

Transportation Study

Proposed Mixed-Use Residential Development
1107 Main Street West
City of Hamilton

1107 Main Inc.

GHD | 140 Allstate Parkway Suite 210 Markham Ontario L3R 5Y8 Canada
11203044 | Report No 1 | January 2020



January 28, 2020

Reference No. 11203044

Ms. Caitlin Aitchison
SRM Architects Inc.
279 King Street West, Suite 200
Kitchener, Ontario N2G 1B1

Dear Ms. Aitchison:

**Re: Transportation Study
 Proposed Mixed-Use Residential Development
 1107 Main Street West, City of Hamilton**

GHD is pleased to submit the enclosed Transportation Study for the proposed mixed-use residential development located at 1107 Main Street West, south side of Main Street West and between Cline Avenue South and Dow Avenue in the City of Hamilton.

The purpose of this study is to determine the traffic-related impacts on the roadway system due to the proposed development traffic, and is also to determine adequate parking and appropriate Transportation Demand Management measures and to demonstrate that the subject site has adequate pedestrian, transit and cycling linkages to existing/proposed infrastructure.

The proposed development, at full build-out, is expected to consist of one 15-storey building containing 310 residential rental units with 5,760.3 ft² (535.1 m²) gross floor area (GFA) of commercial at grade.

There are 234 parking spaces provided consisting of 226 parking stalls on 3 levels of underground parking and 8 on-street spaces. Vehicular access will be provided by two full-move driveways: one on Cline Avenue for resident and visitor vehicles, and the other on Dow Avenue for loading and garbage trucks.

For study purposes, the proposed development is expected to be completed in 2022. Therefore, the study horizon is 2027, five years beyond build-out.

The proposed development is adjacent to the Main/King/Queenston B-Line LRT corridor. Metrolinx has identified the development of this LRT line in Hamilton linking McMaster University, Downtown and Eastgate Square as a top transit priority in the Regional Transportation Plan – The Big Move and the Province of Ontario has approved the Environmental Project Report (EPR) for the LRT project. Early construction could commence in 2020, with major LRT construction in 2021.

This study concludes that the proposed development can be accommodated by the abutting street system with the future LRT Line. Traffic generated by the proposed development does not add adverse impacts on the nearby road network and no road improvements are triggered as a result of this development.

The parking review indicates that the proposed parking supply of 234 spaces will meet the City's By-law requirements for the residents and can accommodate the anticipated visitor parking demand with spaces to spare.



We trust the enclosed is sufficient for your needs, but please do not hesitate to contact the undersigned should you require any additional assistance.

Sincerely,

GHD

A handwritten signature in blue ink that reads 'Hong Shen'.

Hong Shen, M.Eng., P.Eng.
Project Engineer

HS/RR

Encl.



Roland Roovers, P.Eng.
Senior Transportation Manager



Executive Summary

- 1) The purpose of this report is to determine the traffic-related impacts on the roadway system from the proposed mixed-use residential development located at 1107 Main Street West, generally south of Main Street West and between Cline Avenue South and Dow Avenue in the City of Hamilton. It is also to determine the appropriate Transportation Demand Management measures and to demonstrate that the subject site has adequate pedestrian, transit and cycling linkages to existing/proposed infrastructure.
- 2) The proposed development, at full build-out, is expected to consist of 310 residential rental units with 5,760.3 ft² (535.1 m²) gross floor area (GFA) of commercial at grade. There are 234 parking spaces provided consisting of 226 parking stalls on 3 levels of underground parking and 8 on-street spaces. Vehicular access will be provided by two full-move driveways: one on Cline Avenue for resident and visitor vehicles, and the other on Dow Avenue for loading and garbage trucks.
- 3) The study intersections for capacity analysis are:
 - Main Street West at Cline Avenue South;
 - Main Street West at Dow Avenue; and
 - Cline Avenue South at Site Access.
- 4) Recent weekday turning movement counts were conducted by Ontario Traffic Inc. on September 17, 2019 at the existing study intersections of Main Street West / Cline Avenue South and Main Street West / Dow Avenue.
- 5) For study purposes, the proposed development is expected to be completed in 2022. Therefore, the study horizon is 2027, five years beyond build-out.
- 6) The proposed development is adjacent to the Main/King/Queenston B-Line LRT corridor. Metrolinx has identified the development of this LRT line in Hamilton linking McMaster University, Downtown and Eastgate Square as a top transit priority in the Regional Transportation Plan – The Big Move and the Province of Ontario has approved the Environmental Project Report (EPR) for the LRT project.
- 7) Based on a review of the available “City of Hamilton Rapid Transit Initiative Acoustic Assessment Report-Final” prepared by Dillon Consulting Limited, the Dillon’s study estimated the PM peak hour volumes for year 2031 with LRT conditions along Main Street West within the study area, which assumed an applied annual growth rates of 0.73% from 2008 to the 2031 horizon. To be conservative, this analysis applied an annual growth rate of 1.0% to all movements to estimate the background traffic growth for the 2027 study horizon.
- 8) Subject site vehicular trips were estimated based on the average trip rates as well as based on trip rates derived from the fitted curve equations of High-Rise Multifamily House (LUC #222) provided by Trip Generation, 10th Edition, published by the Institute of Transportation Engineers (ITE). The resultant trip rates, entering and exiting proportions, and estimated total site trips are summarized in the table below:



Site Development	Units	Parameter	Peak Hour Trip Generation					
			Weekday AM Peak			Weekday PM Peak		
			In	Out	Total	In	Out	Total
Residential (High-Rise Multifamily House)	310	Gross Rate (Average Rate)	0.07	0.24	0.31	0.22	0.14	0.36
		New Trips	23	73	96	68	44	112
	310	Gross Rate (Fitted curve equation)	0.077	0.246	0.323	0.224	0.144	0.368
		New Trips	24	76	100	70	44	114

To be conservative, this analysis applied the higher trips (derived from the fitted curve equation) of the High-Rise Multifamily House.

As a residential rental apartment building, the proposed commercial component provides services predominately to the local residents / students, and therefore it is not expected to generate any vehicular trips.

Although there could be an allowance for transit and active transportation modes, trip reductions were not considered in this analysis to be conservative. Accordingly, the total new site trips are expected to be 100 two way trips during the weekday AM peak hour and 114 two way trips during the weekday PM peak hour.

- 9) The study concludes that the proposed development can be accommodated by the abutting street system with the future LRT Line. Traffic generated by the proposed development does not add adverse impacts on the nearby road network and no road improvements are triggered as a result of this development.
- 10) The City of Hamilton's current parking By-Law requires 181 parking spaces for the residents of the development. The City does not provide a requirement for visitor parking.

For visitor parking requirements, according to the parking surveys in Durham Region, the visitor parking demand is 0.091 per residential unit. Similarly, for example, in the City of Toronto, By-Law # 569-2013 requires 0.10 visitor parking space per dwelling unit for an apartment building. Therefore, the expected required number of visitor parking spaces is in the range of 28 and 31 for the proposed development assuming these rates.

The estimated total parking requirement for the proposed development will be 212 (181 resident +31 visitor) parking spaces.

- 11) Therefore, the proposed parking supply of 234 spaces will meet Hamilton's By-law requirements for resident p and can accommodate the visitor parking demand with an estimated surplus of 22 parking spaces. The Circulation Review confirms that the proposed site plan is sufficient to accommodate the circulation requirements of garbage trucks as well as medium single unit trucks. The proposed parking level plans are sufficient to accommodate circulation requirements of the passenger car design vehicles illustrated in (Appendix H).
- 12) Hamilton Street Railway (HSR) Transit currently provides bus service along Main Street West in the study area with Routes 5 and 10. Route 5 (Delaware) stops at the intersections of Main Street / Dow



Avenue and Main Street / Haddon Avenue. Route 10 (B Line Express) stops at the intersections of Main Street / Emerson Street and Main Street / Longwood Road.

- 13) The site's residents can easily access to the surrounding pedestrian network and transit system along Main Street West via sidewalks on Cline Avenue and Dow Avenue.
- 14) It is possible that through transit ridership, cycling, and carpooling to reduce auto-dependency since all or a combination of these Transportation Demand Management (TDM) practices can be implemented. With the implementation of the suggested TDM measures, the overall subject site generated trips could be reduced by approximately 17 trips (15% to 17%).



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1. Introduction

1.1. Retainer and objective

GHD was retained by 1107 Main Inc. to prepare a Transportation Study to determine the transportation related impacts on the roadway system from the proposed development. It is also to determine the appropriate Transportation Demand Management measures and to demonstrate that the subject site has adequate pedestrian, transit and cycling linkages to existing/proposed infrastructure.

The proposed development is located at 1107 Main Street West, generally south of Main Street West and between Cline Avenue South and Dow Avenue in the City of Hamilton. The site location is shown in Figure 1.



Figure 1 Site location



1.2. Study background

The subject site currently is the Grace Evangelical Lutheran Church. The proposed residential development is expected to consist of 310 residential rental units with 5,760.3 ft² (535.1 m²) gross floor area (GFA) of commercial at grade. There are 234 parking spaces provided consisting of 226 parking stalls on 3 levels of underground parking and 8 on-street parking spaces. Figure 2 shows the proposed Site Plan of the development and site access / roadway scheme. As shown in Figure 2, vehicular access to the site will be provided by two full-move driveways: one on Cline Avenue for resident and visitor vehicles, and the other on Dow Avenue for loading and garbage trucks.

For study purposes, the proposed development is expected to be completed in 2022. Therefore, the study horizon is 2027, five years beyond build-out.

The proposed development is adjacent to the Main/King/Queenston B-Line LRT corridor. Metrolinx has identified the development of this LRT line linking McMaster University, Downtown and Eastgate Square as a top transit priority in the Regional Transportation Plan – The Big Move and the Province of Ontario has approved the Environmental Project Report (EPR) for the LRT project.

In the study area, Main Street West currently contains two westbound traffic lanes and three eastbound traffic lanes as well as a centre bi-directional left turning lane. Under the proposed LRT design, this section of Main Street West would still contain two westbound traffic lanes and three eastbound traffic lanes however no centre turning lane. The LRT guideway would be located between westbound and eastbound traffic lanes.

Crossings of the LRT guideway outside of signalized intersections will not be permitted. Eastbound traffic on Main Street West would be able to turn right onto Cline Avenue South or onto Dow Avenue. Vehicles exiting the subject lands in a northerly direction would be able to turn right onto eastbound Main Street. Westbound traffic accessing the subject lands must make a U-turn where permitted at signalized intersections west of the subject lands in order to turn around and access the subject lands in an eastbound direction at Cline Avenue. Similarly, vehicles leaving the subject lands in order to travel westbound on Main Street West will have to travel east on Main Street West until an approved U-turn location.

This study establishes the existing traffic volumes and operating conditions for the weekday AM and PM peak hour periods (the critical periods for traffic for residential uses), derives and assesses the future background traffic growth, estimates and assigns new site traffic volumes, and documents the expected site-related impacts on the road network with the future LRT Line. The study also reviews the parking supply and site circulation plans, and determines the appropriate Transportation Demand Management measures.

Our findings, conclusions and recommendations are contained herein.

1.3. Study team

The project team members involved in the preparation of this study are:

- Mr. Roland Roovers, P.Eng., Senior Transportation Manager, and
- Mr. Hong Shen, M.Eng., P.Eng., Transportation Project Engineer.





2. Site characteristics

2.1 Site environs

The subject site currently is the Grace Evangelical Lutheran Church, generally bounded by Main Street West to the north, office / commercial land use to the south, Cline Avenue to the west, and Dow Avenue to the east in the City of Hamilton, as shown in Figure 1.

The site has opportunities to access the surrounding arterial street and transit systems. Access to the subject site will be provided by two accesses: one on Cline Avenue for resident and visitor vehicles, and the other on Dow Avenue for loading and garbage trucks. The distance along Main Street West between Cline Avenue and University Avenue (within McMaster University) is approximately 700 metres.

The study area includes the following intersections:

- Main Street West at Cline Avenue South;
- Main Street West at Dow Avenue; and
- Cline Avenue South at Site Access.

2.2 Site plan

The proposed development, at full build-out, is expected to consist of 310 residential rental units with 5,760.3 ft² (535.1 m²) gross floor area (GFA) of commercial uses at grade.

There are 234 parking spaces provided consisting of 226 parking stalls on 3 levels of underground parking and 8 on-street spaces.

For study purposes, the proposed development is expected to be completed in 2022. Therefore, the study horizon is 2027, five years beyond build-out.

Figure 2 shows the concept of the proposed development.

3. Existing conditions

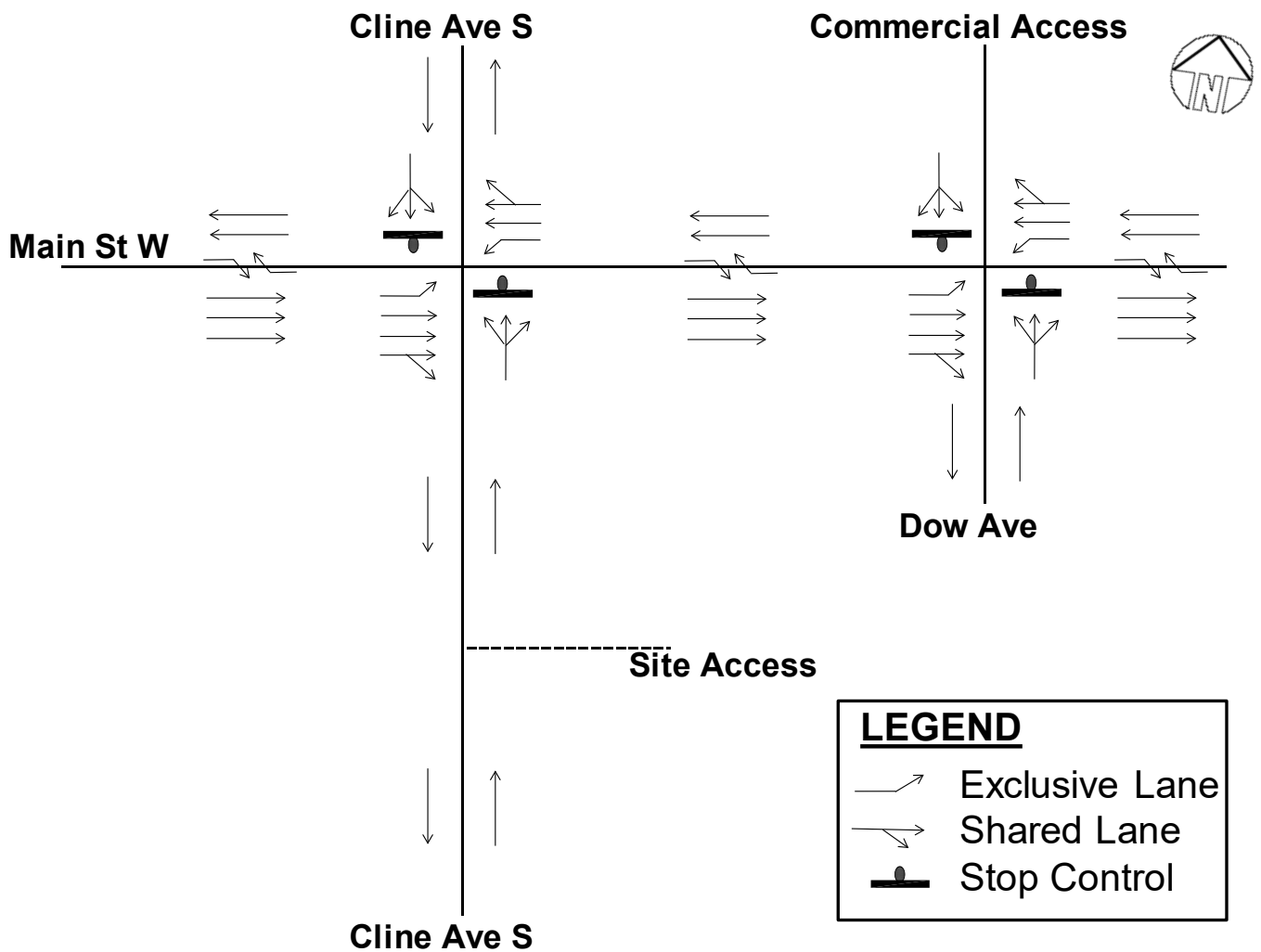
3.1 Existing road network

The following describes the existing road infrastructure in the study area. The existing lane configurations and traffic controls of the study intersections are shown in Figure 3.

