travel mode from automobile driver to transit.



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SITE-GENERATED TRAFFIC VOLUMES

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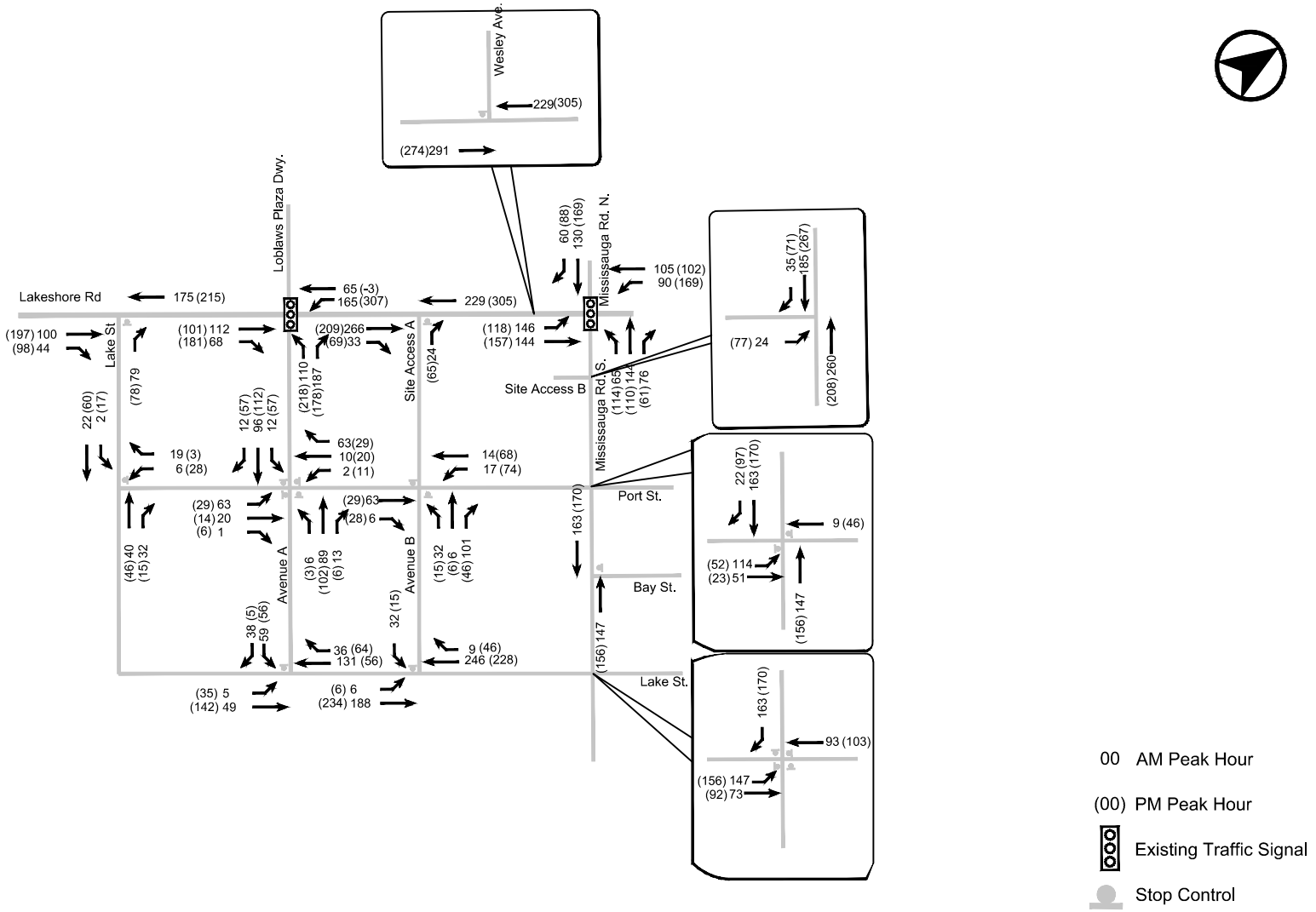
70 Mississauga Road South
7189-21 August 2017

Figure 18



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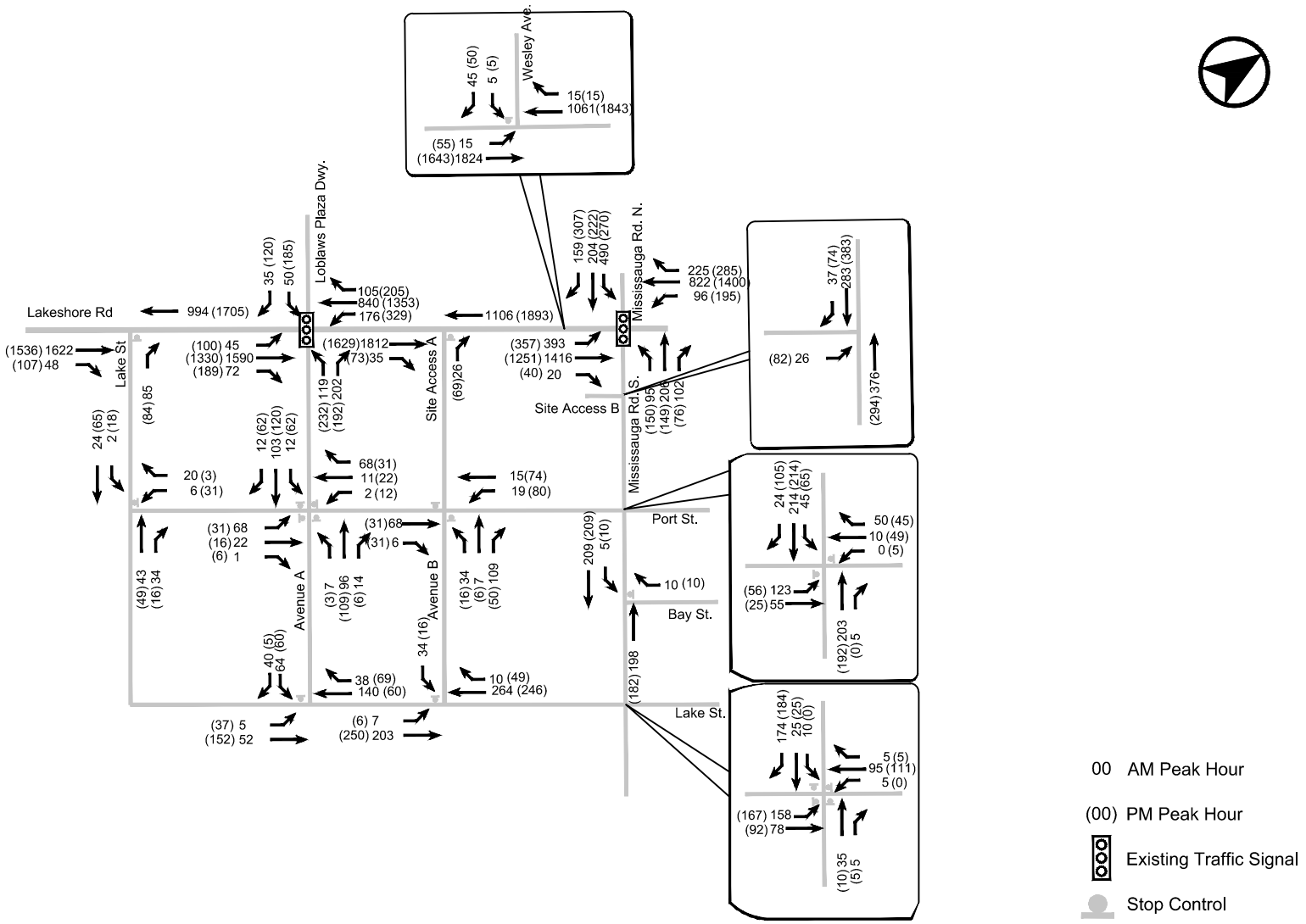
SITE-GENERATED TRAFFIC VOLUMES
(5% MODAL SHIFT TO TRANSIT)



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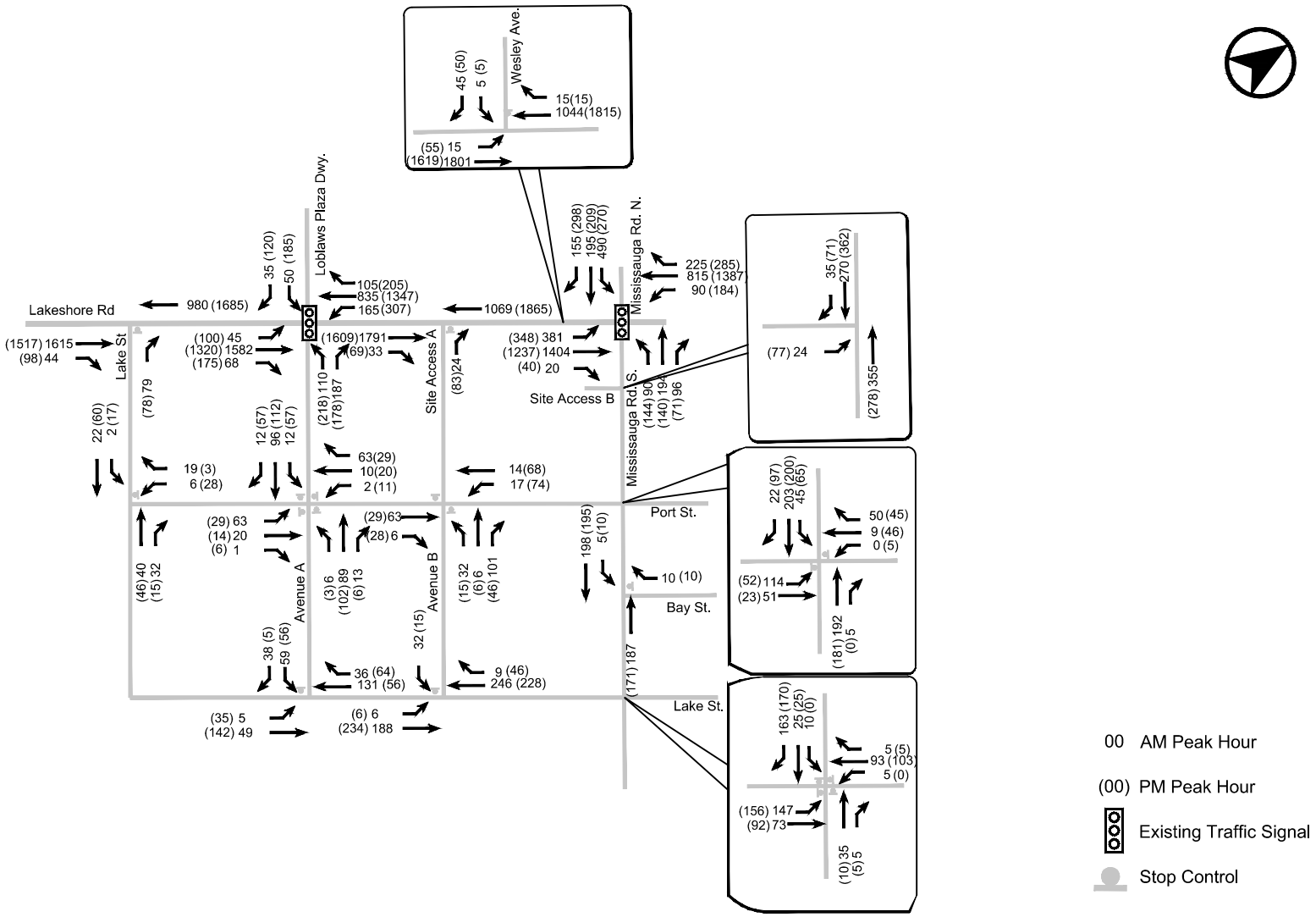
FUTURE TOTAL TRAFFIC VOLUMES

BA Group

70 Mississauga Road South
7189-21 August 2017

Figure 20



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FUTURE TOTAL TRAFFIC VOLUMES
(5% MODAL SHIFT TO TRANSIT)

BA Group

70 Mississauga Road South
7189-21 August 2017

Figure 21

10.4 OPERATIONS ANALYSIS

10.4.1 Analysis Methodology

The traffic capacity impact analysis has been completed using the Synchro (version 9.1) capacity analysis software in accordance with the methodologies outlined in the Highway Capacity Manual (HCM), and in accordance with the City of Mississauga's *Traffic Impact Study Guidelines*.

The key performance indicator of the signalized intersection evaluation is an intersection performance index (volume to capacity ratio, or v/c), where a v/c index of 1.00 indicates 'at or near capacity' conditions.

The key performance indicator of the unsignalized intersection / driveway analyses is an average delay per vehicle (in seconds) and a level of service (LOS) designation, where the LOS A (little delay) to LOS F (extended delay) range provides an understanding of the relative time a motorist may have to wait to complete a turn at an intersection or driveway.

10.4.2 Key Analysis Parameters

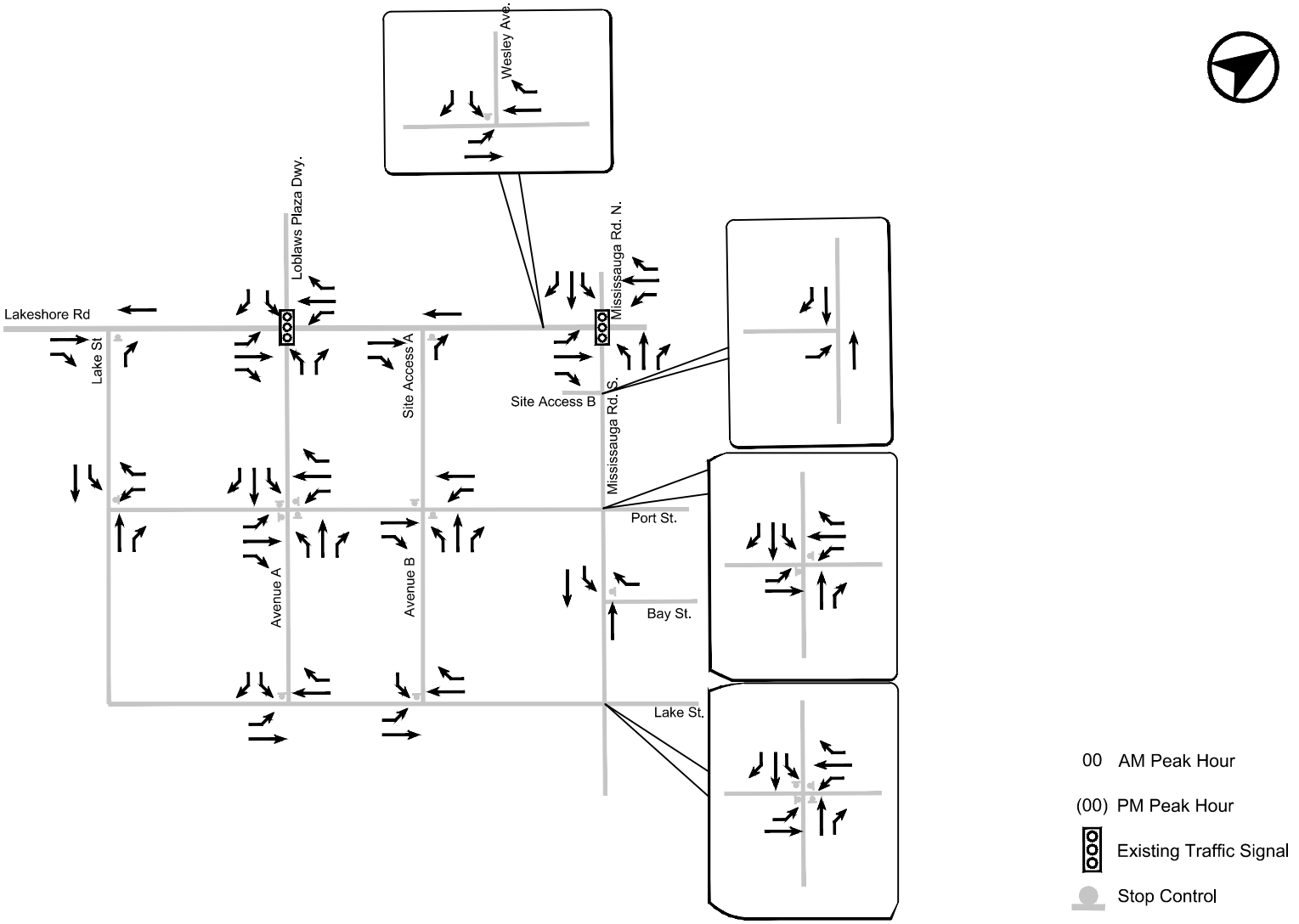
Lane Configurations
Existing lane configurations are used for existing and future background traffic conditions.

Under future total traffic conditions, the additional road network connections proposed as part of the Master Plan are assumed. These include:

- the connection of the new Avenue 'A' to Lakeshore Road West at the existing signalized intersection of Lakeshore Road West and the Loblaws retail plaza access to the north of the site;
- the connection of the extended Lake Street to Lakeshore Road West;
- the addition of a new driveway access on Lakeshore Road West between the Loblaws retail plaza access and Mississauga Road;
- the addition of a new driveway access on Mississauga Road South between Lakeshore Road West and Port Street West;
- the extension of Port Street West to the west, past Mississauga Road South and terminating at the extended Lake Street;
- the extension of Lake Street to the west, past Mississauga Road South and terminating at Lakeshore Road West; and
- the internal road network proposed the Master Plan, as illustrated in **Figure 6**.

The future area road network configuration is illustrated in **Figure 22**.

Signal Timing Plans
The existing signal timing plan for the Lakeshore Road West / Loblaws retail plaza access was obtained from the City of Mississauga and utilized in the analysis of the existing and future background scenarios. Under the future total traffic scenarios, this signal timing plan has been optimized as discussed in Section 10.4.4 to demonstrate its capacity to accommodate the forecast additional traffic generated by the Master Plan as proposed.



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FUTURE AREA ROAD NETWORK CONFIGURATION

Other Parameters

- Heavy vehicle percentages as derived from existing traffic counts;
- Peak hour factors as derived from existing traffic counts;
- Pedestrian and bicycle approach crossings as derived from existing traffic counts;
- Lost time adjust value of -1.0; and
- Synchro defaults for all other parameters.

10.4.3 Analysis Scenarios

Traffic operations of the area signalized and unsignalized intersections have been assessed under existing, future background, and future total conditions for the weekday morning and afternoon peak hour periods. These time periods typically reflect the busiest periods of activity on the area road network and are adopted as an appropriate basis for the analyses outlined herein.

Based on the collected data, the analyzed peak hours are representative of the following time periods:

- weekday morning peak hour – 7:45 a.m. to 8:45 a.m.
- weekday afternoon peak hour – 4:45 p.m. to 5:45 p.m.

An additional scenario that considered a 5% mode shift from automobile driver to transit was also analyzed in order to gain understanding of future traffic operations on the local road network due to a modal shift away from personal automobiles to transit. As noted previously, the assumption of a 5% modal shift was a result of direction from City staff and is not intended to reflect a longer term modal shift that may occur with introduction of rapid transit on Lakeshore Road. The Phase 2 transportation submission will look in more detail at the impacts of higher shifts in travel mode from automobile driver to transit.

The results of the traffic analysis are presented in the following sections.

10.4.4 Key Findings

Capacity analysis results summaries for each intersection within the study area are provided in **Table 22** and **Table 23**. Detailed Synchro HCM analysis output sheets are included in **Appendix A**.

Based on this analysis, new vehicular traffic volumes generated by the Master Plan concept can be appropriately accommodated on the immediate local area network, assuming on the configuration illustrated in **Figure 22**, in both the existing travel mode split and increase transit mode split scenarios.

Traffic operations on the new internal public road network envisioned by the Master Plan will also be acceptable without a significant amount of vehicular delay or queuing.

As previously mentioned, analysis of the impacts of the Master Plan on the broader area road network will be provided as part of the Phase 2 Transportation study.