Main Street West

Main Street West is an east-west Major Arterial road under the jurisdiction of the City of Hamilton, with a posted speed limit of 60 km/hr in the vicinity of the subject site. It currently has a six-lane cross-section consisting of two westbound traffic lanes, three eastbound traffic lanes and a centre two-way left turn lane in the study area. There are sidewalks provided along both sides of the road.

The Main Street West intersections with Cline Avenue and Dow Avenue are stop controlled at Cline Avenue and Dow Avenue, respectively.





Cline Avenue South

Cline Avenue South is a local road under the jurisdiction of the City of Hamilton with a posted speed limit of 40 km/hr in the vicinity of the subject site. It has a 2-lane cross-section with sidewalks provided along both sides of the road in the study area.

Dow Avenue

Dow Avenue is a local road under the jurisdiction of the City of Hamilton with a posted speed limit of 40 km/hr in the vicinity of the subject site. It has a 2-lane cross-section with sidewalks provided along both sides of the road in the study area.

3.2 Existing traffic data

In order to assess the traffic volumes during the busiest travel periods (weekday AM and PM peak hours), the recent turning movement counts were conducted by Ontario Traffic Inc. on Tuesday, September 17, 2019 at the existing study intersections of Main Street West / Cline Avenue South and Main Street West / Dow Avenue.

Figure 4 shows the most recent traffic volumes for weekday AM and PM peak hours at the study area intersections. The traffic data are provided in Appendix A.

3.3 Transit Data

Hamilton Street Railway Transit

Hamilton Street Railway (HSR) Transit currently provides bus service along Main Street West in the study area via Routes 5 and 10.

Route 5 – Delaware is the longest route in the HSR system, travelling a total of 44.4 km. The farthest westerly point is at the Meadowlands Terminal and the farthest easterly point is at Jones Street and King Street. There are bus stops at intersections of Main Street / Dow Avenue and Main Street / Haddon Avenue. Bus Route 5 provides weekday service with 4-6 buses in the westbound and eastbound AM and PM peak periods. It also provides weekend (Saturday and Sunday) service.

Route 10 – B Line Express is an express route that travels from University Plaza in the west end to Eastgate Square in the east end. There are bus stops at intersections of Main Street / Emerson Street and Main Street / Longwood Road. Bus Route 10 provides weekday service with 7-8 buses in the westbound and eastbound AM and PM peak periods. It also provides Saturday service.

The HSR route maps and service schedules are provided in Appendix A.

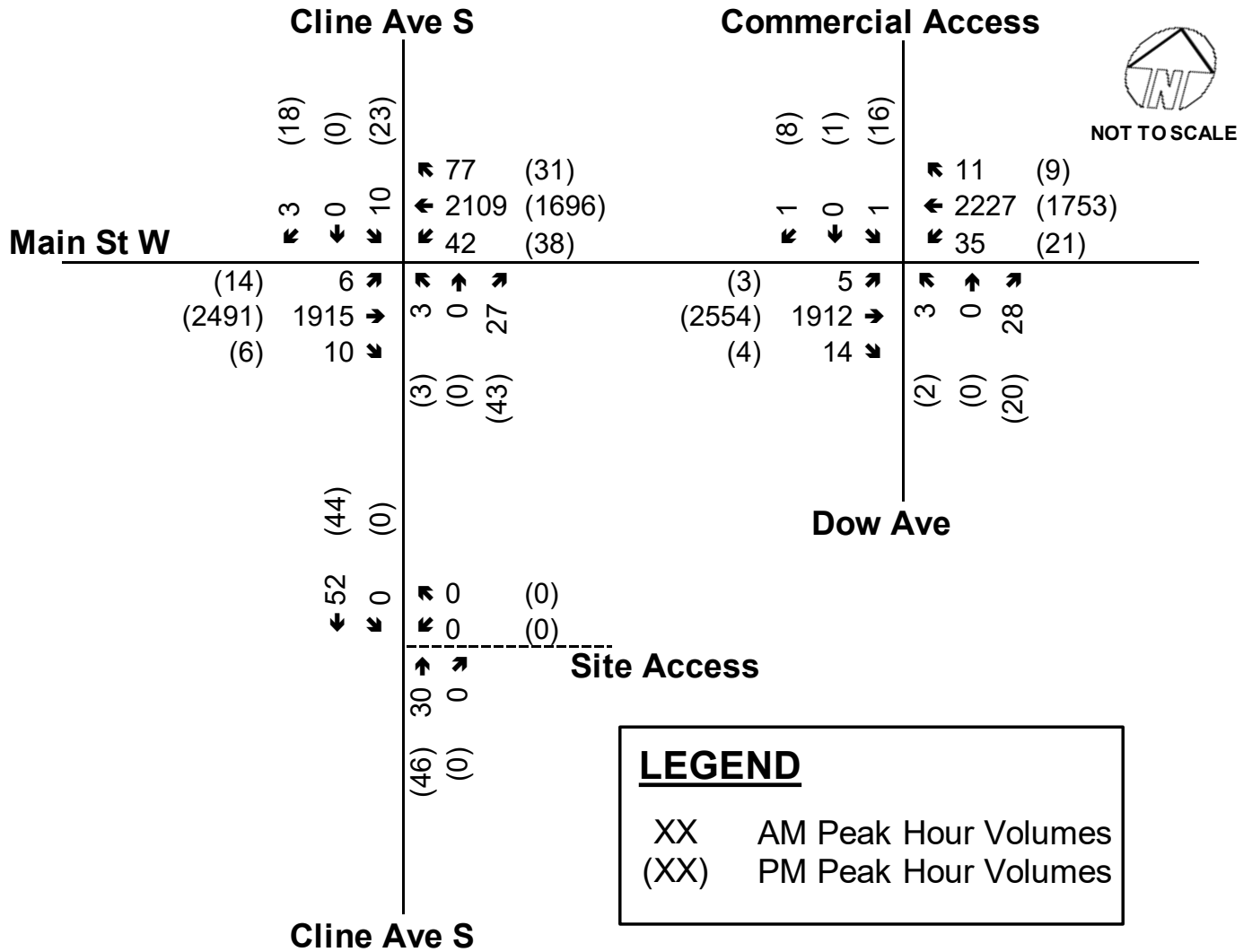


Figure 4 Existing traffic volumes



GO Transit

GO Transit provides rail service along the Lakeshore West line between Union Station in Toronto and the Hamilton GO Centre Station. Lakeshore West line provides weekday service with 4 trains in the morning peak periods in the direction of Hamilton to Toronto, and 4 trains in the afternoon peak periods in the direction of Toronto to Hamilton. GO Transit provides bus service along the Lakeshore West line between Union Station in Toronto and the Hamilton GO Centre Station with 30 minutes headway.

The subject site residents will have access the Hamilton GO Centre Station via HSR Bus Route 5.

The Lakeshore West rail schedule is provided in Appendix A.

3.4 Existing traffic conditions

The capacity analysis identifies how well the intersections and driveways are operating. The analyses are based on the methodology contained in the Highway Capacity Manual, which assigns an intersection Level of Service (LOS) based on the average control delay experienced by each vehicle passing through that intersection. Synchro software was utilized to conduct the analysis.

Peak hour factors for the study intersections were from the existing traffic data and used in the Synchro analysis.

For analysis purposes, 'critical' intersection movements are defined as traffic movements where:

- Volume to capacity (v/c) ratio of through movement or shared through/turning movement exceeds 0.85; or
- Volume to capacity (v/c) ratio of an exclusive turning movement exceeds 0.90.

Table 1 summarizes the results of the existing intersection capacity analyses. Appendix B contains the detailed existing intersection capacity analysis reports.

The existing traffic conditions are as follows:

• Main Street & Cline Avenue

Under existing conditions, the southbound left-through-right shared movement (minor approach) is operating at LOS 'F' (have longer than 'acceptable' delays) during the weekday AM and PM peak hour periods. This is primarily due to the high west / east traffic along Main Street. However, due to the low volume of the southbound shared movement, the v/c ratios during the weekday AM and PM peak hours are acceptable at 0.40 and 0.50, indicating that the southbound left-through-right shared movement is operating within 'design capacity' (i.e., with volume to capacity ratios much lower than 1.0).

During the weekday AM peak hour, the westbound through movement is identified as a critical movement with a v/c ratio of 0.87. The existing westbound AM peak hour volumes on Main Street are 2109 vehicles in two lanes. This westbound volume exceeds typical roadway theoretical planning capacities (generally in the range of 800 to 1,000 vehicles per hour per lane).

All other individual movements are operating at acceptable levels of service (LOS 'D,' or better) and v/c ratios of 0.68 or less. No queue issues are identified.



- **Main Street & Dow Avenue**

Under existing conditions, the southbound left-through-right shared movement (minor approach) is operating at LOS 'F' (have longer than 'acceptable' delays) during the weekday AM and PM peak hour periods. Similar to Main Street and Cline Avenue intersection, this is primarily due to the high west / east traffic along Main Street. Due to the low volume of the southbound shared movement, the v/c ratios during the weekday AM and PM peak hours are acceptable at 0.05 and 0.33, indicating that the southbound left-through-right shared movement is operating within 'design capacity' (i.e., with volume to capacity ratios much lower than 1.0).

During the weekday AM peak hour, the westbound through movement is identified as a critical movement with a v/c ratio of 0.92. The existing westbound peak volumes on Main Street are 2227 vehicles per hour in two lanes during the AM peak hour. This westbound volume exceeds typical roadway theoretical planning capacities (generally in the range of 800 to 1,000 vehicles per hour per lane).

All other individual movements are operating at acceptable levels of service (LOS 'E,' or better) and v/c ratios of 0.69 or less. No queue issues are identified.

Table 1 Existing traffic conditions

Intersection	Control Type	AM Peak Hour			PM Peak Hour		
		Overall v/c (LOS) Delay in Seconds	Critical/ Key Movements v/c(LOS) Delay in Seconds	95th % ile Queues (m)	Overall v/c (LOS) Delay in Seconds	Critical/ Key Movements v/c(LOS) Delay in Seconds	95th % ile Queues (m)
Cline Ave S & Main St W	Unsignalized	SBTLR 0.4 (F) 162	EBL = 0.03 (C) 22 EBT = 0.47 (A) 0 EBT = 0.47 (A) 0 EBTR = 0.24 (A) 0 WBL = 0.17 (C) 22 WBT = 0.87 (A) 0 WBTR = 0.48 (A) 0 NBTLR = 0.13 (C) 23 SBTLR = 0.4 (F) 162	EBL = 5 m EBT = 0 m EBT = 0 m EBTR = 0 m WBL = 5 m WBT = 0 m WBTR = 0 m NBTLR = 5 m SBTLR = 10 m	SBTLR 0.5 (F) 86	EBL = 0.04 (C) 16 EBT = 0.6 (A) 0 EBT = 0.6 (A) 0 EBTR = 0.3 (A) 0 WBL = 0.23 (D) 33 WBT = 0.68 (A) 0 WBTR = 0.36 (A) 0 NBTLR = 0.28 (D) 35 SBTLR = 0.5 (F) 86	EBL = 5 m EBT = 0 m EBT = 0 m EBTR = 0 m WBL = 10 m WBT = 0 m WBTR = 0 m NBTLR = 10 m SBTLR = 20 m
Dow Ave/Commercial Access & Main St W	Unsignalized	SBTLR 0.05 (F) 92	EBL = 0.03 (C) 24 EBT = 0.47 (A) 0 EBT = 0.47 (A) 0 EBTR = 0.25 (A) 0 WBL = 0.14 (C) 20 WBT = 0.92 (A) 0 WBTR = 0.47 (A) 0 NBTLR = 0.16 (D) 27 SBTLR = 0.05 (F) 92	EBL = 5 m EBT = 0 m EBT = 0 m EBTR = 0 m WBL = 5 m WBT = 0 m WBTR = 0 m NBTLR = 5 m SBTLR = 5 m	SBTLR 0.33 (F) 74	EBL = 0.01 (C) 16 EBT = 0.61 (A) 0 EBT = 0.61 (A) 0 EBTR = 0.31 (A) 0 WBL = 0.13 (D) 31 WBT = 0.69 (A) 0 WBTR = 0.35 (A) 0 NBTLR = 0.16 (E) 37 SBTLR = 0.33 (F) 74	EBL = 5 m EBT = 0 m EBT = 0 m EBTR = 0 m WBL = 5 m WBT = 0 m WBTR = 0 m NBTLR = 5 m SBTLR = 10 m

4. Background Traffic Conditions

4.1 Study horizon

Based on consultation with the applicant, the proposed development is expected to be completed in 2022. Therefore, the study horizon is 2027, five years beyond build-out.



4.2 Planned road network

Metrolinx has identified the development of the Main/King/Queenston B-Line LRT line in Hamilton linking McMaster University, Downtown and Eastgate Square as a top transit priority in the Regional Transportation Plan – The Big Move and the Province of Ontario has approved the Environmental Project Report (EPR) for the LRT project.

In the study area, Main Street West currently contains two westbound traffic lanes and three eastbound traffic lanes as well as a centre bi-directional left turning lane. Under the proposed LRT design, this section of Main Street West would still contain two westbound traffic lanes and three eastbound traffic lanes however no centre turning lane. The LRT guideway would be located between westbound and eastbound traffic lanes.

Crossings of the LRT guideway outside of signalized intersections will not be permitted. Eastbound traffic on Main Street West would be able to turn right onto Cline Avenue South or onto Dow Avenue. Vehicles exiting the subject lands in a northerly direction would be able to turn right onto eastbound Main Street. Westbound traffic accessing the subject lands must make a U-turn where permitted at signalized intersections west of the subject lands in order to turn around and access the subject lands in an eastbound direction at Cline Avenue. Similarly, vehicles leaving the subject lands in order to travel westbound on Main Street West will have to travel east on Main Street West until an approved U-turn location.

4.3 Future traffic / corridor growth

Based on a review of the available “City of Hamilton Rapid Transit Initiative Acoustic Assessment Report-Final” prepared by Dillon Consulting Limited, the Dillon’s study estimated the peak PM volumes for 2031 with LRT conditions along Main Street West within the study area, which applied an annual growth rates of 0.73% to Main Street West in the study area from 2008 to 2031 horizon (provided in Appendix C). To be conservative, this analysis applied annual growth rates of 1.0% to all movements to estimate the background traffic growth for the 2027 study horizon.

The net growth traffic volumes are shown in Figure 5.

Based on the above discussions, the existing traffic and the estimated net traffic growth were combined to estimate the future background weekday AM and PM peak hour traffic volumes. The background (2027) traffic volumes are presented in Figure 6.

As discussed in Section 4.2, crossings of the LRT guideway outside of signalized intersections will not be permitted. Therefore, the estimated future background traffic derived from the existing traffic was adjusted to account for the turn restricts and U-turns. With the implementation of the Main Street LRT Line, the diverted background (2027) traffic volumes are presented in Figure 7.

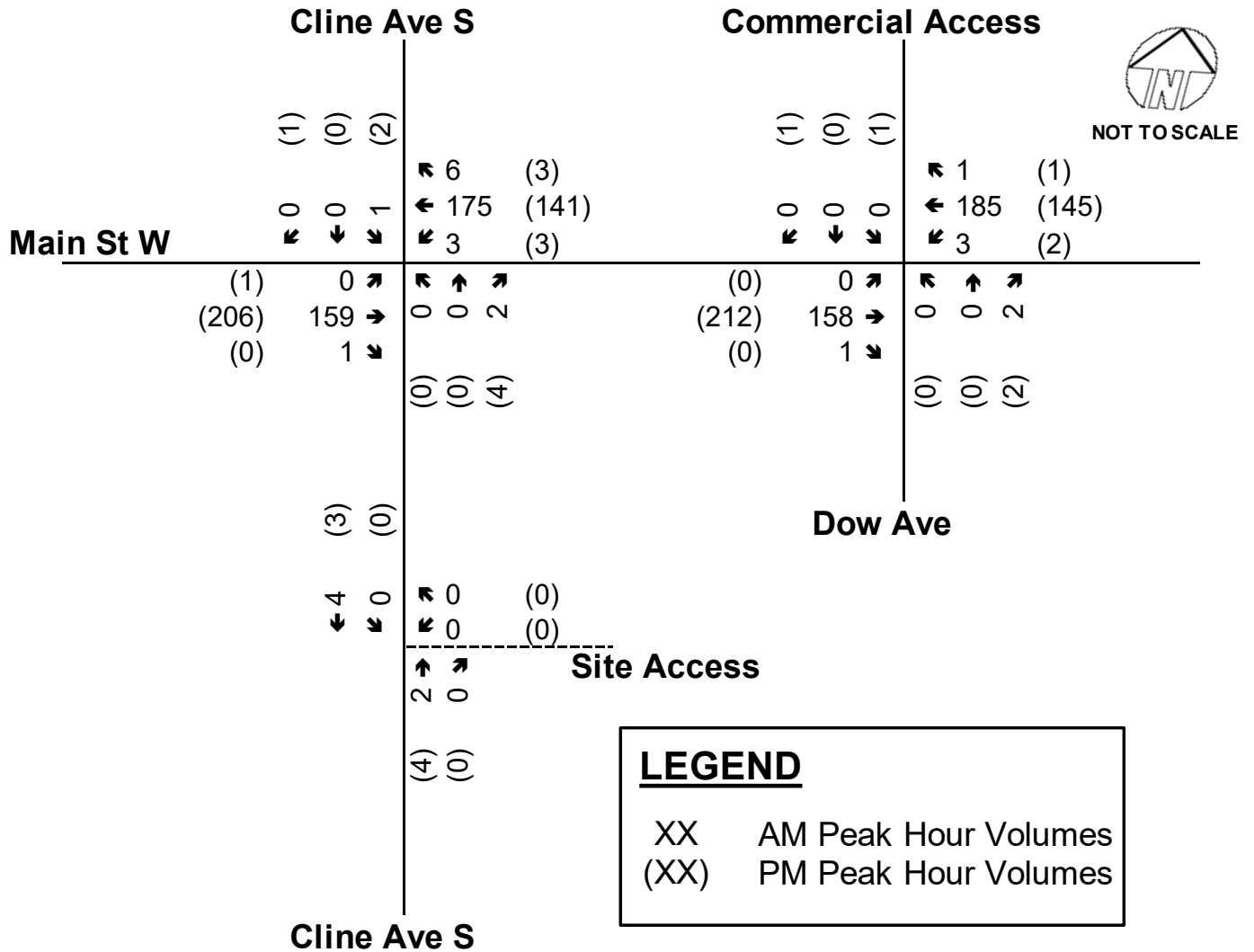


Figure 5 Net growth traffic volumes

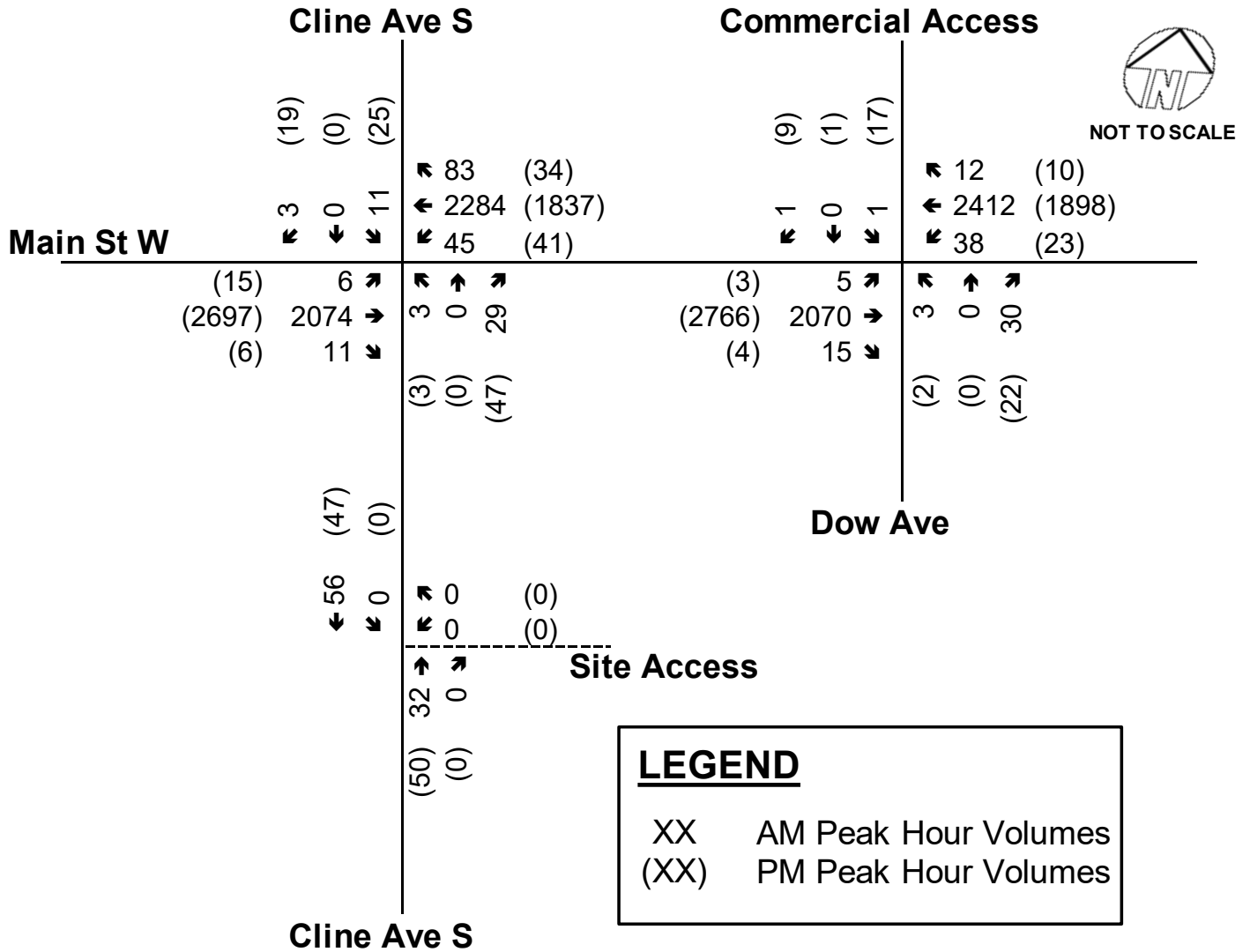


Figure 6 Background traffic volumes

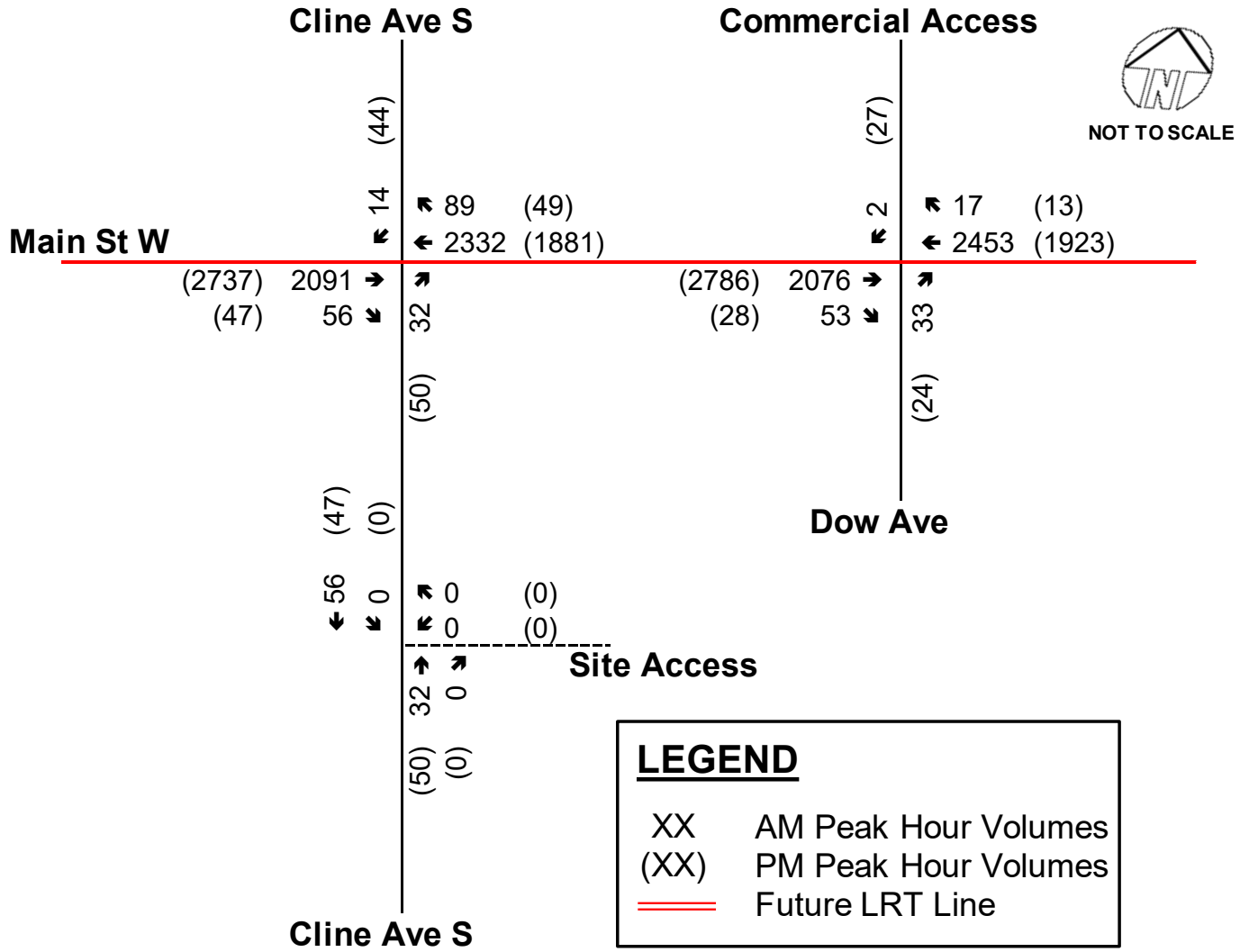


Figure 7 Background traffic volumes with LRT Line

4.4 Background traffic conditions with LRT Line

The future background (2027) traffic volumes with LRT Line were subjected to intersection capacity analyses based on the same methodologies utilized for the existing conditions. Peak hour factors for the study intersections were from the existing traffic data and used in the Synchro analysis.

Table 2 summarizes the results of the intersection capacity analysis. Appendix D contains the detailed background (2027) intersection capacity analysis reports.

The background traffic conditions are as follows:

- **Main Street & Cline Avenue**

Under background traffic conditions with LRT Line, the northbound and southbound left-through-right shared movements (minor approaches) are expected to operate at LOS 'D' or better with v/c ratio of 0.21 or less during the weekday AM and PM peak hour periods.



During the weekday AM peak hour, the westbound through movement is identified as a critical movement with a v/c ratio of 0.96. The estimated background westbound peak volumes on Main Street are 2332 vehicles per hour in two lanes during the AM peak hour. Same as Existing Conditions, this westbound volume exceeds typical roadway theoretical planning capacities (generally in the range of 800 to 1,000 vehicles per hour per lane).