TABLE 22 LAKESHORE ROAD WEST / LOBLAWS RETAIL PLAZA ACCESS / NEW AVENUE 'A' SIGNALIZED INTERSECTION CAPACITY ANALYSIS RESULTS SUMMARY

Movement	Existing Traffic	Future Background Traffic	Future Total Traffic	Future Total Traffic Conditions (5% Mode Shift to Transit)
EBL	0.08 (0.42)	0.10 (0.48)	0.14 (0.76)	0.13 (0.73)
EBT	0.51 (0.42)	0.54 (0.49)	0.77 (0.91)	0.76 (0.88)
EBR	N/A (N/A)	N/A (N/A)	0.06 (0.24)	0.05 (0.22)
WBL	N/A (N/A)	N/A (N/A)	0.69 (0.94)	0.65 (0.91)
WBT	0.24 (0.50)	0.29 (0.54)	0.35 (0.65)	0.34 (0.64)
WBR	0.08 (0.16)	0.08 (0.16)	0.08 (0.19)	0.08 (0.19)
NBL	N/A (N/A)	N/A (N/A)	0.69 (0.87)	0.67 (0.85)
NBTR	N/A (N/A)	N/A (N/A)	0.18 (0.13)	0.13 (0.12)
SBL	0.47 (0.63)	0.47 (0.63)	0.80 (0.94)	0.74 (0.93)
SBTR	0.02 (0.26)	0.02 (0.30)	0.02 (0.22)	0.02 (0.21)
Overall	**0.50 (0.52)**	**0.54 (0.55)**	**0.77 (0.96)**	**0.75 (0.93)**

Notes:
1. 0.00 (0.00) – Weekday morning peak hour (Weekday afternoon peak hour)

TABLE 23 UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection / Movement	Existing Traffic		Future Background Traffic		Future Total Traffic		Future Total Traffic Conditions (5% Mode Shift to Transit)	
	LOS	Avg. Delay (s)	LOS	Avg. Delay (s)	LOS	Avg. Delay (s)	LOS	Avg. Delay (s)
Lakeshore Road West / New Lake Street								
NBR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	23.1 (21.3)	C (C)	22.4 (20.5)	C (C)
Lakeshore Road West / Northeast Driveway Access								
NBR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	10.5 (11.1)	B (B)	10.4 (10.9)	B (B)
Mississauga Road South / Port Street West								
EBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	41.3 (31.5)	E (D)	33.7 (27.7)	D (D)
WBTLR	9.0 (8.8)	A (A)	9.0 (8.8)	A (A)	11.5 (17.5)	B (C)	11.2 (16.4)	B (C)
SBLTR	4.1 (5.1)	A (A)	4.1 (5.1)	A (A)	1.7 (2.0)	A (A)	1.8 (2.1)	A (A)
Mississauga Road South / Lake Street								
EBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	10.8 (11.0)	B (B)	10.4 (10.5)	B (B)
WBLTR	9.0 (8.3)	A (A)	9.0 (8.3)	A (A)	9.1 (9.0)	A (A)	8.9 (8.8)	A (A)
NBLTR	9.8 (8.9)	A (A)	9.8 (8.9)	A (A)	9.5 (8.8)	A (A)	9.4 (8.7)	A (A)
SBLTR	2.2 (0.0)	A (N/A)	2.2 (0.0)	A (N/A)	9.8 (9.5)	A (A)	9.5 (9.2)	A (A)
Table continued on next page…								

Notes:
1. 0.0 (0.0) – Weekday morning peak hour (Weekday afternoon peak hour)

TABLE 25 UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY (CONTINUED FROM PREVIOUS PAGE)

Intersection / Movement	Existing Traffic		Future Background Traffic		Future Total Traffic		Future Total Traffic Conditions (5% Mode Shift to Transit)	
	LOS	Avg. Delay (s)	LOS	Avg. Delay (s)	LOS	Avg. Delay (s)	LOS	Avg. Delay (s)
Avenue 'A' / New Port Street West								
WBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	8.5 (8.4)	A (A)	8.4 (8.3)	A (A)
EBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	7.7 (8.1)	A (A)	7.5 (8.0)	A (A)
NBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	8.3 (8.4)	A (A)	8.2 (8.3)	A (A)
SBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	8.4 (9.3)	A (A)	8.3 (9.0)	A (A)
Avenue 'A' / New Lake Street								
EBLT	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	0.6 (1.7)	A (A)	0.7 (1.7)	A (A)
SBLR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	10.3 (11.2)	B (B)	10.1 (11.0)	B (B)
New Port Street West / Avenue 'B'								
EBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	4.2 (4.1)	A (A)	4.1 (4.1)	A (A)
NBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	9.7 (9.8)	A (A)	9.6 (9.6)	A (A)
SBLTR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	9.9 (11.6)	A (B)	9.8 (11.3)	A (B)
New Lake Street / Avenue 'B'								
EBLT	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	0.3 (0.3)	A (A)	0.3 (0.3)	A (A)
SBLR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	12.7 (12.9)	B (B)	12.2 (12.4)	B (B)
New Lake Street / New Port Street West								
WBLR	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	8.8 (9.6)	A (A)	8.8 (9.5)	A (A)
SBLT	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	0.5 (1.7)	A (A)	0.6 (1.7)	A (A)

Notes:
1. 0.0 (0.0) – Weekday morning peak hour (Weekday afternoon peak hour)

11.0 SUMMARY AND CONCLUSIONS

BA Group is retained by Port Credit West Village Partnership (“the WVP”) to provide urban transportation advisory services in relation to the property located at 70 Mississauga Road South and 181 Lakeshore Road West in the City of Mississauga. The site is a 72-acre plot of land on the Port Credit waterfront, generally bounded by Mississauga Road to the east, an existing residential neighbourhood to the west, Lakeshore Road West to the north, and to the south a strip of waterfront land that is not subject to this application.

The parcel of land considered for development in this report is an unoccupied brownfield site that is fenced to prevent access, and so has no existing driveways or in-use circulation systems, with the exception of a portion of the Waterfront Trail that extends across the sites southern frontage along the Lake Ontario shoreline. A fenced vehicle access to the site exists on Mississauga Road South, generally in line with Port Street West.

The WVP is seeking an OPA, ZBA and Draft Plan of Subdivision to permit development of a mixed-use community on the subject lands. A Master Plan, prepared by the WVP envisages approximately 2,500 residential units in the form of condominiums and townhouses, along with approximately 22,745 m² of commercial space (including community/institutional uses), approximately 13,820 m² of retail space and a significant portion of park land and open space. Several new public roads providing pedestrian, cycling, transit and automobile connections through the lands and to the existing transportation network are identified in the Master Plan to support the proposed development.

The Master Plan was informed by the Inspiration Port Credit document, and shows how a mixed-use development could be realized on site with consideration of good planning and urban design principles. Key consideration is given for transportation items including the illustration of a mobility network that will support the site with pedestrian and cycling connections, and connections to existing and planned transit

A summary of BA Group’s review of the urban transportation elements of the proposed mixed-use development is provided below.

Existing Area Transportation Context

1. Currently, between 65% and 70% of home-based trips to and from the local area during the peak periods are via private car and between 15% and 17% are via public transit.

2. From a road connectivity perspective, the site is well-served by four major corridors – Lakeshore Road, Mississauga Road, the Queen Elizabeth Way (Q.E.W.) and Hurontario Street.

3. Under existing conditions, with the exception of the Waterfront Trail, there is limited cycling-specific infrastructure in place within the area of the site. However, the City of Mississauga is planning significant improvements to cycling and pedestrian infrastructure in the Port Credit area. In particular, Lakeshore Road is identified as a primary on-road cycling route in the City’s Cycling Master Plan, and in the Official Plan.

4. The site is currently served by a number of bus routes providing transit connections to employment and education areas within Mississauga as well as to the nearest regional transit station (Port Credit

GO Station), which provides broader transit connections. The Port Credit GO Station located west of Hurontario Street, which is an approximately 1.2-kilometre walk from the eastern boundary of the site.

5. There are a number of planned transit infrastructure improvements for the Port Credit are including increase service on GO Transit lines including the Port Credit GO Station and the Hurontario-Main Light Rail Transit line, which will connect the Port Credit GO Station to Brampton's Gateway Terminal in the north.

The Master Plan

6. In total the Master Plan includes 2,500 new residential units, 13,819 m^2 of retail gross floor area (GFA), and 22,745 m^2 of commercial and community/institutional GFA. The residential units include traditional townhomes, stacked and back to back townhomes, and apartments units. The development will include five different precincts within the site, each with a different character ranging from retail and commercial uses to community space and residential uses.

7. The proposed development will be phased to respond to site remediation needs, as well as market absorption for the various proposed land uses. It is anticipated that the full build-out of the Master Plan may take 8-10 years from commencement of work on the site to final occupancy of the last phase.

8. The proposed development plan provides a fine-grained network of streets and blocks, facilitating access by all modes of transportation by generally replicating the existing street network pattern. The network includes both municipal streets and private condominium roads to ensure a range of facilities are provided to accommodate the different needs of various parts of the site.

9. It is intended that Port Street West and Lake Street will be extended as municipal streets into the subject site, with a non-automobile connection along the alignment of Bay Street. The main site access will be on Lakeshore Road West at the location of the existing traffic control signal that serves the existing retail plaza on the north side of the street. In addition, secondary vehicle access points will be provided on Lakeshore Road West, east and west of the main signalized intersection.

10. An internal cycling network is proposed comprising two main components: a) an off-road two-way route connecting between the existing Waterfront trail and Lakeshore Road West; and b) on-street cycle lanes on Lake Street, Port Street West and Avenue 'B' connecting between the existing on-street cycle route on Mississauga Road/Lake Street and Lakeshore Road West.

11. In general, pedestrian sidewalks and/or paths are provided along all public and private roads within the Master Plan lands. Additional pedestrian-focused elements are proposed including: a natural trail connecting to the Waterfront area, pedestrian plazas at the north and south end of the site, an east-west pedestrian connection through the site aligning with Bay Street, and a 'woonerf'-style connection to the Waterfront.

12. The Master Plan has been developed with the intention of accommodating a potential future transit route through the site via the proposed new public road connections. This potential route would loop through the site from Lakeshore Road West along the proposed Avenue 'A', proposed Lake Street

extension and Mississauga Road South. In the short-term horizon, this will likely be a bus transit route – either MiWay, GO Bus or private shuttle bus to/from the Port Credit GO Station.

13. Improvements to Mississauga Road South and Lakeshore Road West to make them more pedestrian-friendly and introduce a multi-use path on Mississauga Road are also proposed as part of the Master Plan.

Parking and Loading

14. It is proposed that reduced non-residential vehicle parking standards recommended in the *City of Mississauga Parking Strategy – Phase II Port Credit & Lakeview* report be adopted for the site.

15. Reduced and transit-supportive minimum parking requirement rates for the residential component of the site are proposed as follows:
    - 1.0 resident spaces per unit for apartment units or multi-unit condo buildings
    - 0.15 visitor spaces per unit for apartment units or multi-unit condo buildings
    - 2.0 parking spaces for townhouse units with exclusive garages
    - 0.3 spaces per unit for retirement home, long term dwelling and hospice dwelling
    - 0.4 resident parking spaces per dwelling unit for apartment dwelling units secured as affordable housing

16. The bicycle parking requirements recommended in the City of Mississauga Cycling Master Plan and bicycle parking requirements outlined in the *City of Mississauga Parking Strategy – Phase II Port Credit & Lakeview* report are proposed for the site.

17. It is proposed that loading facilities for the site be provided in accordance with the requirements of the prevailing City of Mississauga Zoning By-law 0225-2007, with additional provisions made to permit the sharing of loading spaces between uses located within the same development block in order to facilitate the design of efficient, pedestrian-oriented buildings and spaces while still meeting the functional servicing requirements of the multiple uses on the site.

18. The Master Plan lands are sufficiently large enough to appropriately accommodate these proposed parking and loading requirements.

Transportation Demand Management Strategy

19. A Transportation Demand Management (TDM) strategy for the site has been envisioned which includes several measures aimed at reducing the number of single-occupant vehicle trips made to and from the site.

20. The measures being investigated for inclusion include, among others, a potential shuttle service to/from the Port Credit GO Station, the provision of pre-loaded PRESTO cards for new residents, the installation of transit information screens that provide real-time transit information and the incorporation of car-share services such as ZipCar and Car2Go into the site.

Master Plan Impacts to Local Area Transportation Infrastructure

21. In total, the proposed 70 Mississauga Road South site as a whole is anticipated to generate approximately 2,138 and 2,995 new person trips during the critical weekday morning and afternoon peak hour periods, respectively. Of these trips, 1,548 and 1,898 are net new vehicle trips (i.e. new vehicles on the local road network) during the weekday morning and afternoon peak hour periods, respectively.

22. Assuming a 5% modal shift to transit from auto drivers to account for future transit infrastructure improvements in the area, the total number of net new vehicle trips on the local road network is reduced to approximately 1,440 and 1,750 during the weekday morning and afternoon peak hour periods, respectively. In the future, with rapid transit on Lakeshore Road, the shift to transit is expected to be higher and the impacts of higher transit mode shares will be assessed in the Phase 2 transportation report.

23. Based on the analysis performed as part of this study, new vehicular traffic volumes generated by the Master Plan concept can be appropriately accommodated on the immediate local area network in both the existing travel mode split and increase transit mode split scenarios.

24. Traffic operations on the new internal public road network envisioned by the Master Plan will also be acceptable without a significant amount of vehicular delay or queuing.

25. Analysis of the impacts of the Master Plan on the broader area road network will be provided as part of a subsequent study.

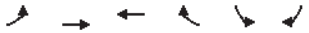
Appropriateness of the Proposed Master Plan from a Planning Perspective

26. Urban transportation policies and direction from the Provincial Policy Statement (2014), the Growth Plan for the Golden Horseshoe (2006), the City of Mississauga Official Plan (2015), and Moving Mississauga (2011) support the proposed Master Plan and supporting Official Plan Amendment.

APPENDIX A: Synchro Analysis Output Sheets

HCM Signalized Intersection Capacity Analysis
46: Lakeshore Rd W & Loblaws Access

Existing Conditions
AM Peak

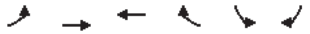


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	1370	635	105	50	35
Future Volume (vph)	45	1370	635	105	50	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.5	3.5	3.5
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1750	3515	3444	1532	1684	1551
Flt Permitted	0.39	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	711	3515	3444	1532	1684	1551
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	49	1505	698	115	55	38
RTOR Reduction (vph)	0	0	0	18	0	35
Lane Group Flow (vph)	49	1505	698	97	55	3
Heavy Vehicles (%)	2%	3%	6%	3%	6%	3%
Bus Blockages (#/hr)	0	4	0	3	0	0
Turn Type	Perm	NA	NA	Perm	Prot	Prot
Protected Phases		4	8		1	1
Permitted Phases	4			8		
Actuated Green, G (s)	117.3	117.3	117.3	117.3	8.7	8.7
Effective Green, g (s)	118.3	118.3	118.3	118.3	9.7	9.7
Actuated g/C Ratio	0.84	0.84	0.84	0.84	0.07	0.07
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	600	2970	2910	1294	116	107
v/s Ratio Prot		c0.43	0.20		c0.03	0.00
v/s Ratio Perm	0.07			0.06		
v/c Ratio	0.08	0.51	0.24	0.08	0.47	0.02
Uniform Delay, d1	1.8	2.9	2.1	1.8	62.7	60.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.6	0.2	0.1	3.0	0.1
Delay (s)	2.1	3.6	2.3	1.9	65.7	60.8
Level of Service	A	A	A	A	E	E
Approach Delay (s)		3.5	2.2		63.7	
Approach LOS		A	A		E	

Intersection Summary				
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	52.0%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
16: Mississauga Rd & Lake St

Existing Conditions
AM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	5	5	5	10	25
Future Volume (Veh/h)	35	5	5	5	10	25
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	53	8	8	8	15	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					360	
pX, platoon unblocked						
vC, conflicting volume	61	49	68	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	61	49	68	0	0	
tC, single (s)	7.6	6.5	6.5	6.4	4.5	
tC, 2 stage (s)						
tF (s)	4.0	4.0	4.0	3.5	2.5	
p0 queue free %	93	99	99	99	99	
cM capacity (veh/h)	809	837	818	1043	1416	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	61	16	53
Volume Left	53	0	15
Volume Right	0	8	38
cSH	813	917	1416
Volume to Capacity	0.08	0.02	0.01
Queue Length 95th (m)	1.9	0.4	0.3
Control Delay (s)	9.8	9.0	2.2
Lane LOS	A	A	A
Approach Delay (s)	9.8	9.0	2.2
Approach LOS	A	A	

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	18.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
24: Mississauga Rd & Port St W

Existing Conditions
AM Peak

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	50	45	5	45	40
Future Volume (Veh/h)	0	50	45	5	45	40
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	0	68	62	7	62	55
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						135
pX, platoon unblocked						
vC, conflicting volume	244	66			69	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244	66			69	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	100	93			96	
cM capacity (veh/h)	717	976			1501	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	68	69	117
Volume Left	0	0	62
Volume Right	68	7	0
cSH	976	1700	1501
Volume to Capacity	0.07	0.04	0.04
Queue Length 95th (m)	1.8	0.0	1.0
Control Delay (s)	9.0	0.0	4.1
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	4.1
Approach LOS	A		

Intersection Summary			
Average Delay		4.3	
Intersection Capacity Utilization		21.3%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
46: Lakeshore Rd W & Loblaws Access

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	1070	1255	205	185	120
Future Volume (vph)	100	1070	1255	205	185	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.5	3.5	3.5
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1784	3550	3614	1532	1785	1597
Flt Permitted	0.18	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	342	3550	3614	1532	1785	1597
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	102	1092	1281	209	189	122
RTOR Reduction (vph)	0	0	0	34	0	53
Lane Group Flow (vph)	102	1092	1281	175	189	69
Confl. Peds. (#/hr)	6			6		8
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	4	0	0
Turn Type	Perm	NA	NA	Perm	Prot	Prot
Protected Phases		4	8		1	1
Permitted Phases	4			8		
Actuated Green, G (s)	70.1	70.1	70.1	70.1	15.9	15.9
Effective Green, g (s)	71.1	71.1	71.1	71.1	16.9	16.9
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.17	0.17
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	243	2524	2569	1089	301	269
v/s Ratio Prot		0.31	c0.35		c0.11	0.04
v/s Ratio Perm	0.30			0.11		
v/c Ratio	0.42	0.43	0.50	0.16	0.63	0.26
Uniform Delay, d1	6.0	6.0	6.5	4.7	38.6	36.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	0.5	0.7	0.3	4.1	0.5
Delay (s)	11.2	6.6	7.2	5.0	42.7	36.6
Level of Service	B	A	A	A	D	D
Approach Delay (s)		7.0	6.9		40.3	
Approach LOS		A	A		D	

Intersection Summary				
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	83.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
16: Mississauga Rd & Lake St

08/15/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	5	0	5	0	25
Future Volume (Veh/h)	10	5	0	5	0	25
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	15	8	0	8	0	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					376	
pX, platoon unblocked						
vC, conflicting volume	27	19	38	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	27	19	38	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	98	99	100	99	100	
cM capacity (veh/h)	981	879	858	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	23	8	38
Volume Left	15	0	0
Volume Right	0	8	38
cSH	943	1091	1636
Volume to Capacity	0.02	0.01	0.00
Queue Length 95th (m)	0.6	0.2	0.0
Control Delay (s)	8.9	8.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	8.3	0.0
Approach LOS	A	A	

Intersection Summary				
Average Delay		3.9		
Intersection Capacity Utilization		17.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
24: Mississauga Rd & Port St W

08/15/2017

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	45	25	0	65	30
Future Volume (Veh/h)	5	45	25	0	65	30
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	49	27	0	71	33
Pedestrians	2					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						135
pX, platoon unblocked						
vC, conflicting volume	204	29			29	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	204	29			29	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	95			96	
cM capacity (veh/h)	753	1044			1595	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	54	27	104
Volume Left	5	0	71
Volume Right	49	0	0
cSH	1008	1700	1595
Volume to Capacity	0.05	0.02	0.04
Queue Length 95th (m)	1.4	0.0	1.1
Control Delay (s)	8.8	0.0	5.1
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	5.1
Approach LOS	A		

Intersection Summary				
Average Delay		5.4		
Intersection Capacity Utilization		21.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
46: Lakeshore Rd W & Loblaws Access

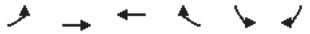
08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	1470	770	105	50	35
Future Volume (vph)	45	1470	770	105	50	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.5	3.5	3.5
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1750	3515	3444	1532	1684	1551
Flt Permitted	0.33	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	609	3515	3444	1532	1684	1551
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	49	1615	846	115	55	38
RTOR Reduction (vph)	0	0	0	15	0	35
Lane Group Flow (vph)	49	1615	846	100	55	3
Heavy Vehicles (%)	2%	3%	6%	3%	6%	3%
Bus Blockages (#/hr)	0	4	0	3	0	0
Turn Type	Perm	NA	NA	Perm	Prot	Prot
Protected Phases		4	8		1	1
Permitted Phases	4			8		
Actuated Green, G (s)	117.3	117.3	117.3	117.3	8.7	8.7
Effective Green, g (s)	118.3	118.3	118.3	118.3	9.7	9.7
Actuated g/C Ratio	0.84	0.84	0.84	0.84	0.07	0.07
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	514	2970	2910	1294	116	107
v/s Ratio Prot		c0.46	0.25		c0.03	0.00
v/s Ratio Perm	0.08			0.07		
v/c Ratio	0.10	0.54	0.29	0.08	0.47	0.02
Uniform Delay, d1	1.8	3.1	2.2	1.8	62.7	60.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.7	0.3	0.1	3.0	0.1
Delay (s)	2.2	3.8	2.5	1.9	65.7	60.8
Level of Service	A	A	A	A	E	E
Approach Delay (s)		3.8	2.4		63.7	
Approach LOS		A	A		E	

Intersection Summary				
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	54.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
16: Mississauga Rd & Lake St

08/15/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	5	5	5	10	25
Future Volume (Veh/h)	35	5	5	5	10	25
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	53	8	8	8	15	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					360	
pX, platoon unblocked						
vC, conflicting volume	61	49	68	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	61	49	68	0	0	
tC, single (s)	7.6	6.5	6.5	6.4	4.5	
tC, 2 stage (s)						
tF (s)	4.0	4.0	4.0	3.5	2.5	
p0 queue free %	93	99	99	99	99	
cM capacity (veh/h)	809	837	818	1043	1416	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	61	16	53
Volume Left	53	0	15
Volume Right	0	8	38
cSH	813	917	1416
Volume to Capacity	0.08	0.02	0.01
Queue Length 95th (m)	1.9	0.4	0.3
Control Delay (s)	9.8	9.0	2.2
Lane LOS	A	A	A
Approach Delay (s)	9.8	9.0	2.2
Approach LOS	A	A	