All other individual movements are expected to operate at v/c ratios of 0.75 or less. No queue issues are identified.

Table 2 Background traffic conditions

Intersection	Control Type	AM Peak Hour			PM Peak Hour		
		Overall v/c (LOS) Delay in Seconds	Critical/ Key Movements v/c(LOS) Delay in Seconds	95th %ile Queues (m)	Overall v/c (LOS) Delay in Seconds	Critical/ Key Movements v/c(LOS) Delay in Seconds	95th %ile Queues (m)
Cline Ave S & Main St W	Unsignalized	SBR 0.1 (D) 31	EBT = 0.52 (A) 0 EBT = 0.52 (A) 0 EBTR = 0.29 (A) 0 WBT = 0.96 (A) 0 WBTR = 0.54 (A) 0 NBR = 0.1 (C) 17 SBR = 0.1 (D) 31	EBT = 0 m EBT = 0 m EBTR = 0 m WBT = 0 m WBTR = 0 m NBR = 5 m SBR = 5 m	SBR 0.19 (C) 24	EBT = 0.66 (A) 0 EBT = 0.66 (A) 0 EBTR = 0.36 (A) 0 WBT = 0.75 (A) 0 WBTR = 0.41 (A) 0 NBR = 0.21 (C) 24 SBR = 0.19 (C) 24	EBT = 0 m EBT = 0 m EBTR = 0 m WBT = 0 m WBTR = 0 m NBR = 5 m SBR = 5 m
Dow Ave/Commercial Access & Main St W	Unsignalized	SBR 0.01 (D) 32	EBT = 0.51 (A) 0 EBT = 0.51 (A) 0 EBTR = 0.29 (A) 0 WBT = 1.01 (A) 0 WBTR = 0.52 (A) 0 NBR = 0.1 (C) 17 SBR = 0.01 (D) 32	EBT = 0 m EBT = 0 m EBTR = 0 m WBT = 0 m WBTR = 0 m NBR = 5 m SBR = 5 m	SBR 0.12 (C) 22	EBT = 0.66 (A) 0 EBT = 0.66 (A) 0 EBTR = 0.35 (A) 0 WBT = 0.76 (A) 0 WBTR = 0.39 (A) 0 NBR = 0.1 (C) 22 SBR = 0.12 (C) 22	EBT = 0 m EBT = 0 m EBTR = 0 m WBT = 0 m WBTR = 0 m NBR = 5 m SBR = 5 m

- Main Street & Dow Avenue**

Under background traffic conditions with LRT Line, the northbound and southbound left-through-right shared movements (minor approaches) are expected to operate at LOS 'D' or better with v/c ratio of 0.12 or less during the weekday AM and PM peak hour periods.

During the weekday AM peak hour, the westbound through movement is identified as a critical movement with a v/c ratio of 1.01. The estimated background westbound peak volumes on Main Street are 2453 vehicles per hour in two lanes during the AM peak hour. Same as Existing Conditions, this westbound volume exceeds typical roadway theoretical planning capacities (generally in the range of 800 to 1,000 vehicles per hour per lane).

All other individual movements are expected to operate at v/c ratios of 0.76 or less. No queue issues are identified.



5. Proposed development

5.1 Site traffic generation

The proposed development, at full build-out, is expected to consist of 310 residential rental units with 5,760.3 ft² (535.1 m²) gross floor area (GFA) of commercial at grade. The detail residential unit breakdown in the site plan (dated January 2020) is provided in Appendix E.

For comparison purposes, subject site trips were estimated based on the average trip rates as well as based on trip rates derived from the fitted curve equations of High-Rise Multifamily House (LUC #222) provided in Trip Generation, 10th Edition, published by the Institute of Transportation Engineers (ITE). The resultant trip rates, entering and exiting proportions, and estimated total site trips are summarized in Table 3.

Table 3 Site trip generation

Site Development	Units	Parameter	Peak Hour Trip Generation					
			Weekday AM Peak			Weekday PM Peak		
			In	Out	Total	In	Out	Total
Residential (High-Rise Multifamily House)	310	Gross Rate (Average Rate)	0.07	0.24	0.31	0.22	0.14	0.36
		New Trips	23	73	96	68	44	112
	310	Gross Rate (Fitted curve equation)	0.077	0.246	0.323	0.224	0.144	0.368
		New Trips	24	76	100	70	44	114

According to Table 3, to be conservative, the subsequent analysis applied the higher trip rates (derived from the fitted curve equation) of High-Rise Multifamily House.

As a rental apartment building, the proposed commercial component provides services predominately to the residents / students, and therefore it is not expected to generate any vehicular trips.

Although there could be an allowance for transit and active transportation modes, vehicle trip reductions were not considered for this analysis. Accordingly, the total site trips are expected to be 100 two-way vehicle trips during the weekday AM peak hour total and 114 two-way vehicle trips during the weekday PM peak hour.

5.2 Directional distribution and assignment

With the implementation of the Main Street LRT Line, Cline Avenue South and Dow Avenue connecting Main Street will be right-in and right-out. Left turns will not be permitted (or possible) at these unsignalized intersections due to the LRT in the centre of Main Street. In addition, as a student rental building, the majority of the site trips will be to or from the university of McMaster during the weekday AM and PM peak hours.

To be conservative, the analysis assumed that all site traffic will access the site from Main Street and Cline Avenue. Furthermore, all traffic will come from or go to the west (MacMaster University). The site traffic volumes are illustrated in Figure 8.

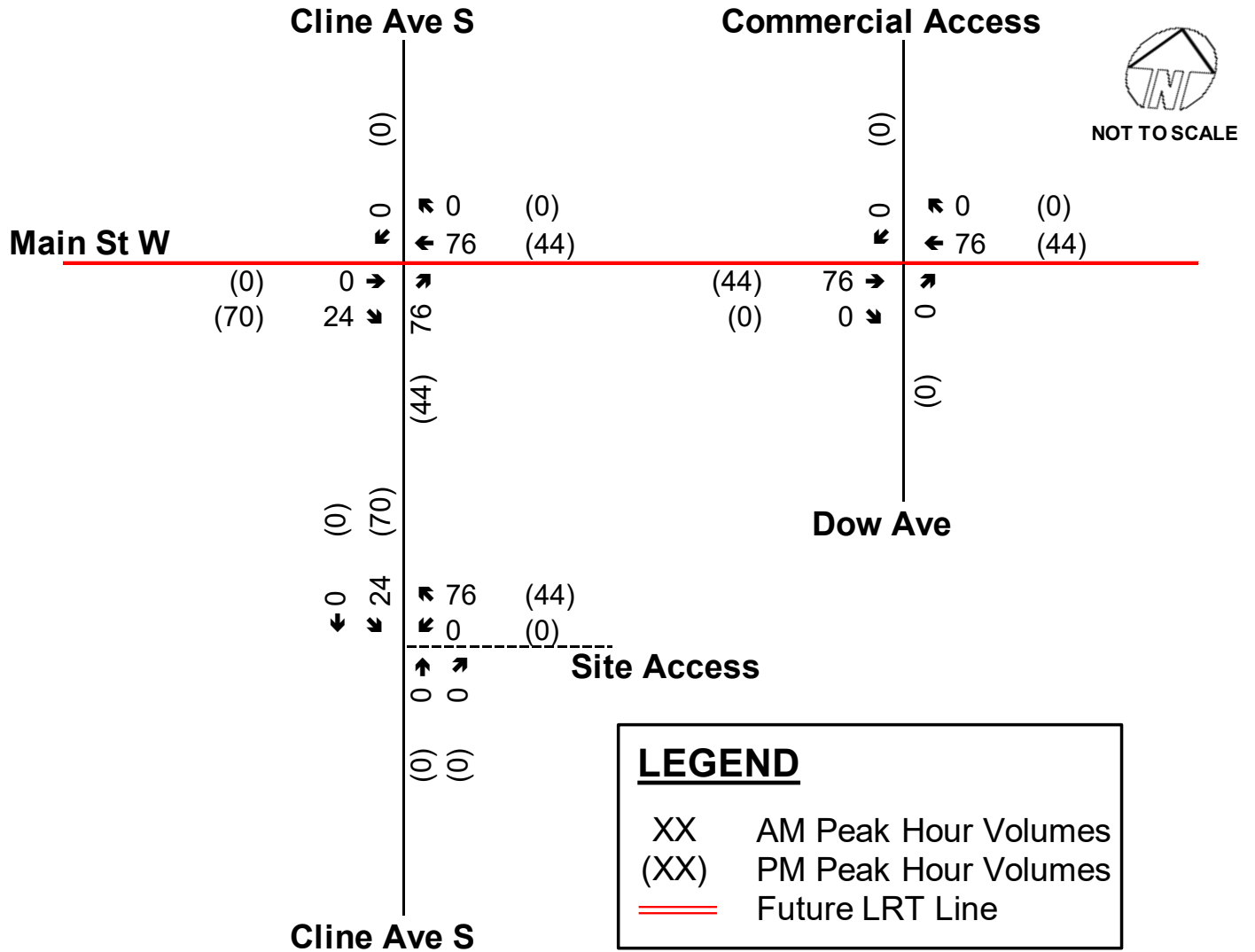


Figure 8 Site generated traffic volumes



6. Total traffic conditions

In order to estimate the traffic impacts due to the introduction of site related trips, the background traffic flows (Figure 7) were combined with the estimated site trips (Figure 8) to get the total traffic during the weekday AM and PM peak hours as illustrated in Figure 9.

The future total (2027) traffic volumes were subjected to intersection capacity analyses based on the same methodologies utilized for the background conditions. Peak hour factors for the study intersections were calculated based on the existing traffic data.

Figure 10 show the future lane configurations of the study area intersections including the proposed site accesses.

Table 4 summarizes the results of the intersection capacity analysis, while Appendix F contains the detailed total intersection capacity analysis reports.

Table 4 Total traffic conditions

Intersection	Control Type	AM Peak Hour			PM Peak Hour		
		Overall v/c (LOS) Delay in Seconds	Critical/ Key Movements v/c(LOS) Delay in Seconds	95th % ile Queues (m)	Overall v/c (LOS) Delay in Seconds	Critical/ Key Movements v/c(LOS) Delay in Seconds	95th % ile Queues (m)
Cline Ave S & Main St W	Unsignalized	SBR 0.10 (D) 33	EBT = 0.52 (A) 0 EBT = 0.52 (A) 0 EBTR = 0.31 (A) 0 WBT = 0.99 (A) 0 WBTR = 0.55 (A) 0 NBR = 0.35 (C) 22 SBR = 0.10 (D) 33	EBT = 0 m EBT = 0 m EBTR = 0 m WBT = 0 m WBTR = 0 m NBR = 15 m SBR = 5 m	NBR 0.41 (D) 31	EBT = 0.66 (A) 0 EBT = 0.66 (A) 0 EBTR = 0.40 (A) 0 WBT = 0.77 (A) 0 WBTR = 0.41 (A) 0 NBR = 0.41 (D) 31 SBR = 0.19 (C) 24	EBT = 0 m EBT = 0 m EBTR = 0 m WBT = 0 m WBTR = 0 m NBR = 15 m SBR = 5 m
Dow Ave/Commercial Access & Main St W	Unsignalized	SBR 0.02 (D) 34	EBT = 0.53 (A) 0 EBT = 0.53 (A) 0 EBTR = 0.30 (A) 0 WBT = 1.04 (A) 0 WBTR = 0.53 (A) 0 NBR = 0.11 (C) 17 SBR = 0.02 (D) 34	EBT = 0 m EBT = 0 m EBTR = 0 m WBT = 0 m WBTR = 0 m NBR = 5 m SBR = 5 m	SBR 0.12 (C) 23	EBT = 0.67 (A) 0 EBT = 0.67 (A) 0 EBTR = 0.35 (A) 0 WBT = 0.78 (A) 0 WBTR = 0.40 (A) 0 NBR = 0.10 (C) 22 SBR = 0.12 (C) 23	EBT = 0 m EBT = 0 m EBTR = 0 m WBT = 0 m WBTR = 0 m NBR = 5 m SBR = 5 m
Cline Ave S & Site Access	Unsignalized	WBLR 0.08 (A) 9	WBLR = 0.08 (A) 9 NBTR = 0.02 (A) 0 SBTL = 0.02 (A) 2	WBLR = 5 m NBTR = 0 m SBTL = 5 m	WBLR 0.05 (A) 9	WBLR = 0.05 (A) 9 NBTR = 0.03 (A) 0 SBTL = 0.05 (A) 5	WBLR = 5 m NBTR = 0 m SBTL = 5 m

The total traffic conditions are as follows:

- Main Street & Cline Avenue**

Under total traffic conditions with LRT Line, the northbound and southbound right movements (minor approaches) are expected to operate at acceptable LOS 'D' or better with v/c ratio of 0.41 or less during the weekday AM and PM peak hour periods.

The westbound through movement is identified as a critical movement with a v/c ratio of 0.99 during the weekday AM peak hour. Compared to the future background condition, the westbound through v/c ratio increased by 0.03. The westbound peak volume on Main Street is estimated at 2408



vehicles per hour in two lanes. This westbound volume exceeds typical roadway theoretical planning capacities (generally in the range of 800 to 1,000 vehicles per hour per lane).

All other individual movements are expected to operate at acceptable v/c ratios of 0.77 or less. No queue issues are identified.

- **Main Street & Dow Avenue**

Under total traffic conditions with LRT Line, the northbound and southbound right shared movements (minor approaches) are expected to operate at acceptable LOS 'D' or better with v/c ratio of 0.12 or less during the weekday AM and PM peak hour periods.

During the weekday AM peak hour, similar to the Main Street and Cline Avenue intersection, the westbound through movement is identified as a critical movement with a v/c ratio of 1.04. Compared to the future background condition, the westbound through v/c ratio increased by 0.03. The westbound peak volume on Main Street is estimated at 2529 vehicles per hour in two lanes. This westbound volume exceeds typical roadway theoretical planning capacities (generally in the range of 800 to 1,000 vehicles per hour per lane).

All other individual movements are expected to operate at acceptable v/c ratios of 0.78 or less. No queue issues are identified.

- **Cline Avenue & Site Access**

Under total traffic conditions, this unsignalized access has excellent operational characteristics. All movements have 'good' LOS 'A'. No critical movements and queue issues are identified.

From a review of Table 4 above, the future background traffic plus the site traffic can be accommodated by the abutting street system with the Main Street LRT Line. Traffic generated by the proposed development does not add adverse impacts on the road network and no road improvements are triggered as a result of this development.

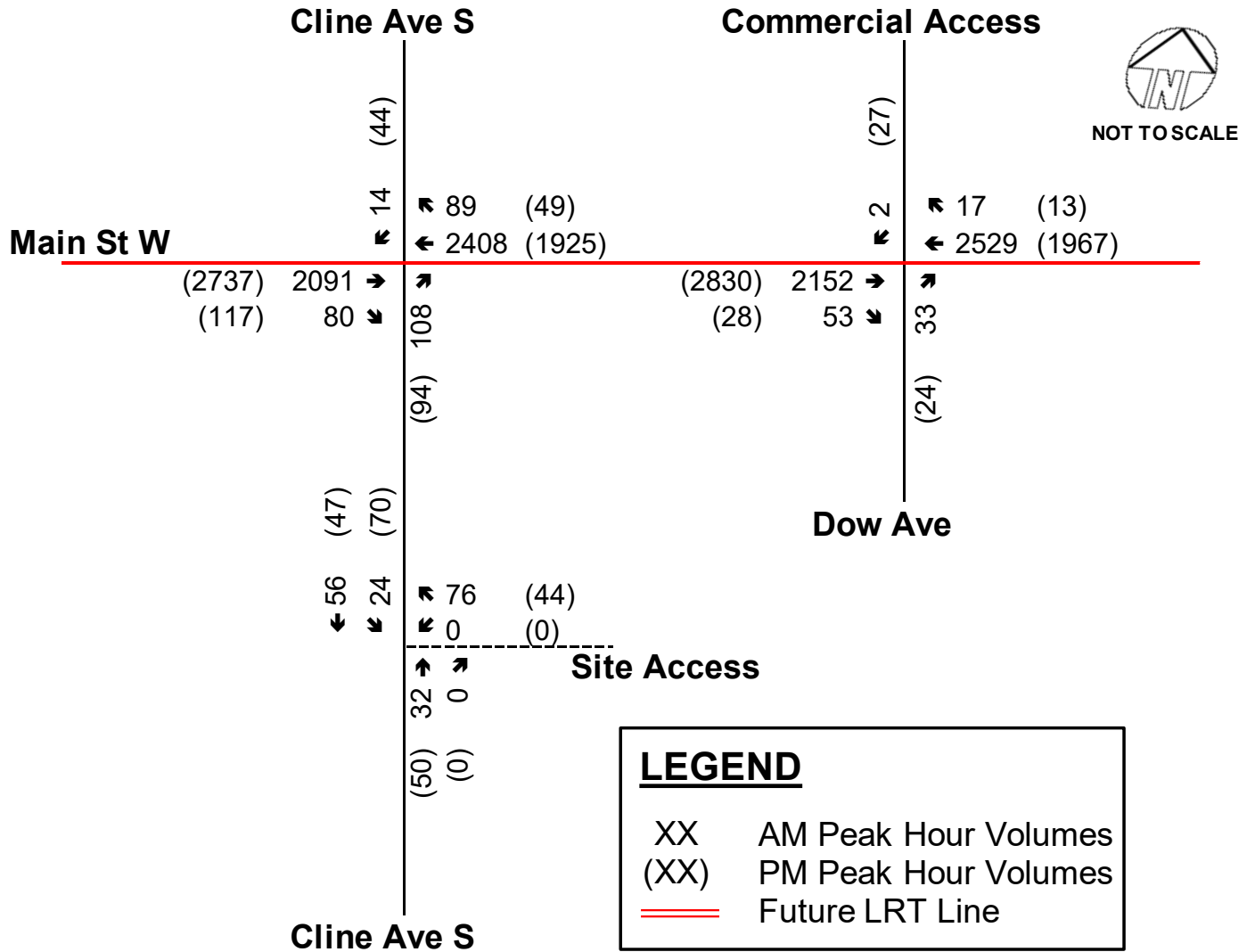


Figure 9 Total traffic volumes with LRT Line

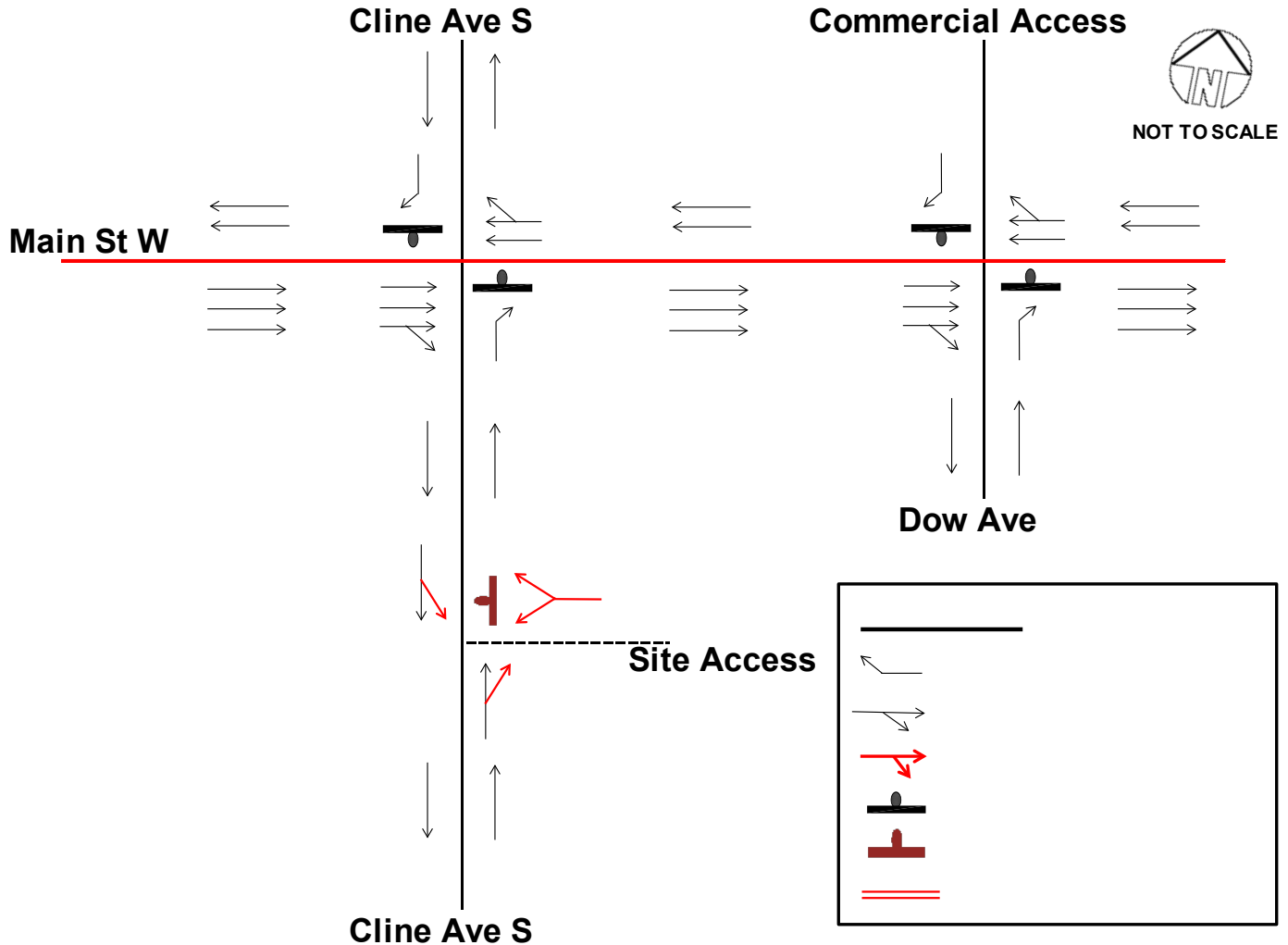


Figure 10 Future lane configurations and traffic controls

7. Parking supply

7.1 Review of City's parking by-law requirements

The proposed development consists of 310 residential rental units.

Based on our review of the City's current parking By-Law requirements (By-law # 05-200, Section 5.6, excerpts provided in Appendix G), for Multiple Dwelling residential use, the City By-Law requires 0.30 parking space per dwelling unit when dwelling units are less than 50.0 m², and 0.70 parking space per dwelling unit when dwelling units are greater than 50.0 m².

Based on the residential unit breakdown (total of 310 units) in the site plan (dated January 2020, provided in Appendix E), there are 92 units that are each less than 50.0 m² (538.20 ft²) in area, and 218 units that are each greater than 50.0 m² (538.20 ft²).

Table 5 summarizes the City's requirements for the site resident parking spaces.

Table 5 City's parking requirements for site residents

Units	City's By-Law Requirement	
	Parking Rate	Parking Spaces
	Resident	Resident
92 (< 50 m ²)	0.30	28
218 (> 50 m ²)	0.70	153
310 units		181

Therefore, the current By-Law requires 181 parking spaces for residents.

It should be noted that the current By-Law does not provide a visitor parking rate for the Multiple Dwelling residential use. For analysis purposes, we have used information from other jurisdictions. The City of Toronto By-law and existing parking demands for residential visitor parking requirements are reviewed and discussed in the next section.

7.2 Review of visitor parking requirement

City of Toronto visitor parking rate

Based on our review of the Toronto's current parking By-Law requirements (By-law # 569-2013, Section 200.5.10, excerpts provided in Appendix G), Toronto requires 0.10 visitor parking space per dwelling unit for Policy Areas 1 to 3 (downtown and transit corridor areas). The subject site is along the Main Street LRT Line, therefore the analysis will use the visitor rate of 0.10 for the proposed site visitor parking, and summarized in Table 8.

Review of existing parking demands

GHD conducted parking demand (or utilization) surveys to record the number of visitor vehicles at four residential buildings located within Durham Region during the expected peak period to establish the peak visitor parking demand. From our experience, the peak visitor period occurs on Saturday evenings. Therefore, to determine the maximum, we visited the locations every hour between 17:00 and 21:00 on two separate Saturdays to capture the peak visitor demand at each location and day. The peak visitor parking ratio was derived as 0.091 spaces per residential unit.

Selected parking sites

Given the available locations, the sizes were sufficiently large enough to obtain meaningful parking demand. Another criteria used to select the sites was the accessibility to the parking. That is the residential and visitor must be readily accessible and in these cases this means surface parking. Of the reviewed sites, all had surface visitor parking, however only one has surface resident parking. The other sites had underground resident parking. The selected sites are provided in Table 6.

Table 6 Surveyed site locations

Surveyed Site locations	Number of visitor parking spaces provided	Number of units
1525, 1535 Diefenbaker Court and 1530, 1540 Pickering Parkway, City of Pickering	60	273
1600 Charles Street, Town of Whitby	35	140
340 Watson Street West, Town of Whitby	71	215
4 Randall Drive, Town of Ajax	35	143

Parking data summary and analysis

In order to determine the existing peak visitor parking demand, we conducted a parking demand survey at four residential buildings located within Durham Region on Saturday February 6, 2016 and Saturday February 13, 2016 between 5pm and 9pm. We counted the number of occupied visitor parking spaces along with the supply during the survey period. The parking ratio was derived from the ratio of parked vehicles to the total number of units.

The survey results are summarized in Table 7. It is to be noted that the numbers provided in Table 7 are the maximum demand during the survey period for each location. Aggregated numbers based on the weighted average are also provided. The parking survey data of each location are provided in Appendix G.

Table 7 Surveyed visitor parking ratio

Location	Number of visitor parking spaces	Number of units	Maximum observed demand ratio Feb 6, 2016	Maximum observed demand ratio Feb 13, 2016
1525, 1535 Diefenbaker Court and 1530, 1540 Pickering Parkway, City of Pickering	60	273	0.059	0.062
1600 Charles Street, Town of Whitby	35	140	0.079	0.086
340 Watson Street West, Town of Whitby	71	215	0.116	0.112
4 Randall Drive, Town of Ajax	35	143	0.126	0.119
Weighted average			0.091	0.091

Based on the parking survey (Table 7), the weighted average visitor parking demand ratios was 0.091 parking spaces per unit for the two surveyed days.

Based on the City of Toronto By-law requirement and existing visitor parking survey data, the parking requirements for the site visitors is summarized in Table 8.

Table 8 Parking requirements for site visitors

Units	Toronto Requirement		Existing parking demand	
	Parking Rate	Parking Spaces	Parking Rate	Parking Spaces
	Visitor	Visitor	Visitor	Visitor
310	0.10	31	0.091	28

Therefore, the required visitor parking is 28 and 31 spaces, respectively, based on the existing parking demands and the Toronto's By-law for visitor parking.

7.3 Recommended parking ratio and spaces

Parking requirements for residents

For Multiple Dwelling residential use, the City of Hamilton's current parking By-Law requires 181 parking spaces for the site residents (see Table 5). It should be noted that the parking requirements for the student rental apartment building is expected to be less than the typical residential building.

Parking requirements for visitors

Based on the City of Toronto By-law requirement and existing visitor parking survey data, the required visitor parking is 28 and 31 spaces (see Table 8), respectively for the proposed development.

As a rental apartment building, the proposed commercial component provides services predominately to the students / residents, and therefore is no parking needed for the commercial use.

Therefore, the estimated total parking requirement for the proposed development will be 212 (181 resident +31 visitor) parking spaces.

From a review of above, the proposed parking supply of 234 spaces will meet Hamilton's By-law requirements for resident parking and can accommodate anticipated visitor parking demand.

8. Site circulation review

The site plan was reviewed with respect to design vehicle circulation using AutoTURN software.

Based on the analysis, the proposed site plan is sufficient to accommodate the circulation requirements of garbage trucks as well as medium single unit (MSU) trucks. By all indications in Appendix H, there are no truck circulation concerns with the site plan.

The proposed parking level plans are sufficient to accommodate circulation requirements of the passenger car design vehicles, as illustrated in Appendix H.

Therefore, the proposed site plan has been reviewed and found to be acceptable in terms of vehicular flow and parking space accessibility. Therefore, we conclude that the current site plan can accommodate the intended design vehicles.



9. Transportation demand management

Transportation Demand Management (TDM) is the term used to describe initiatives, policies and recommendations to reduce the public's dependence on the car and use alternate modes of transportation (transit, carpooling, and active transportation such as walking and cycling) which will contribute to the reduction of overall site congestion and parking requirements. The composition and location of the subject development is ideally suited for the application of TDM initiatives.

The distance between Cline Avenue and University Avenue (McMaster University) is approximately 700 m along Main Street West. There are LRT stations proposed at McMaster University and at Longwood Road (approximately 400 m east of the subject site, in the opposite direction of the University). Therefore, it is not likely that the LRT will be used by residents of the development to travel to/from the University. However, they can use existing transit stops and buses.