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	18.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
24: Mississauga Rd & Port St W

08/15/2017

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	50	45	5	45	40
Future Volume (Veh/h)	0	50	45	5	45	40
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	0	68	62	7	62	55
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						135
pX, platoon unblocked						
vC, conflicting volume	244	66			69	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244	66			69	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	100	93			96	
cM capacity (veh/h)	717	976			1501	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	68	69	117
Volume Left	0	0	62
Volume Right	68	7	0
cSH	976	1700	1501
Volume to Capacity	0.07	0.04	0.04
Queue Length 95th (m)	1.8	0.0	1.0
Control Delay (s)	9.0	0.0	4.1
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	4.1
Approach LOS	A		

Intersection Summary				
Average Delay		4.3		
Intersection Capacity Utilization		21.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
46: Lakeshore Rd W & Loblaws Access

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	1220	1350	205	185	120
Future Volume (vph)	100	1220	1350	205	185	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.5	3.5	3.5
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1784	3550	3614	1532	1785	1597
Flt Permitted	0.16	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	298	3550	3614	1532	1785	1597
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	102	1245	1378	209	189	122
RTOR Reduction (vph)	0	0	0	32	0	42
Lane Group Flow (vph)	102	1245	1378	177	189	80
Confl. Peds. (#/hr)	6			6		8
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	4	0	0
Turn Type	Perm	NA	NA	Perm	Prot	Prot
Protected Phases		4	8		1	1
Permitted Phases	4			8		
Actuated Green, G (s)	70.1	70.1	70.1	70.1	15.9	15.9
Effective Green, g (s)	71.1	71.1	71.1	71.1	16.9	16.9
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.17	0.17
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	211	2524	2569	1089	301	269
v/s Ratio Prot		0.35	c0.38		c0.11	0.05
v/s Ratio Perm	0.34			0.12		
v/c Ratio	0.48	0.49	0.54	0.16	0.63	0.30
Uniform Delay, d1	6.4	6.4	6.8	4.7	38.6	36.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	0.7	0.8	0.3	4.1	0.6
Delay (s)	14.1	7.1	7.6	5.0	42.7	37.0
Level of Service	B	A	A	A	D	D
Approach Delay (s)		7.7	7.2		40.4	
Approach LOS		A	A		D	

Intersection Summary				
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	83.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
16: Mississauga Rd & Lake St

08/15/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	5	0	5	0	25
Future Volume (Veh/h)	10	5	0	5	0	25
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	15	8	0	8	0	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					376	
pX, platoon unblocked						
vC, conflicting volume	27	19	38	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	27	19	38	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	98	99	100	99	100	
cM capacity (veh/h)	981	879	858	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	23	8	38
Volume Left	15	0	0
Volume Right	0	8	38
cSH	943	1091	1636
Volume to Capacity	0.02	0.01	0.00
Queue Length 95th (m)	0.6	0.2	0.0
Control Delay (s)	8.9	8.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	8.3	0.0
Approach LOS	A	A	

Intersection Summary				
Average Delay		3.9		
Intersection Capacity Utilization		17.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
24: Mississauga Rd & Port St W

08/15/2017

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	45	25	0	65	30
Future Volume (Veh/h)	5	45	25	0	65	30
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	49	27	0	71	33
Pedestrians	2					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						135
pX, platoon unblocked						
vC, conflicting volume	204	29			29	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	204	29			29	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	95			96	
cM capacity (veh/h)	753	1044			1595	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	54	27	104
Volume Left	5	0	71
Volume Right	49	0	0
cSH	1008	1700	1595
Volume to Capacity	0.05	0.02	0.04
Queue Length 95th (m)	1.4	0.0	1.1
Control Delay (s)	8.8	0.0	5.1
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	5.1
Approach LOS	A		

Intersection Summary				
Average Delay		5.4		
Intersection Capacity Utilization		21.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
46: Avenue A/Loblaws Access & Lakeshore Rd W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	1590	72	176	840	105	119	0	202	50	0	35
Future Volume (vph)	45	1590	72	176	840	105	119	0	202	50	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3544	1541	1750	3444	1532	1750	1601		1684	1585	
Flt Permitted	0.31	1.00	1.00	0.06	1.00	1.00	0.73	1.00		0.28	1.00	
Satd. Flow (perm)	570	3544	1541	113	3444	1532	1349	1601		496	1585	
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Adj. Flow (vph)	49	1747	78	191	923	115	129	0	220	55	0	38
RTOR Reduction (vph)	0	0	23	0	0	20	0	179	0	0	33	0
Lane Group Flow (vph)	49	1747	55	191	923	95	129	41	0	55	5	0
Heavy Vehicles (%)	2%	3%	2%	2%	6%	3%	2%	2%	2%	6%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	3	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	88.1	88.1	88.1	107.4	107.4	107.4	18.6	18.6		18.6	18.6	
Effective Green, g (s)	89.1	89.1	89.1	108.4	108.4	108.4	19.6	19.6		19.6	19.6	
Actuated g/C Ratio	0.64	0.64	0.64	0.77	0.77	0.77	0.14	0.14		0.14	0.14	
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	362	2255	980	278	2666	1186	188	224		69	221	
v/s Ratio Prot		c0.49		c0.08	0.27			0.03			0.00	
v/s Ratio Perm	0.09		0.04	0.45		0.06	0.10			c0.11		
v/c Ratio	0.14	0.77	0.06	0.69	0.35	0.08	0.69	0.18		0.80	0.02	
Uniform Delay, d1	10.1	18.3	9.6	36.3	4.9	3.8	57.3	53.1		58.3	51.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	2.7	0.1	6.9	0.4	0.1	9.9	0.4		45.5	0.0	
Delay (s)	10.9	20.9	9.7	43.2	5.2	3.9	67.2	53.5		103.8	52.0	
Level of Service	B	C	A	D	A	A	E	D		F	D	
Approach Delay (s)		20.2			11.0			58.6			82.6	
Approach LOS		C			B			E			F	

Intersection Summary				
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	88.7%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
16: Mississauga Rd & Lake St

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	158	78	0	5	99	5	0	35	5	10	25	174
Future Volume (vph)	158	78	0	5	99	5	0	35	5	10	25	174
Peak Hour Factor	0.92	0.92	0.92	0.66	0.92	0.66	0.92	0.66	0.66	0.66	0.66	0.92
Hourly flow rate (vph)	172	85	0	8	108	8	0	53	8	15	38	189

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	257	124	61	242
Volume Left (vph)	172	8	0	15
Volume Right (vph)	0	8	8	189
Hadj (s)	0.17	0.02	0.66	-0.33
Departure Headway (s)	5.0	5.1	5.9	4.7
Degree Utilization, x	0.36	0.17	0.10	0.31
Capacity (veh/h)	676	654	555	718
Control Delay (s)	10.8	9.1	9.5	9.8
Approach Delay (s)	10.8	9.1	9.5	9.8
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.0			
Level of Service	B			
Intersection Capacity Utilization	45.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
24: Mississauga Rd & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	55	0	0	10	50	0	203	5	45	214	24
Future Volume (Veh/h)	123	55	0	0	10	50	0	203	5	45	214	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.73	0.92	0.73	0.92	0.73	0.73	0.73	0.73	0.92
Hourly flow rate (vph)	134	60	0	0	11	68	0	278	7	62	293	26
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											135	
pX, platoon unblocked												
vC, conflicting volume	785	715	306	742	724	282	319			285		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	785	715	306	742	724	282	319			285		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.3		
p0 queue free %	49	82	100	100	97	91	100			95		
cM capacity (veh/h)	264	339	734	278	334	739	1241			1249		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	194	79	285	381
Volume Left	134	0	0	62
Volume Right	0	68	7	26
cSH	283	632	1241	1249
Volume to Capacity	0.68	0.12	0.00	0.05
Queue Length 95th (m)	36.9	3.4	0.0	1.3
Control Delay (s)	41.3	11.5	0.0	1.7
Lane LOS	E	B		A
Approach Delay (s)	41.3	11.5	0.0	1.7
Approach LOS	E	B		

Intersection Summary				
Average Delay	10.2			
Intersection Capacity Utilization	52.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
66: Lake St & Avenue A

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	52	140	38	64	40
Future Volume (Veh/h)	5	52	140	38	64	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	57	152	41	70	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	193				240	172
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	193				240	172
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	95
cM capacity (veh/h)	1380				746	871

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	62	193	113
Volume Left	5	0	70
Volume Right	0	41	43
cSH	1380	1700	789
Volume to Capacity	0.00	0.11	0.14
Queue Length 95th (m)	0.1	0.0	4.0
Control Delay (s)	0.6	0.0	10.3
Lane LOS	A		B
Approach Delay (s)	0.6	0.0	10.3
Approach LOS			B

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	22.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
67: Avenue B/Private Rd & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	68	6	19	15	0	34	7	109	0	1	0
Future Volume (Veh/h)	0	68	6	19	15	0	34	7	109	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	74	7	21	16	0	37	8	118	0	1	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	16			81			136	136	78	258	139	16
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	16			81			136	136	78	258	139	16
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			96	99	88	100	100	100
cM capacity (veh/h)	1602			1517			825	745	983	601	742	1063

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	81	37	163	1
Volume Left	0	21	37	0
Volume Right	7	0	118	0
cSH	1602	1517	928	742
Volume to Capacity	0.00	0.01	0.18	0.00
Queue Length 95th (m)	0.0	0.3	5.1	0.0
Control Delay (s)	0.0	4.2	9.7	9.9
Lane LOS		A	A	A
Approach Delay (s)	0.0	4.2	9.7	9.9
Approach LOS			A	A

Intersection Summary					
Average Delay	6.2				
Intersection Capacity Utilization	30.8%	ICU Level of Service		A	
Analysis Period (min)	15				

HCM Unsignalized Intersection Capacity Analysis
68: Avenue A & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	68	22	1	2	11	68	7	96	14	12	103	12
Future Volume (vph)	68	22	1	2	11	68	7	96	14	12	103	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	24	1	2	12	74	8	104	15	13	112	13

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	99	88	127	138
Volume Left (vph)	74	2	8	13
Volume Right (vph)	1	74	15	13
Hadj (s)	0.18	-0.47	-0.02	0.00
Departure Headway (s)	4.8	4.2	4.5	4.5
Degree Utilization, x	0.13	0.10	0.16	0.17
Capacity (veh/h)	699	795	762	758
Control Delay (s)	8.5	7.7	8.3	8.4
Approach Delay (s)	8.5	7.7	8.3	8.4
Approach LOS	A	A	A	A