9.1 Background

The City of Hamilton completed a TDM Guild for Development in 2015, which contained information about ways to integrate TDM into new development, redevelopment and existing buildings, identified the needs and interests of employers, assessed TDM's market potential, and evaluated different ways of involving employers in initiatives of commuting options. The study indicated that the priority TDM measures for the City of Hamilton should be enhancing transit and ridesharing. It recommended a regional TDM program called Smart Commute Hamilton.

Smart Commute is a TDM approach designed specifically to influence the mode and time of travel in order to promote sustainability and a more efficient use of the transportation system. Established in 2007, Smart Commute Hamilton is one of 19 Smart Commutes across the Greater Toronto and Hamilton Area (GTHA) working to provide programs and services that help commuters make single occupant vehicle trip reductions for study, work and home life. Therefore, the City is a valuable resource and partner to establish TDM initiatives in the study area.

9.2 TDM incentive policies / strategies

A number of incentive policies are potentially applicable to the subject site developments including:

- Trip reduction
- General information and education programs
- Individualized Marketing programs
- Provision of car share vehicles in accessible and visible parking locations
- Provision of secure bicycle parking for residents and visitors
- Developing active transportation connections and linkages and prioritize the implementation of the City's Active Transportation Network. Accommodations to increase access and convenience for pedestrians and cyclists. Provide education around increased opportunities for active transportation.

These are described below:



Trip reduction: The objective of TDM trip reduction strategies is to minimize the net increase in vehicular trip making associated with new development.

General Information programs: The General Information programs would involve working with sales and marketing staff to promote the advantages of living and working within the local communities, so as to attempt to attract people who are interested in a more sustainable lifestyle. It could include information and / or mapping related to transit routes, schedules and fares and the active transportation network.

Individualized Marketing programs: The preferred Individualized Marketing (IM) approach would encourage the new residents/students to consider and try travel options that respond to their individual needs through a variety of incentives, including potentially free transit passes for a limited (but habit forming) period.

Residents/students could be offered incentives to support a travel mode switch including free or discounted transit passes. Residents/students that are using sustainable modes of travel (e.g. transit, walk or bike) could also receive a reward (e.g. gift cards for local businesses / services) to support their continued sustainable travel behaviors.

Car Share Programs: Offering “car sharing” to new residents/students, would allow them to enjoy the accessibility benefits of car ownership for shopping, personal business and recreational travel without having to purchase the first or second car. To the extent that car sharing reduces or delays car ownership for new residents/students, it would offer substantial cost savings to new residents/students could reduce the number of parking spaces required (a cost saving to the developer/builder).

Secure Bike Parking: The provision of secure bike parking for residents and visitors will encourage cycling as an alternative to driving (or taking transit) or as a way to improve access to rapid transit for persons living beyond convenient walking distance of transit. Therefore, this should be a requirement and long term and short-term parking space standards should be increased. Furthermore, improved long and short term secure bike storage (indoor and outdoor as appropriate) should be mandated to improve the accessibility and storage/security environment.

9.3 Transportation demand measures for subject site

Based on the measures recommended in Hamilton TDM Guild for Development, the following Transportation Demand Measures have been identified and recommended for the subject site:

Cycling

- Provide visible, well-lit, short term bicycle parking on-site.
- Provide secure bicycle parking for residents and visitors.
- Provide connections between site to the City’s bicycle network.

Walking

- Wherever possible, building main accesses should face the street, especially along arterial roads.
- Enhance pedestrian amenities on-site (benches, landscaping, lighting).



Transit

- Enhance walking routes between main building entrances and transit bus stops.
- Provide bicycle parking located at or near transit stops.
- Provide transit information on-site and adjacent to bus stops.

Parking

- Provide the minimum number of required parking spaces.
- Reduce minimum parking requirements based on proximity to transit
- Share parking with nearby developments or on-street
- Reduce minimum parking requirements based on provision of dedicated car share vehicle parking spaces

Car share / Bike share

- Develop community car-sharing programs
- Provide on-site car share vehicle
- Provide on-site bike share facility

Travel Planning

- Educate and inform new home buyers by providing informational package including transit maps, schedules and fares, bicycle route maps and other brochures;

Promotion

- Provide subsidized transit passes, car share memberships, and/or bike share memberships for new residents / students
- Provide sale of transit passes at site commercial / retail, provide residents with the convenience and incentive to utilize the available transit facilities.

9.4 Evaluation of transportation demand measures

With success of TDM programs in other jurisdictions, like City of Toronto and Region of York, the momentum will encourage participation by residents and employees of the subject site.

1. Transit measures will be in place means that modal choice options will be available at the future occupancy. The direct access to future public transit facilities will provide an instantaneous benefit to residents, employees and visitors to the area. As discussed in **Section 5.1**, although there could be an allowance for transit and active transportation modes, to be conservative vehicle trip reductions were not considered. The following is a conservative estimate of vehicle trip reductions given that the development is within walking distance of bus routes.
2. As mentioned, the Hamilton TMP (2007) indicates a transit mode split of 12% and an additional 15% for other modes (walk and cycle) for 2031, for a total of 27% non-auto mode.

The developer sponsored transit pass programs (pre-paid transit, such as Presto Card) and sale of transit passes at the site retail will influence and promote transit use among residents and visitors by providing these users with a convenient location to purchase transit fares. It is anticipated that these measures will increase transit usage to a potential 10% non-auto mode usage.

3. The provision of cycling or walking measures (cycle paths/lanes and sidewalks) will help to promote active modes of transportation. These measures will encourage more users to walk or



cycle instead of driving automobiles. It is anticipated that these facilities will increase 2% in cycling and walking usage.

4. Carpool networks (such as Smart Commute Hamilton) can be established for residents / students. Users owning vehicles that intend to drive within the study area can be matched with other users destined to the same location or within the area. Social media websites can be used to match commuters and shared trips. Also, employers could maintain a database of drivers and their destinations in order to match potential participants. Alternatively, carpool groups could be formed among employees and among residents by posting/advertising in common areas such as lobbies or staff rooms. For example, if 10 drivers form carpools of 2 persons, then there is 5 less drivers or vehicle trips on the road.

Table 9 summarizes the anticipated further reduction in vehicle trips based on the adoption of the measures discussed above.

The possibilities are there through transit ridership, cycling, and carpooling to reduce auto-dependency since all or a combination of these Transportation Demand Management (TDM) practices can be implemented. With the implementation of the suggested TDM measures, the overall subject site generated trips could be further reduced by approximately 17 trips (15% to 17%).

Table 9 TDM trip reduction

Transportation Demand Measure	Potential Peak Hour Trip Reduction	
	Weekday AM	Weekday PM
Base Case Trip Generation (New Trips)	100	114
Increased Transit Usage (10%)	-10	-11
Provision of Cycling Facilities (2%)	-2	-2
Carpooling	-5	-5
Total Reduction	-17 (-17.0%)	-17 (-14.9%)
Reduced New Trips	83	97

The TDM program should be monitored to determine its effectiveness at achieving the overall objectives of the transportation system, as well as the effectiveness of each individual TDM measures.



10. Findings, conclusions and recommendations

- 1) The purpose of this report is to determine the traffic-related impacts on the roadway system from the proposed mixed-use residential development located at 1107 Main Street West, generally south of Main Street West and between Cline Avenue South and Dow Avenue in the City of Hamilton. It is also to determine the appropriate Transportation Demand Management measures and to demonstrate that the subject site has adequate pedestrian, transit and cycling linkages to existing/proposed infrastructure.
- 2) The proposed development, at full build-out, is expected to consist of 310 residential rental units with 5,760.3 ft² (535.1 m²) gross floor area (GFA) of commercial at grade. There are 234 parking spaces provided consisting of 226 parking stalls on 3 levels of underground parking and 8 on-street spaces. Vehicular access will be provided by two full-move driveways: one on Cline Avenue for resident and visitor vehicles, and the other on Dow Avenue for loading and garbage trucks.
- 3) The study intersections for capacity analysis are:
 - Main Street West at Cline Avenue South;
 - Main Street West at Dow Avenue; and
 - Cline Avenue South at Site Access.
- 4) Recent weekday turning movement counts were conducted by Ontario Traffic Inc. on September 17, 2019 at the existing study intersections of Main Street West / Cline Avenue South and Main Street West / Dow Avenue.
- 5) For study purposes, the proposed development is expected to be completed in 2022. Therefore, the study horizon is 2027, five years beyond build-out.
- 6) The proposed development is adjacent to the Main/King/Queenston B-Line LRT corridor. Metrolinx has identified the development of this LRT line in Hamilton linking McMaster University, Downtown and Eastgate Square as a top transit priority in the Regional Transportation Plan – The Big Move and the Province of Ontario has approved the Environmental Project Report (EPR) for the LRT project.
- 7) Based on a review of the available “City of Hamilton Rapid Transit Initiative Acoustic Assessment Report-Final” prepared by Dillon Consulting Limited, the Dillon’s study estimated the PM peak hour volumes for year 2031 with LRT conditions along Main Street West within the study area, which assumed an applied annual growth rates of 0.73% from 2008 to the 2031 horizon. To be conservative, this analysis applied an annual growth rate of 1.0% to all movements to estimate the background traffic growth for the 2027 study horizon.
- 8) Subject site vehicular trips were estimated based on the average trip rates as well as based on trip rates derived from the fitted curve equations of High-Rise Multifamily House (LUC #222) provided by Trip Generation, 10th Edition, published by the Institute of Transportation Engineers (ITE). The resultant trip rates, entering and exiting proportions, and estimated total site trips are summarized in the table below:

Site Development	Units	Parameter	Peak Hour Trip Generation					
			Weekday AM Peak			Weekday PM Peak		
			In	Out	Total	In	Out	Total
Residential (High-Rise Multifamily House)	310	Gross Rate (Average Rate)	0.07	0.24	0.31	0.22	0.14	0.36
		New Trips	23	73	96	68	44	112
	310	Gross Rate (Fitted curve equation)	0.077	0.246	0.323	0.224	0.144	0.368
		New Trips	24	76	100	70	44	114

To be conservative, this analysis applied the higher trips (derived from the fitted curve equation) of the High-Rise Multifamily House.

As a residential rental apartment building, the proposed commercial component provides services predominately to the local residents / students, and therefore it is not expected to generate any vehicular trips.

Although there could be an allowance for transit and active transportation modes, trip reductions were not considered in this analysis to be conservative. Accordingly, the total new site trips are expected to be 100 two way trips during the weekday AM peak hour and 114 two way trips during the weekday PM peak hour.

- 9) The study concludes that the proposed development can be accommodated by the abutting street system with the future LRT Line. Traffic generated by the proposed development does not add adverse impacts on the nearby road network and no road improvements are triggered as a result of this development.
- 10) The City of Hamilton's current parking By-Law requires 181 parking spaces for the residents of the development. The City does not provide a requirement for visitor parking.

For visitor parking requirements, according to the parking surveys in Durham Region, the visitor parking demand is 0.091 per residential unit. Similarly, for example, in the City of Toronto, By-Law # 569-2013 requires 0.10 visitor parking space per dwelling unit for an apartment building. Therefore, the expected required number of visitor parking spaces is in the range of 28 and 31 for the proposed development assuming these rates.

The estimated total parking requirement for the proposed development will be 212 (181 resident +31 visitor) parking spaces.

- 11) Therefore, the proposed parking supply of 234 spaces will meet Hamilton's By-law requirements for resident parking and can accommodate the visitor parking demand with an estimated surplus of 22 parking spaces. The Circulation Review confirms that the proposed site plan is sufficient to accommodate the circulation requirements of garbage trucks as well as medium single unit trucks. The proposed parking level plans are sufficient to accommodate circulation requirements of the passenger car design vehicles illustrated in (Appendix H).
- 12) Hamilton Street Railway (HSR) Transit currently provides bus service along Main Street West in the study area with Routes 5 and 10. Route 5 (Delaware) stops at the intersections of Main Street / Dow Avenue and Main Street / Haddon Avenue. Route 10 (B Line Express) stops at the intersections of Main Street / Emerson Street and Main Street / Longwood Road.



- 13) The site's residents can easily access to the surrounding pedestrian network and transit system along Main Street West via sidewalks on Cline Avenue and Dow Avenue.
- 14) It is possible that through transit ridership, cycling, and carpooling to reduce auto-dependency since all or a combination of these Transportation Demand Management (TDM) practices can be implemented. With the implementation of the suggested TDM measures, the overall subject site generated trips could be reduced by approximately 17 trips (15% to 17%).

Appendices

Appendix A

Traffic and transit data

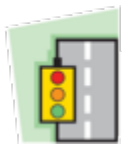


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #19304 - GHD

Intersection Count Report

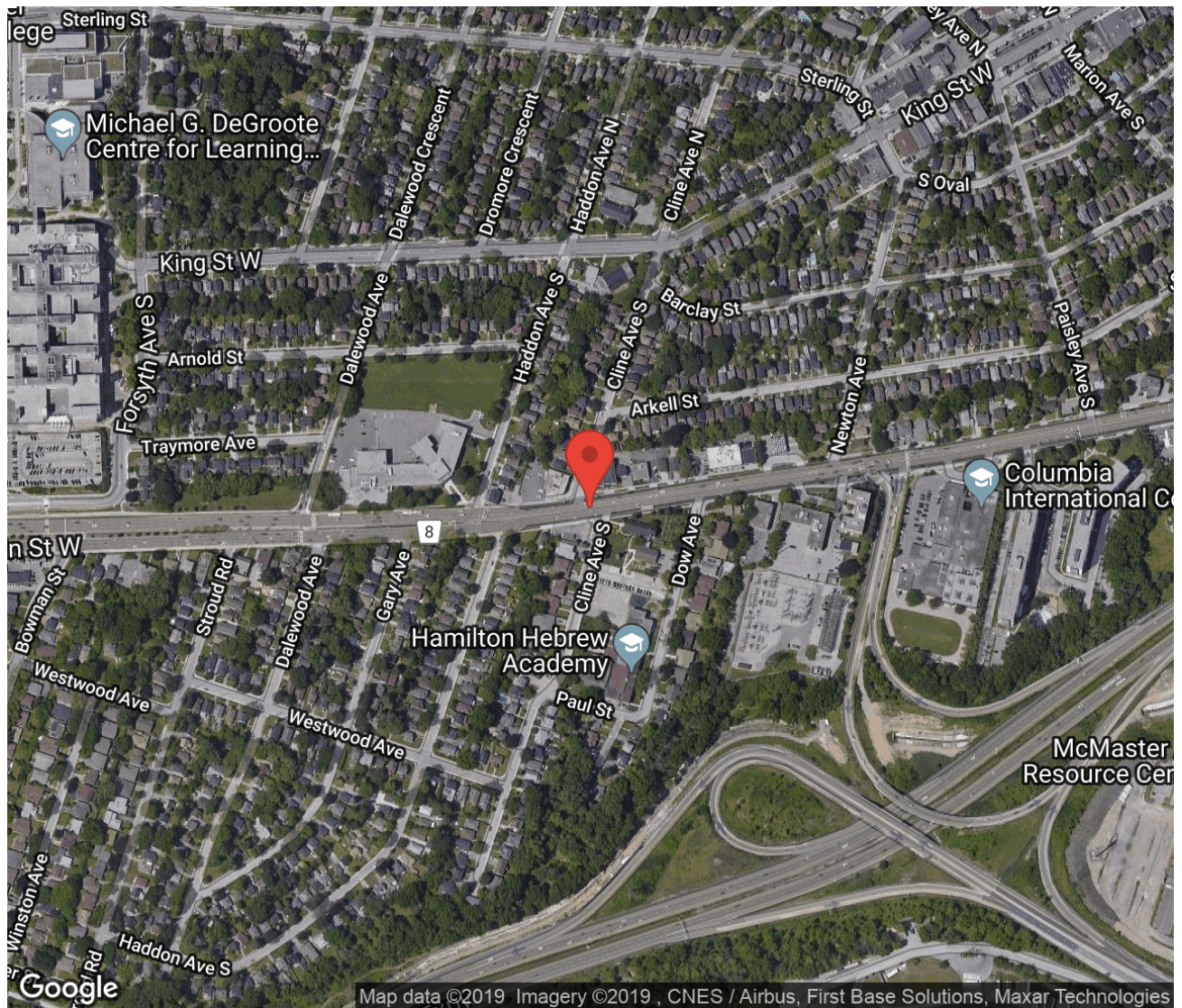
Intersection:	Main St W & Cline Ave
Municipality:	Hamilton
Count Date:	Sep 17, 2019
Site Code:	1930400001
Count Categories:	Cars, Trucks, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear

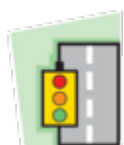


Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Map

Intersection: Main St W & Cline Ave
Municipality: Hamilton
Count Date: Sep 17, 2019





Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

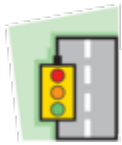
Intersection: Main St W & Cline Ave

Municipality: Hamilton

Count Date: Sep 17, 2019

Cline Ave - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks						Includes Cars, Trucks					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	10	0	4	0	14	7	0	0	19	0	19	15
08:00 - 09:00	10	0	3	0	13	20	3	0	27	0	30	21
BREAK												
16:00 - 17:00	16	0	16	0	32	18	2	0	34	0	36	29
17:00 - 18:00	19	0	17	0	36	37	5	0	24	0	29	15
GRAND TOTAL	55	0	40	0	95	82	10	0	104	0	114	80



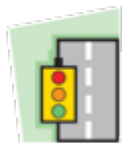
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Main St W & Cline Ave
Municipality: Hamilton
Count Date: Sep 17, 2019

Main St W - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks						Includes Cars, Trucks					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	30	1323	46	0	1399	0	7	1681	6	0	1694	0
08:00 - 09:00	42	2109	77	0	2228	0	6	1915	10	0	1931	0
BREAK												
16:00 - 17:00	33	1654	27	0	1714	0	15	2478	6	0	2499	0
17:00 - 18:00	41	1659	57	0	1757	0	26	2270	1	0	2297	0
GRAND TOTAL	146	6745	207	0	7098	0	54	8344	23	0	8421	0



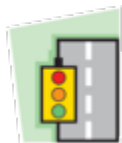
Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Cline Ave
Municipality: Hamilton
Count Date: Sep 17, 2019

North Approach - Cline Ave

Start Time	Cars					Trucks					Total Peds
					Total					Total	
07:00	2	0	1	0	3	0	0	0	0	0	2
07:15	5	0	1	0	6	0	0	0	0	0	2
07:30	2	0	0	0	2	0	0	0	0	0	0
07:45	1	0	2	0	3	0	0	0	0	0	3
08:00	4	0	2	0	6	0	0	0	0	0	2
08:15	0	0	1	0	1	0	0	0	0	0	3
08:30	1	0	0	0	1	0	0	0	0	0	7
08:45	5	0	0	0	5	0	0	0	0	0	8
SUBTOTAL	20	0	7	0	27	0	0	0	0	0	27



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

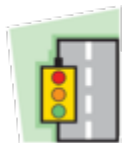
Intersection: Main St W & Cline Ave

Municipality: Hamilton

Count Date: Sep 17, 2019

North Approach - Cline Ave

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	1	0	5	0	6	0	0	0	0	0	2
16:15	4	0	3	0	7	1	0	0	0	1	4
16:30	5	0	4	0	9	0	0	0	0	0	6
16:45	5	0	4	0	9	0	0	0	0	0	6
17:00	8	0	7	0	15	0	0	0	0	0	4
17:15	2	0	2	0	4	0	0	0	0	0	12
17:30	5	0	3	0	8	0	0	0	0	0	15
17:45	4	0	5	0	9	0	0	0	0	0	6
SUBTOTAL	34	0	33	0	67	1	0	0	0	1	55
GRAND TOTAL	54	0	40	0	94	1	0	0	0	1	82



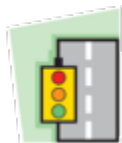
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Cline Ave
Municipality: Hamilton
Count Date: Sep 17, 2019

South Approach - Cline Ave

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	0	0	0	0	0	0	0	0	0	0	1
07:15	0	0	4	0	4	0	0	0	0	0	7
07:30	0	0	4	0	4	0	0	0	0	0	3
07:45	0	0	11	0	11	0	0	0	0	0	4
08:00	0	0	6	0	6	0	0	0	0	0	3
08:15	0	0	4	0	4	0	0	0	0	0	8
08:30	1	0	4	0	5	0	0	0	0	0	5
08:45	2	0	13	0	15	0	0	0	0	0	5
SUBTOTAL	3	0	46	0	49	0	0	0	0	0	36



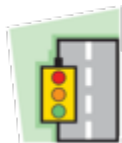
Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Cline Ave
Municipality: Hamilton
Count Date: Sep 17, 2019

South Approach - Cline Ave

Start Time	Cars					Trucks					Total Peds
					Total					Total	
16:00	1	0	5	0	6	0	0	0	0	0	3
16:15	1	0	13	0	14	0	0	0	0	0	12
16:30	0	0	9	0	9	0	0	0	0	0	10
16:45	0	0	7	0	7	0	0	0	0	0	4
17:00	2	0	14	0	16	0	0	0	0	0	4
17:15	3	0	3	0	6	0	0	0	0	0	8
17:30	0	0	3	0	3	0	0	0	0	0	1
17:45	0	0	4	0	4	0	0	0	0	0	2
SUBTOTAL	7	0	58	0	65	0	0	0	0	0	44
GRAND TOTAL	10	0	104	0	114	0	0	0	0	0	80



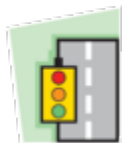
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Cline Ave
Municipality: Hamilton
Count Date: Sep 17, 2019

East Approach - Main St W

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	9	217	6	0	232	0	17	0	0	17	0
07:15	7	244	10	0	261	0	21	0	0	21	0
07:30	7	341	14	0	362	0	21	0	0	21	0
07:45	7	444	14	0	465	0	18	2	0	20	0
08:00	12	507	19	0	538	1	18	0	0	19	0
08:15	14	534	22	0	570	0	27	0	0	27	0
08:30	4	482	20	0	506	0	23	0	0	23	0
08:45	10	491	16	0	517	1	27	0	0	28	0
SUBTOTAL	70	3260	121	0	3451	2	172	2	0	176	0



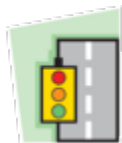
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Cline Ave
Municipality: Hamilton
Count Date: Sep 17, 2019

East Approach - Main St W

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	6	387	8	0	401	0	15	0	0	15	0
16:15	12	402	7	0	421	0	13	0	0	13	0
16:30	4	424	3	0	431	0	14	0	0	14	0
16:45	11	391	9	0	411	0	8	0	0	8	0
17:00	11	431	12	0	454	0	13	0	0	13	0
17:15	6	369	16	0	391	0	9	0	0	9	0
17:30	9	432	16	0	457	0	3	0	0	3	0
17:45	15	389	13	0	417	0	13	0	0	13	0
SUBTOTAL	74	3225	84	0	3383	0	88	0	0	88	0
GRAND TOTAL	144	6485	205	0	6834	2	260	2	0	264	0



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

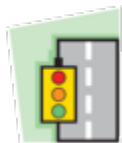
Intersection: Main St W & Cline Ave

Municipality: Hamilton

Count Date: Sep 17, 2019

West Approach - Main St W

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	1	338	4	0	343	0	12	0	0	12	0
07:15	1	395	2	0	398	0	12	0	0	12	0
07:30	1	449	0	0	450	0	21	0	0	21	0
07:45	4	437	0	0	441	0	17	0	0	17	0
08:00	4	456	1	0	461	0	20	0	0	20	0
08:15	1	467	2	0	470	0	30	0	0	30	0
08:30	0	496	5	0	501	0	19	0	0	19	0
08:45	1	401	2	0	404	0	26	0	0	26	0
SUBTOTAL	13	3439	16	0	3468	0	157	0	0	157	0



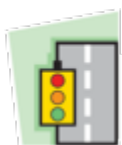
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Cline Ave
Municipality: Hamilton
Count Date: Sep 17, 2019

West Approach - Main St W

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	6	537	0	0	543	0	17	0	0	17	0
16:15	4	641	1	0	646	0	8	0	0	8	0
16:30	3	603	2	0	608	0	12	0	0	12	0
16:45	2	649	3	0	654	0	11	0	0	11	0
17:00	5	556	0	0	561	0	11	0	0	11	0
17:15	3	568	0	0	571	0	8	0	0	8	0
17:30	10	576	0	0	586	0	9	0	0	9	0
17:45	8	531	1	0	540	0	11	0	0	11	0
SUBTOTAL	41	4661	7	0	4709	0	87	0	0	87	0
GRAND TOTAL	54	8100	23	0	8177	0	244	0	0	244	0



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Main St W & Cline Ave

Site ID: 1930400001

Count Date: Sep 17, 2019

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Main St W runs E/W

North Approach

	Out	In	Total
	13	83	96
	0	0	0
Totals	13	83	96

Cline Ave

	0	0	0	0
	3	0	10	0
Totals	3	0	10	0

East Approach

	Out	In	Total
	2131	1857	3988
	97	95	192
Totals	2228	1952	4180

Main St W

	Out	In	Totals	
	0	0	0	
	0	6	6	
	95	1820	1915	
	0	10	10	

Peds: 20

Peds: 0



Peds: 0

Peds: 21

Main St W

Totals		
0	0	0
77	77	0
2109	2014	95
42	40	2

West Approach

	Out	In	Total
	1836	2020	3856
	95	95	190
Totals	1931	2115	4046

	3	0	27	0
	3	0	27	0
	0	0	0	0

Cline Ave

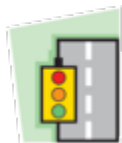
South Approach

	Out	In	Total
	30	50	80
	0	2	2
Totals	30	52	82

- Cars

- Trucks

Comments



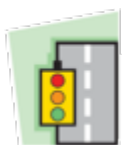
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Main St W & Cline Ave
Count Date: Sep 17, 2019
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Cline Ave						South Approach Cline Ave						East Approach Main St W						West Approach Main St W						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	4	0	2	0	2	6	0	0	6	0	3	6	13	525	19	0	0	557	4	476	1	0	0	481	1050
08:15	0	0	1	0	3	1	0	0	4	0	8	4	14	561	22	0	0	597	1	497	2	0	0	500	1102
08:30	1	0	0	0	7	1	1	0	4	0	5	5	4	505	20	0	0	529	0	515	5	0	0	520	1055
08:45	5	0	0	0	8	5	2	0	13	0	5	15	11	518	16	0	0	545	1	427	2	0	0	430	995
Grand Total	10	0	3	0	20	13	3	0	27	0	21	30	42	2109	77	0	0	2228	6	1915	10	0	0	1931	4202
Approach %	76.9	0	23.1	0	-	-	10	0	90	0	-	-	1.9	94.7	3.5	0	-	-	0.3	99.2	0.5	0	-	-	-
Totals %	0.2	0	0.1	0	0.3	0.3	0.1	0	0.6	0	0.7	0.7	1	50.2	1.8	0	53	53	0.1	45.6	0.2	0	46	46	46
PHF	0.5	0	0.38	0	0.54	0.54	0.38	0	0.52	0	0.5	0.5	0.75	0.94	0.88	0	0.93	0.93	0.38	0.93	0.5	0	0.93	0.93	0.95
Cars	10	0	3	0	13	13	3	0	27	0	30	30	40	2014	77	0	2131	2131	6	1820	10	0	1836	1836	4010
% Cars	100	0	100	0	100	100	100	0	100	0	100	100	95.2	95.5	100	0	95.6	95.6	100	95	100	0	95.1	95.1	95.4
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	2	95	0	0	97	97	0	95	0	0	95	95	192
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	4.8	4.5	0	0	4.4	4.4	0	5	0	0	4.9	4.9	4.6
Peds					20	-					21	-					0	-					0	-	41
% Peds					48.8	-					51.2	-					0	-					0	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:15:00
To: 17:15:00