Intersection Summary					
Delay	8.3				
Level of Service	A				
Intersection Capacity Utilization	28.3%	ICU Level of Service		A	
Analysis Period (min)	15				

HCM Unsignalized Intersection Capacity Analysis
69: Lake St & Port St W

08/21/2017

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	20	43	34	2	24
Future Volume (Veh/h)	6	20	43	34	2	24
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	22	47	37	2	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	96	66			84	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	66			84	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			100	
cM capacity (veh/h)	903	998			1513	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	29	84	28
Volume Left	7	0	2
Volume Right	22	37	0
cSH	974	1700	1513
Volume to Capacity	0.03	0.05	0.00
Queue Length 95th (m)	0.7	0.0	0.0
Control Delay (s)	8.8	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	0.5
Approach LOS	A		

Intersection Summary				
Average Delay		1.9		
Intersection Capacity Utilization		14.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
70: Lake St & Lakeshore Rd W

08/21/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1622	48	0	994	0	85
Future Volume (Veh/h)	1622	48	0	994	0	85
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1763	52	0	1080	0	92
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	342			118		
pX, platoon unblocked					0.92	
vC, conflicting volume			1815		2303	882
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1815		2241	882
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	68
cM capacity (veh/h)			334		33	290

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	882	882	52	540	540	92
Volume Left	0	0	0	0	0	0
Volume Right	0	0	52	0	0	92
cSH	1700	1700	1700	1700	1700	290
Volume to Capacity	0.52	0.52	0.03	0.32	0.32	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	10.6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	23.1
Lane LOS						C
Approach Delay (s)	0.0			0.0		23.1
Approach LOS						C

Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		56.8%	ICU Level of Service	B
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
71: Lake St & Avenue B

08/21/2017

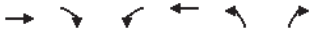
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	203	264	10	34	0
Future Volume (Veh/h)	7	203	264	10	34	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	221	287	11	37	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	298				530	292
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	298				530	292
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	100
cM capacity (veh/h)	1263				507	747

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	229	298	37
Volume Left	8	0	37
Volume Right	0	11	0
cSH	1263	1700	507
Volume to Capacity	0.01	0.18	0.07
Queue Length 95th (m)	0.2	0.0	1.9
Control Delay (s)	0.3	0.0	12.7
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	12.7
Approach LOS			B

Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		26.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
73: Private Rd & Lakeshore Rd W

08/21/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1812	35	0	1106	0	26
Future Volume (Veh/h)	1812	35	0	1106	0	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1970	38	0	1202	0	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	133			137		
pX, platoon unblocked			0.63		0.63	0.63
vC, conflicting volume			2008		2571	985
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1419		2316	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			299		20	680

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	985	985	38	601	601	28
Volume Left	0	0	0	0	0	0
Volume Right	0	0	38	0	0	28
cSH	1700	1700	1700	1700	1700	680
Volume to Capacity	0.58	0.58	0.02	0.35	0.35	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	1.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.5
Lane LOS						B
Approach Delay (s)	0.0			0.0		10.5
Approach LOS						B

Intersection Summary				
Average Delay		0.1		
Intersection Capacity Utilization		60.1%	ICU Level of Service	B
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
46: Avenue A/Loblaws Access & Lakeshore Rd W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1330	189	329	1353	205	232	0	192	185	0	120
Future Volume (vph)	100	1330	189	329	1353	205	232	0	192	185	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3544	1541	1750	3444	1526	1750	1601		1684	1585	
Flt Permitted	0.17	1.00	1.00	0.06	1.00	1.00	0.63	1.00		0.49	1.00	
Satd. Flow (perm)	320	3544	1541	111	3444	1526	1157	1601		864	1585	
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Adj. Flow (vph)	110	1462	205	358	1487	225	252	0	209	203	0	132
RTOR Reduction (vph)	0	0	34	0	0	29	0	157	0	0	47	0
Lane Group Flow (vph)	110	1462	171	358	1487	196	252	52	0	203	86	0
Heavy Vehicles (%)	2%	3%	2%	2%	6%	3%	2%	2%	2%	6%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	62.6	62.6	62.6	92.0	92.0	92.0	34.0	34.0		34.0	34.0	
Effective Green, g (s)	63.6	63.6	63.6	93.0	93.0	93.0	35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.45	0.45	0.45	0.66	0.66	0.66	0.25	0.25		0.25	0.25	
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	145	1609	700	382	2287	1013	289	400		216	396	
v/s Ratio Prot		0.41		c0.18	0.43			0.03			0.05	
v/s Ratio Perm	0.34		0.11	c0.45		0.13	0.22			c0.23		
v/c Ratio	0.76	0.91	0.24	0.94	0.65	0.19	0.87	0.13		0.94	0.22	
Uniform Delay, d1	31.8	35.5	23.5	46.2	13.9	9.1	50.4	40.7		51.5	41.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.5	9.1	0.8	30.2	1.4	0.4	23.8	0.1		44.0	0.3	
Delay (s)	62.3	44.6	24.3	76.4	15.3	9.5	74.1	40.9		95.5	41.9	
Level of Service	E	D	C	E	B	A	E	D		F	D	
Approach Delay (s)		43.4			25.3			59.0			74.4	
Approach LOS		D			C			E			E	

Intersection Summary				
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	95.5%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
16: Mississauga Rd & Lake St

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	167	99	0	0	111	5	0	10	5	0	25	184
Future Volume (vph)	167	99	0	0	111	5	0	10	5	0	25	184
Peak Hour Factor	0.92	0.92	0.92	0.66	0.92	0.66	0.92	0.66	0.66	0.66	0.66	0.92
Hourly flow rate (vph)	182	108	0	0	121	8	0	15	8	0	38	200

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	290	129	23	238
Volume Left (vph)	182	0	0	0
Volume Right (vph)	0	8	8	200
Hadj (s)	0.16	0.01	0.35	-0.42
Departure Headway (s)	4.9	4.9	5.6	4.6
Degree Utilization, x	0.39	0.18	0.04	0.30
Capacity (veh/h)	701	676	570	729
Control Delay (s)	11.0	9.0	8.8	9.5
Approach Delay (s)	11.0	9.0	8.8	9.5
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.0			
Level of Service	B			
Intersection Capacity Utilization	40.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
24: Mississauga Rd & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	25	0	5	49	45	0	192	0	65	214	105
Future Volume (Veh/h)	56	25	0	5	49	45	0	192	0	65	214	105
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.73	0.92	0.73	0.92	0.73	0.73	0.73	0.73	0.92
Hourly flow rate (vph)	61	27	0	7	53	62	0	263	0	89	293	114
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											135	
pX, platoon unblocked												
vC, conflicting volume	880	791	350	804	848	263	407			263		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	880	791	350	804	848	263	407			263		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.3		
p0 queue free %	69	91	100	97	81	92	100			93		
cM capacity (veh/h)	199	299	693	268	277	757	1152			1273		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	88	122	263	496
Volume Left	61	7	0	89
Volume Right	0	62	0	114
cSH	222	408	1152	1273
Volume to Capacity	0.40	0.30	0.00	0.07
Queue Length 95th (m)	14.3	9.9	0.0	1.8
Control Delay (s)	31.5	17.5	0.0	2.0
Lane LOS	D	C		A
Approach Delay (s)	31.5	17.5	0.0	2.0
Approach LOS	D	C		

Intersection Summary				
Average Delay	6.1			
Intersection Capacity Utilization	52.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
66: Lake St & Avenue A

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	152	60	69	60	5
Future Volume (Veh/h)	37	152	60	69	60	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	165	65	75	65	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	140				348	102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140				348	102
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				90	99
cM capacity (veh/h)	1443				631	953

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	205	140	70
Volume Left	40	0	65
Volume Right	0	75	5
cSH	1443	1700	647
Volume to Capacity	0.03	0.08	0.11
Queue Length 95th (m)	0.7	0.0	2.9
Control Delay (s)	1.7	0.0	11.2
Lane LOS	A		B
Approach Delay (s)	1.7	0.0	11.2
Approach LOS			B

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	31.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
67: Avenue B/Private Rd & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	0	31	31	80	74	0	16	6	50	0	12	0
Future Volume (Veh/h)	0	31	31	80	74	0	16	6	50	0	12	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	34	87	80	0	17	7	54	0	13	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	80			68			312	305	51	362	322	80
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	80			68			312	305	51	362	322	80
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			97	99	95	100	98	100
cM capacity (veh/h)	1518			1533			602	574	1017	533	562	980

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	68	167	78	13
Volume Left	0	87	17	0
Volume Right	34	0	54	0
cSH	1518	1533	834	562
Volume to Capacity	0.00	0.06	0.09	0.02
Queue Length 95th (m)	0.0	1.4	2.5	0.6
Control Delay (s)	0.0	4.1	9.8	11.6
Lane LOS		A	A	B
Approach Delay (s)	0.0	4.1	9.8	11.6
Approach LOS			A	B

Intersection Summary						
Average Delay	4.9					
Intersection Capacity Utilization	32.6%	ICU Level of Service		A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
68: Avenue A & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	31	16	6	12	22	31	3	109	6	62	120	62
Future Volume (vph)	31	16	6	12	22	31	3	109	6	62	120	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	17	7	13	24	34	3	118	7	67	130	67

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	58	71	128	264
Volume Left (vph)	34	13	3	67
Volume Right (vph)	7	34	7	67
Hadj (s)	0.08	-0.22	0.01	-0.07
Departure Headway (s)	5.0	4.7	4.5	4.3
Degree Utilization, x	0.08	0.09	0.16	0.32
Capacity (veh/h)	661	704	760	803
Control Delay (s)	8.4	8.1	8.4	9.3
Approach Delay (s)	8.4	8.1	8.4	9.3
Approach LOS	A	A	A	A

Intersection Summary						
Delay	8.8					
Level of Service	A					
Intersection Capacity Utilization	34.3%	ICU Level of Service		A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
69: Lake St & Port St W

08/21/2017

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	3	49	16	18	65
Future Volume (Veh/h)	31	3	49	16	18	65
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	3	53	17	20	71
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	172	62			70	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172	62			70	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			99	
cM capacity (veh/h)	807	1004			1531	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	70	91
Volume Left	34	0	20
Volume Right	3	17	0
cSH	820	1700	1531
Volume to Capacity	0.05	0.04	0.01
Queue Length 95th (m)	1.1	0.0	0.3
Control Delay (s)	9.6	0.0	1.7
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	1.7
Approach LOS	A		

Intersection Summary				
Average Delay		2.6		
Intersection Capacity Utilization		21.1%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
70: Lake St & Lakeshore Rd W

08/21/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1536	107	0	1705	0	84
Future Volume (Veh/h)	1536	107	0	1705	0	84
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1670	116	0	1853	0	91
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	342			118		
pX, platoon unblocked					0.74	
vC, conflicting volume			1786		2596	835
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1786		2452	835
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	71
cM capacity (veh/h)			343		19	311

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	835	835	116	926	926	91
Volume Left	0	0	0	0	0	0
Volume Right	0	0	116	0	0	91
cSH	1700	1700	1700	1700	1700	311
Volume to Capacity	0.49	0.49	0.07	0.55	0.55	0.29
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	9.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	21.3
Lane LOS						C
Approach Delay (s)	0.0			0.0		21.3
Approach LOS						C

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		54.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
71: Lake St & Avenue B

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	250	246	49	16	0
Future Volume (Veh/h)	6	250	246	49	16	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	272	267	53	17	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	320				580	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	320				580	294
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	100
cM capacity (veh/h)	1240				474	746

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	279	320	17
Volume Left	7	0	17
Volume Right	0	53	0
cSH	1240	1700	474
Volume to Capacity	0.01	0.19	0.04
Queue Length 95th (m)	0.1	0.0	0.9
Control Delay (s)	0.3	0.0	12.9
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	12.9
Approach LOS			B

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		28.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
73: Private Rd & Lakeshore Rd W

08/21/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1629	73	0	1893	0	69
Future Volume (Veh/h)	1629	73	0	1893	0	69
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1771	79	0	2058	0	75
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	133			137		
pX, platoon unblocked			0.61		0.61	0.61
vC, conflicting volume			1850		2800	886
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1120		2673	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	89
cM capacity (veh/h)			379		11	663

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	886	886	79	1029	1029	75
Volume Left	0	0	0	0	0	0
Volume Right	0	0	79	0	0	75
cSH	1700	1700	1700	1700	1700	663
Volume to Capacity	0.52	0.52	0.05	0.61	0.61	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.1
Lane LOS						B
Approach Delay (s)	0.0			0.0		11.1
Approach LOS						B

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		56.0%	ICU Level of Service	B
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
46: Avenue A/Loblaws Access & Lakeshore Rd W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	1582	68	165	835	105	110	0	187	50	0	35
Future Volume (vph)	45	1582	68	165	835	105	110	0	187	50	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	6.0	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3544	1541	1750	3444	1532	1750	1601		1684	1585	
Flt Permitted	0.31	1.00	1.00	0.06	1.00	1.00	0.73	1.00		0.31	1.00	
Satd. Flow (perm)	573	3544	1541	119	3444	1532	1349	1601		555	1585	
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Adj. Flow (vph)	49	1738	74	179	918	115	120	0	203	55	0	38
RTOR Reduction (vph)	0	0	24	0	0	19	0	176	0	0	33	0
Lane Group Flow (vph)	49	1738	50	179	918	96	120	27	0	55	5	0
Heavy Vehicles (%)	2%	3%	2%	2%	6%	3%	2%	2%	2%	6%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	3	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	89.0	89.0	89.0	108.3	108.3	108.3	17.7	17.7		17.7	17.7	
Effective Green, g (s)	90.0	90.0	90.0	109.3	109.3	109.3	18.7	18.7		18.7	18.7	
Actuated g/C Ratio	0.64	0.64	0.64	0.78	0.78	0.78	0.13	0.13		0.13	0.13	
Clearance Time (s)	7.0	7.0	7.0	4.5	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	368	2278	990	276	2688	1196	180	213		74	211	
v/s Ratio Prot		c0.49		c0.07	0.27			0.02			0.00	
v/s Ratio Perm	0.09		0.03	0.43		0.06	0.09			c0.10		
v/c Ratio	0.13	0.76	0.05	0.65	0.34	0.08	0.67	0.13		0.74	0.02	
Uniform Delay, d1	9.8	17.5	9.2	33.2	4.6	3.6	57.7	53.5		58.3	52.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	2.5	0.1	5.2	0.3	0.1	9.0	0.3		32.7	0.0	
Delay (s)	10.5	20.0	9.3	38.4	4.9	3.7	66.7	53.7		91.0	52.8	
Level of Service	B	C	A	D	A	A	E	D		F	D	
Approach Delay (s)		19.3			9.8			58.5			75.4	
Approach LOS		B			A			E			E	

Intersection Summary				
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	87.0%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
16: Mississauga Rd & Lake St

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	147	73	0	5	93	5	0	35	5	10	25	163
Future Volume (vph)	147	73	0	5	93	5	0	35	5	10	25	163
Peak Hour Factor	0.92	0.92	0.92	0.66	0.92	0.66	0.92	0.66	0.66	0.66	0.66	0.92
Hourly flow rate (vph)	160	79	0	8	101	8	0	53	8	15	38	177

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	239	117	61	230
Volume Left (vph)	160	8	0	15
Volume Right (vph)	0	8	8	177
Hadj (s)	0.17	0.02	0.66	-0.32
Departure Headway (s)	5.0	5.0	5.8	4.6
Degree Utilization, x	0.33	0.16	0.10	0.29
Capacity (veh/h)	683	665	568	729
Control Delay (s)	10.4	8.9	9.4	9.5
Approach Delay (s)	10.4	8.9	9.4	9.5
Approach LOS	B	A	A	A

Intersection Summary				
Delay	9.7			
Level of Service	A			
Intersection Capacity Utilization	43.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
24: Mississauga Rd & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	51	0	0	9	50	0	192	5	45	203	22
Future Volume (Veh/h)	114	51	0	0	9	50	0	192	5	45	203	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.73	0.92	0.73	0.92	0.73	0.73	0.73	0.73	0.92
Hourly flow rate (vph)	124	55	0	0	10	68	0	263	7	62	278	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											135	
pX, platoon unblocked												
vC, conflicting volume	754	684	290	708	692	266	302			270		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	754	684	290	708	692	266	302			270		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.3		
p0 queue free %	56	84	100	100	97	91	100			95		
cM capacity (veh/h)	279	353	749	299	349	753	1259			1265		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	179	78	270	364
Volume Left	124	0	0	62
Volume Right	0	68	7	24
cSH	298	656	1259	1265
Volume to Capacity	0.60	0.12	0.00	0.05
Queue Length 95th (m)	29.0	3.2	0.0	1.2
Control Delay (s)	33.7	11.2	0.0	1.8
Lane LOS	D	B		A
Approach Delay (s)	33.7	11.2	0.0	1.8
Approach LOS	D	B		

Intersection Summary				
Average Delay	8.5			
Intersection Capacity Utilization	50.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
66: Lake St & Avenue A

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	49	131	36	59	38
Future Volume (Veh/h)	5	49	131	36	59	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	53	142	39	64	41
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	181				224	162
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181				224	162
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	95
cM capacity (veh/h)	1394				761	883

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	58	181	105
Volume Left	5	0	64
Volume Right	0	39	41
cSH	1394	1700	804
Volume to Capacity	0.00	0.11	0.13
Queue Length 95th (m)	0.1	0.0	3.6
Control Delay (s)	0.7	0.0	10.1
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	10.1
Approach LOS			B

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	21.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
67: Avenue B/Private Rd & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	63	6	17	14	0	32	6	101	0	1	0
Future Volume (Veh/h)	0	63	6	17	14	0	32	6	101	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	68	7	18	15	0	35	7	110	0	1	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	15			75			123	122	72	236	126	15
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	15			75			123	122	72	236	126	15
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			96	99	89	100	100	100
cM capacity (veh/h)	1603			1524			843	759	991	629	755	1065

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	75	33	152	1
Volume Left	0	18	35	0
Volume Right	7	0	110	0
cSH	1603	1524	940	755
Volume to Capacity	0.00	0.01	0.16	0.00
Queue Length 95th (m)	0.0	0.3	4.6	0.0
Control Delay (s)	0.0	4.1	9.6	9.8
Lane LOS		A	A	A
Approach Delay (s)	0.0	4.1	9.6	9.8
Approach LOS			A	A

Intersection Summary						
Average Delay	6.1					
Intersection Capacity Utilization	30.0%	ICU Level of Service		A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
68: Avenue A & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	63	20	1	2	10	63	6	89	13	12	96	12
Future Volume (vph)	63	20	1	2	10	63	6	89	13	12	96	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	22	1	2	11	68	7	97	14	13	104	13

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	91	81	118	130
Volume Left (vph)	68	2	7	13
Volume Right (vph)	1	68	14	13
Hadj (s)	0.18	-0.46	-0.03	-0.01
Departure Headway (s)	4.7	4.1	4.4	4.4
Degree Utilization, x	0.12	0.09	0.15	0.16
Capacity (veh/h)	709	808	773	769
Control Delay (s)	8.4	7.5	8.2	8.3
Approach Delay (s)	8.4	7.5	8.2	8.3
Approach LOS	A	A	A	A

Intersection Summary						
Delay	8.1					
Level of Service	A					
Intersection Capacity Utilization	27.8%	ICU Level of Service		A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
69: Lake St & Port St W

08/21/2017

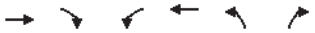
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	19	40	32	2	22
Future Volume (Veh/h)	6	19	40	32	2	22
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	21	43	35	2	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	88	60			78	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	88	60			78	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			100	
cM capacity (veh/h)	911	1005			1520	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	28	78	26
Volume Left	7	0	2
Volume Right	21	35	0
cSH	980	1700	1520
Volume to Capacity	0.03	0.05	0.00
Queue Length 95th (m)	0.7	0.0	0.0
Control Delay (s)	8.8	0.0	0.6
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	0.6
Approach LOS	A		

Intersection Summary				
Average Delay		2.0		
Intersection Capacity Utilization		14.1%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
70: Lake St & Lakeshore Rd W

08/21/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1615	44	0	980	0	79
Future Volume (Veh/h)	1615	44	0	980	0	79
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1755	48	0	1065	0	86
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	342			118		
pX, platoon unblocked					0.92	
vC, conflicting volume			1803		2288	878
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1803		2227	878
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	70
cM capacity (veh/h)			338		34	291

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	878	878	48	532	532	86
Volume Left	0	0	0	0	0	0
Volume Right	0	0	48	0	0	86
cSH	1700	1700	1700	1700	1700	291
Volume to Capacity	0.52	0.52	0.03	0.31	0.31	0.30
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	9.6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	22.4
Lane LOS						C
Approach Delay (s)	0.0			0.0		22.4
Approach LOS						C

Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		56.2%	ICU Level of Service	B
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
71: Lake St & Avenue B

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	188	246	9	32	0
Future Volume (Veh/h)	6	188	246	9	32	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	204	267	10	35	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	277				490	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	277				490	272
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	100
cM capacity (veh/h)	1286				535	767

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	211	277	35
Volume Left	7	0	35
Volume Right	0	10	0
cSH	1286	1700	535
Volume to Capacity	0.01	0.16	0.07
Queue Length 95th (m)	0.1	0.0	1.7
Control Delay (s)	0.3	0.0	12.2
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	12.2
Approach LOS			B

Intersection Summary				
Average Delay		0.9		
Intersection Capacity Utilization		24.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
73: Private Rd & Lakeshore Rd W

08/21/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1791	33	0	1089	0	24
Future Volume (Veh/h)	1791	33	0	1089	0	24
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1947	36	0	1184	0	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	133			137		
pX, platoon unblocked			0.64		0.64	0.64
vC, conflicting volume			1983		2539	974
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1405		2277	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			307		22	691

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	974	974	36	592	592	26
Volume Left	0	0	0	0	0	0
Volume Right	0	0	36	0	0	26
cSH	1700	1700	1700	1700	1700	691
Volume to Capacity	0.57	0.57	0.02	0.35	0.35	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS						B
Approach Delay (s)	0.0			0.0		10.4
Approach LOS						B

Intersection Summary				
Average Delay		0.1		
Intersection Capacity Utilization		59.5%	ICU Level of Service	B
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
46: Avenue A/Loblaws Access & Lakeshore Rd W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1320	175	307	1347	205	218	0	178	185	0	120
Future Volume (vph)	100	1320	175	307	1347	205	218	0	178	185	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	6.0	6.0	6.0	3.5	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3544	1541	1750	3444	1526	1750	1601		1684	1585	
Flt Permitted	0.18	1.00	1.00	0.06	1.00	1.00	0.63	1.00		0.51	1.00	
Satd. Flow (perm)	323	3544	1541	107	3444	1526	1152	1601		904	1585	
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Adj. Flow (vph)	110	1451	190	334	1480	225	237	0	193	203	0	132
RTOR Reduction (vph)	0	0	35	0	0	28	0	146	0	0	50	0
Lane Group Flow (vph)	110	1451	155	334	1480	197	237	47	0	203	82	0
Heavy Vehicles (%)	2%	3%	2%	2%	6%	3%	2%	2%	2%	6%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	64.4	64.4	64.4	93.0	93.0	93.0	33.0	33.0		33.0	33.0	
Effective Green, g (s)	65.4	65.4	65.4	94.0	94.0	94.0	34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.67	0.67	0.67	0.24	0.24		0.24	0.24	
Clearance Time (s)	7.0	7.0	7.0	4.5	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	150	1655	719	366	2312	1024	279	388		219	384	
v/s Ratio Prot		0.41		c0.16	0.43			0.03			0.05	
v/s Ratio Perm	0.34		0.10	c0.45		0.13	0.21			c0.22		
v/c Ratio	0.73	0.88	0.22	0.91	0.64	0.19	0.85	0.12		0.93	0.21	
Uniform Delay, d1	30.2	33.7	22.1	45.9	13.3	8.7	50.6	41.3		51.8	42.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.9	6.9	0.7	26.3	1.4	0.4	20.7	0.1		40.7	0.3	
Delay (s)	57.2	40.5	22.8	72.2	14.6	9.1	71.3	41.5		92.4	42.6	
Level of Service	E	D	C	E	B	A	E	D		F	D	
Approach Delay (s)		39.7			23.4			57.9			72.8	
Approach LOS		D			C			E			E	

Intersection Summary				
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	93.1%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
16: Mississauga Rd & Lake St

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	156	92	0	0	103	5	0	10	5	0	25	170
Future Volume (vph)	156	92	0	0	103	5	0	10	5	0	25	170
Peak Hour Factor	0.92	0.92	0.92	0.66	0.92	0.66	0.92	0.66	0.66	0.66	0.66	0.92
Hourly flow rate (vph)	170	100	0	0	112	8	0	15	8	0	38	185

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	270	120	23	223
Volume Left (vph)	170	0	0	0
Volume Right (vph)	0	8	8	185
Hadj (s)	0.16	0.01	0.35	-0.41
Departure Headway (s)	4.8	4.9	5.5	4.5
Degree Utilization, x	0.36	0.16	0.04	0.28
Capacity (veh/h)	710	691	586	742
Control Delay (s)	10.5	8.8	8.7	9.2
Approach Delay (s)	10.5	8.8	8.7	9.2
Approach LOS	B	A	A	A

Intersection Summary				
Delay	9.7			
Level of Service	A			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
24: Mississauga Rd & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	23	0	5	46	45	0	181	0	65	200	97
Future Volume (Veh/h)	52	23	0	5	46	45	0	181	0	65	200	97
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.73	0.92	0.73	0.92	0.73	0.73	0.73	0.73	0.92
Hourly flow rate (vph)	57	25	0	7	50	62	0	248	0	89	274	105
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											135	
pX, platoon unblocked												
vC, conflicting volume	840	752	326	765	805	248	379			248		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	840	752	326	765	805	248	379			248		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.3		
p0 queue free %	74	92	100	98	83	92	100			93		
cM capacity (veh/h)	216	316	715	287	294	772	1179			1289		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	82	119	248	468
Volume Left	57	7	0	89
Volume Right	0	62	0	105
cSH	239	433	1179	1289
Volume to Capacity	0.34	0.27	0.00	0.07
Queue Length 95th (m)	11.7	8.8	0.0	1.8
Control Delay (s)	27.7	16.4	0.0	2.1
Lane LOS	D	C		A
Approach Delay (s)	27.7	16.4	0.0	2.1
Approach LOS	D	C		

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	50.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
66: Lake St & Avenue A

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	142	56	64	56	5
Future Volume (Veh/h)	35	142	56	64	56	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	154	61	70	61	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	131				326	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	131				326	96
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				91	99
cM capacity (veh/h)	1454				651	960

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	192	131	66
Volume Left	38	0	61
Volume Right	0	70	5
cSH	1454	1700	667
Volume to Capacity	0.03	0.08	0.10
Queue Length 95th (m)	0.6	0.0	2.6
Control Delay (s)	1.7	0.0	11.0
Lane LOS	A		B
Approach Delay (s)	1.7	0.0	11.0
Approach LOS			B

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	26.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
67: Avenue B/Private Rd & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	0	29	28	74	68	0	15	6	46	0	11	0
Future Volume (Veh/h)	0	29	28	74	68	0	15	6	46	0	11	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	32	30	80	74	0	16	7	50	0	12	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	74			62			287	281	47	334	296	74
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	74			62			287	281	47	334	296	74
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			97	99	95	100	98	100
cM capacity (veh/h)	1526			1541			629	595	1022	560	584	988

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	62	154	73	12
Volume Left	0	80	16	0
Volume Right	30	0	50	0
cSH	1526	1541	848	584
Volume to Capacity	0.00	0.05	0.09	0.02
Queue Length 95th (m)	0.0	1.3	2.3	0.5
Control Delay (s)	0.0	4.1	9.6	11.3
Lane LOS		A	A	B
Approach Delay (s)	0.0	4.1	9.6	11.3
Approach LOS			A	B

Intersection Summary						
Average Delay	4.9					
Intersection Capacity Utilization	31.6%	ICU Level of Service		A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
68: Avenue A & Port St W

08/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	14	6	11	20	29	3	102	6	57	112	57
Future Volume (vph)	29	14	6	11	20	29	3	102	6	57	112	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	15	7	12	22	32	3	111	7	62	122	62

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	54	66	121	246
Volume Left (vph)	32	12	3	62
Volume Right (vph)	7	32	7	62
Hadj (s)	0.07	-0.22	0.00	-0.07
Departure Headway (s)	4.9	4.6	4.5	4.3
Degree Utilization, x	0.07	0.08	0.15	0.29
Capacity (veh/h)	674	717	770	810
Control Delay (s)	8.3	8.0	8.3	9.0
Approach Delay (s)	8.3	8.0	8.3	9.0
Approach LOS	A	A	A	A

Intersection Summary						
Delay	8.6					
Level of Service	A					
Intersection Capacity Utilization	32.8%	ICU Level of Service		A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
69: Lake St & Port St W

08/21/2017

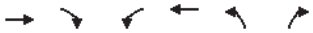
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	28	3	46	15	17	60
Future Volume (Veh/h)	28	3	46	15	17	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	3	50	16	18	65
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	159	58			66	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159	58			66	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			99	
cM capacity (veh/h)	822	1008			1536	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	66	83
Volume Left	30	0	18
Volume Right	3	16	0
cSH	836	1700	1536
Volume to Capacity	0.04	0.04	0.01
Queue Length 95th (m)	1.0	0.0	0.3
Control Delay (s)	9.5	0.0	1.7
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	1.7
Approach LOS	A		

Intersection Summary				
Average Delay		2.5		
Intersection Capacity Utilization		20.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
70: Lake St & Lakeshore Rd W

08/21/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1517	98	0	1685	0	78
Future Volume (Veh/h)	1517	98	0	1685	0	78
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1649	107	0	1832	0	85
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	342			118		
pX, platoon unblocked					0.74	
vC, conflicting volume			1756		2565	824
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1756		2416	824
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	73
cM capacity (veh/h)			352		20	316

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	824	824	107	916	916	85
Volume Left	0	0	0	0	0	0
Volume Right	0	0	107	0	0	85
cSH	1700	1700	1700	1700	1700	316
Volume to Capacity	0.48	0.48	0.06	0.54	0.54	0.27
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	8.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	20.5
Lane LOS						C
Approach Delay (s)	0.0			0.0		20.5
Approach LOS						C

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		53.4%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
71: Lake St & Avenue B

08/21/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	234	228	46	15	0
Future Volume (Veh/h)	6	234	228	46	15	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	254	248	50	16	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	298				541	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	298				541	273
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1263				499	766

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	261	298	16
Volume Left	7	0	16
Volume Right	0	50	0
cSH	1263	1700	499
Volume to Capacity	0.01	0.18	0.03
Queue Length 95th (m)	0.1	0.0	0.8
Control Delay (s)	0.3	0.0	12.4
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	12.4
Approach LOS			B

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		27.1%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
73: Private Rd & Lakeshore Rd W

08/21/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1609	69	0	1865	0	65
Future Volume (Veh/h)	1609	69	0	1865	0	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1749	75	0	2027	0	71
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	133			137		
pX, platoon unblocked			0.63		0.63	0.63
vC, conflicting volume			1824		2762	874
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1120		2620	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			388		12	678

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	874	874	75	1014	1014	71
Volume Left	0	0	0	0	0	0
Volume Right	0	0	75	0	0	71
cSH	1700	1700	1700	1700	1700	678
Volume to Capacity	0.51	0.51	0.04	0.60	0.60	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.9
Lane LOS						B
Approach Delay (s)	0.0			0.0		10.9
Approach LOS						B

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		55.2%	ICU Level of Service	B
Analysis Period (min)		15		