Intersection: Main St W & Cline Ave

Site ID: 1930400001

Count Date: Sep 17, 2019

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Main St W runs E/W

North Approach

	Out	In	Total
	40	45	85
	1	0	1
Totals	41	45	86

Cline Ave

	0	0	1	0
	18	0	22	0
Totals	18	0	23	0

East Approach

	Out	In	Total
	1717	2514	4231
	48	43	91
Totals	1765	2557	4322

Main St W

	Out	In	Totals	
	0	0	0	
	0	14	14	
	42	2449	2491	
	0	6	6	

Peds: 20

Peds: 0



Peds: 0

Peds: 30

Main St W

Totals		
0	0	0
31	31	0
1696	1648	48
38	38	0

West Approach

	Out	In	Total
	2469	1669	4138
	42	48	90
Totals	2511	1717	4228

	3	0	43	0
	3	0	43	0
	0	0	0	0
Totals	3	0	43	0

Cline Ave

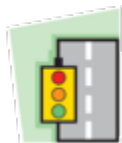
South Approach

	Out	In	Total
	46	44	90
	0	0	0
Totals	46	44	90

- Cars

- Trucks

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Main St W & Cline Ave
Count Date: Sep 17, 2019
Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Cline Ave						South Approach Cline Ave						East Approach Main St W						West Approach Main St W						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:15	5	0	3	0	4	8	1	0	13	0	12	14	12	415	7	0	0	434	4	649	1	0	0	654	1110
16:30	5	0	4	0	6	9	0	0	9	0	10	9	4	438	3	0	0	445	3	615	2	0	0	620	1083
16:45	5	0	4	0	6	9	0	0	7	0	4	7	11	399	9	0	0	419	2	660	3	0	0	665	1100
17:00	8	0	7	0	4	15	2	0	14	0	4	16	11	444	12	0	0	467	5	567	0	0	0	572	1070
Grand Total	23	0	18	0	20	41	3	0	43	0	30	46	38	1696	31	0	0	1765	14	2491	6	0	0	2511	4363
Approach %	56.1	0	43.9	0	-	-	6.5	0	93.5	0	-	-	2.2	96.1	1.8	0	-	-	0.6	99.2	0.2	0	-	-	-
Totals %	0.5	0	0.4	0	0.9	-	0.1	0	1	0	1.1	-	0.9	38.9	0.7	0	40.5	-	0.3	57.1	0.1	0	57.6	-	-
PHF	0.72	0	0.64	0	0.68	-	0.38	0	0.77	0	0.72	-	0.79	0.95	0.65	0	0.94	-	0.7	0.94	0.5	0	0.94	0.98	-
Cars	22	0	18	0	40	-	3	0	43	0	46	-	38	1648	31	0	1717	-	14	2449	6	0	2469	4272	-
% Cars	95.7	0	100	0	97.6	-	100	0	100	0	100	-	100	97.2	100	0	97.3	-	100	98.3	100	0	98.3	97.9	-
Trucks	1	0	0	0	1	-	0	0	0	0	0	-	0	48	0	0	48	-	0	42	0	0	42	91	-
% Trucks	4.3	0	0	0	2.4	-	0	0	0	0	0	-	0	2.8	0	0	2.7	-	0	1.7	0	0	1.7	2.1	-
Peds	-	-	-	-	20	-	-	-	-	-	30	-	-	-	-	-	0	-	-	-	-	-	0	-	50
% Peds	-	-	-	-	40	-	-	-	-	-	60	-	-	-	-	-	0	-	-	-	-	-	0	-	-

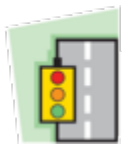


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #19304 - GHD

Intersection Count Report

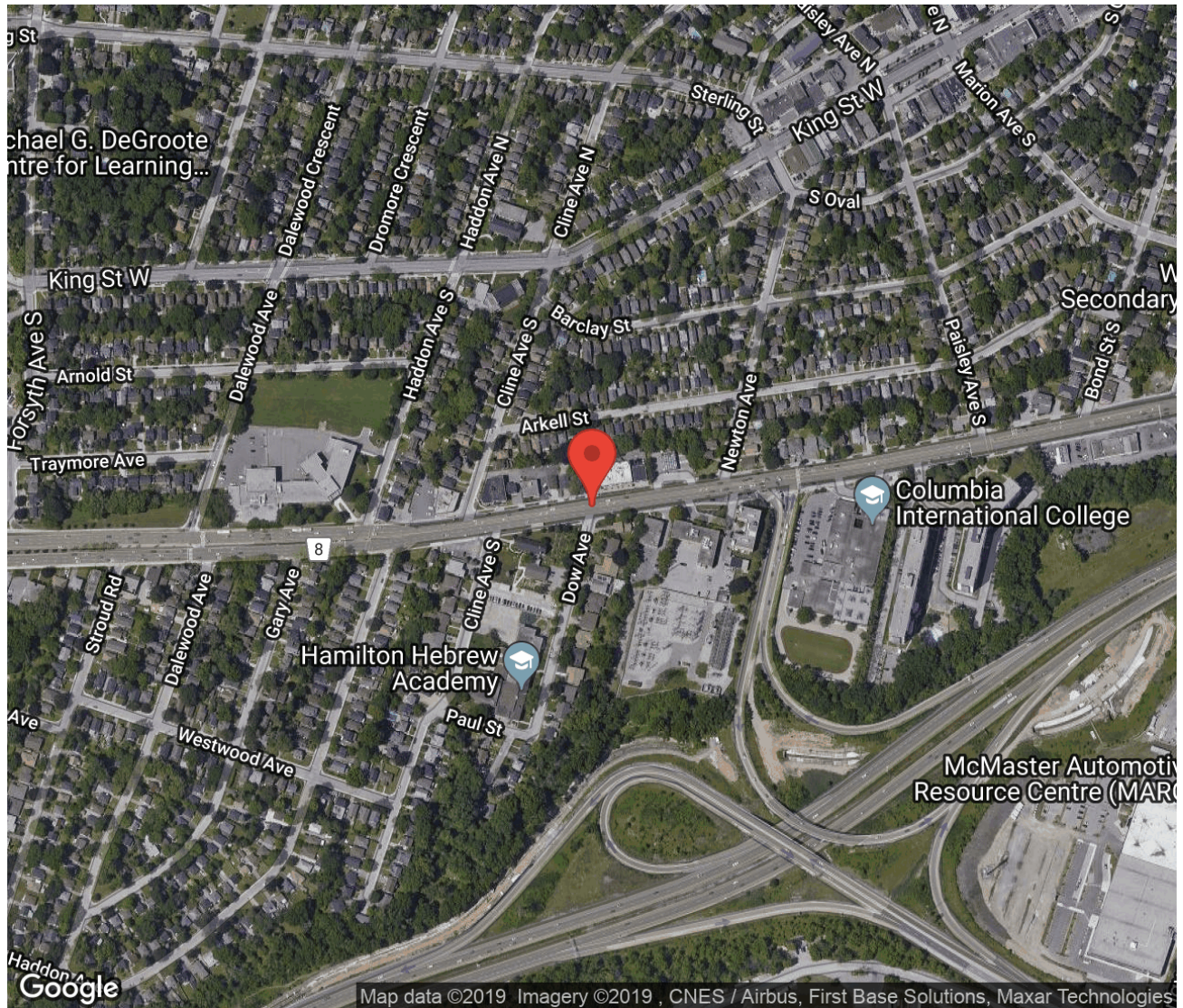
Intersection:	Main St W & Dow Ave-Commercial Access
Municipality:	Hamilton
Count Date:	Sep 17, 2019
Site Code:	1930400002
Count Categories:	Cars, Trucks, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear

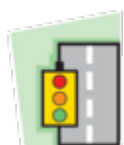


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Map

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019





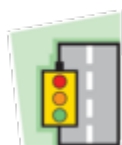
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

Commercial Access - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks						Includes Cars, Trucks					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	0	0	0	0	0	19	1	0	8	0	9	19
08:00 - 09:00	1	0	1	0	2	56	3	0	28	0	31	21
BREAK												
16:00 - 17:00	10	1	7	0	18	35	3	0	15	0	18	44
17:00 - 18:00	13	0	11	0	24	52	3	0	17	0	20	30
GRAND TOTAL	24	1	19	0	44	162	10	0	68	0	78	114



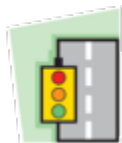
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

Main St W - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks						Includes Cars, Trucks					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	8	1401	7	0	1416	0	3	1706	6	0	1715	1
08:00 - 09:00	35	2227	11	0	2273	0	5	1912	14	0	1931	0
BREAK												
16:00 - 17:00	17	1704	8	0	1729	1	1	2517	4	0	2522	3
17:00 - 18:00	18	1743	14	0	1775	0	5	2307	5	0	2317	0
GRAND TOTAL	78	7075	40	0	7193	1	14	8442	29	0	8485	4



Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Data

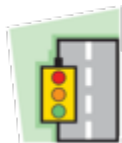
Intersection: Main St W & Dow Ave-Commercial Access

Municipality: Hamilton

Count Date: Sep 17, 2019

North Approach - Commercial Access

Start Time	Cars					Trucks					Total Peds
					Total					Total	
07:00	0	0	0	0	0	0	0	0	0	0	4
07:15	0	0	0	0	0	0	0	0	0	0	2
07:30	0	0	0	0	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0	0	12
08:00	0	0	1	0	1	0	0	0	0	0	13
08:15	1	0	0	0	1	0	0	0	0	0	13
08:30	0	0	0	0	0	0	0	0	0	0	16
08:45	0	0	0	0	0	0	0	0	0	0	14
SUBTOTAL	1	0	1	0	2	0	0	0	0	0	75



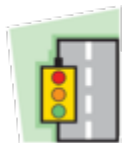
Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

North Approach - Commercial Access

Start Time	Cars					Trucks					Total Peds
					Total					Total	
16:00	2	0	3	0	5	0	0	0	0	0	11
16:15	2	0	1	0	3	0	0	0	0	0	6
16:30	4	0	1	0	5	0	0	0	0	0	10
16:45	2	1	2	0	5	0	0	0	0	0	8
17:00	8	0	4	0	12	0	0	0	0	0	9
17:15	0	0	2	0	2	0	0	0	0	0	17
17:30	3	0	0	0	3	0	0	0	0	0	17
17:45	2	0	5	0	7	0	0	0	0	0	9
SUBTOTAL	23	1	18	0	42	0	0	0	0	0	87
GRAND TOTAL	24	1	19	0	44	0	0	0	0	0	162



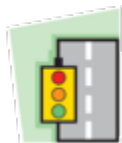
Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

South Approach - Dow Ave

Start Time	Cars					Trucks					Total Peds
					Total					Total	
07:00	0	0	2	0	2	0	0	0	0	0	2
07:15	0	0	2	0	2	0	0	0	0	0	6
07:30	0	0	2	0	2	0	0	0	0	0	5
07:45	1	0	2	0	3	0	0	0	0	0	6
08:00	1	0	8	0	9	1	0	0	0	1	3
08:15	1	0	8	0	9	0	0	0	0	0	10
08:30	0	0	7	0	7	0	0	0	0	0	4
08:45	0	0	5	0	5	0	0	0	0	0	4
SUBTOTAL	3	0	36	0	39	1	0	0	0	1	40



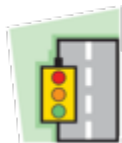
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

South Approach - Dow Ave

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	1	0	5	0	6	0	0	0	0	0	7
16:15	2	0	2	0	4	0	0	0	0	0	16
16:30	0	0	5	0	5	0	0	0	0	0	11
16:45	0	0	3	0	3	0	0	0	0	0	10
17:00	0	0	10	0	10	0	0	0	0	0	12
17:15	1	0	1	0	2	0	0	0	0	0	9
17:30	1	0	2	0	3	0	0	0	0	0	7
17:45	1	0	4	0	5	0	0	0	0	0	2
SUBTOTAL	6	0	32	0	38	0	0	0	0	0	74
GRAND TOTAL	9	0	68	0	77	1	0	0	0	1	114



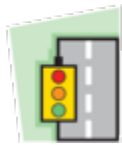
Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

East Approach - Main St W

Start Time	Cars					Trucks					Total Peds
					Total					Total	
07:00	0	236	0	0	236	0	18	0	0	18	0
07:15	2	259	1	0	262	0	21	0	0	21	0
07:30	4	358	5	0	367	0	21	0	0	21	0
07:45	2	468	1	0	471	0	20	0	0	20	0
08:00	8	535	3	0	546	0	18	0	0	18	0
08:15	10	572	0	0	582	0	26	0	0	26	0
08:30	11	503	3	0	517	0	23	0	0	23	0
08:45	6	523	5	0	534	0	27	0	0	27	0
SUBTOTAL	43	3454	18	0	3515	0	174	0	0	174	0



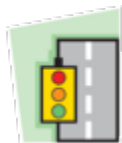
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

East Approach - Main St W

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	3	400	2	0	405	0	15	0	0	15	0
16:15	4	414	4	0	422	0	12	0	0	12	1
16:30	2	430	0	0	432	0	15	0	0	15	0
16:45	8	410	2	0	420	0	8	0	0	8	0
17:00	7	451	3	0	461	0	13	0	0	13	0
17:15	2	390	3	0	395	0	10	0	0	10	0
17:30	2	451	5	0	458	0	3	0	0	3	0
17:45	7	413	3	0	423	0	12	0	0	12	0
SUBTOTAL	35	3359	22	0	3416	0	88	0	0	88	1
GRAND TOTAL	78	6813	40	0	6931	0	262	0	0	262	1



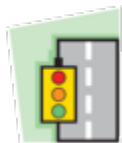
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

West Approach - Main St W

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	1	345	0	0	346	0	12	0	0	12	1
07:15	1	404	1	0	406	0	13	0	0	13	0
07:30	1	450	3	0	454	0	19	0	0	19	0
07:45	0	446	2	0	448	0	17	0	0	17	0
08:00	1	457	2	0	460	0	20	0	0	20	0
08:15	2	463	3	0	468	0	30	0	0	30	0
08:30	1	488	4	0	493	0	19	0	0	19	0
08:45	1	410	5	0	416	0	25	0	0	25	0
SUBTOTAL	8	3463	20	0	3491	0	155	0	0	155	1



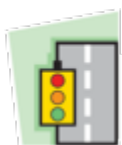
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Main St W & Dow Ave-Commercial Access
Municipality: Hamilton
Count Date: Sep 17, 2019

West Approach - Main St W

Start Time	Cars					Trucks					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	0	540	0	0	540	0	15	1	0	16	0
16:15	0	654	0	0	654	0	11	0	0	11	3
16:30	0	612	2	0	614	0	11	0	0	11	0
16:45	1	663	1	0	665	0	11	0	0	11	0
17:00	2	581	1	0	584	0	11	0	0	11	0
17:15	1	564	2	0	567	0	8	0	0	8	0
17:30	0	590	0	0	590	0	9	0	0	9	0
17:45	2	533	2	0	537	0	11	0	0	11	0
SUBTOTAL	6	4737	8	0	4751	0	87	1	0	88	3
GRAND TOTAL	14	8200	28	0	8242	0	242	1	0	243	4



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Main St W & Dow Ave-Commercial Access

Site ID: 1930400002

Count Date: Sep 17, 2019

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Main St W runs E/W

North Approach

	Out	In	Total
	2	16	18
	0	0	0
Totals	2	16	18

Commercial Access

	0	0	0	0
	1	0	1	0
Totals	1	0	1	0

East Approach

	Out	In	Total
	2179	1847	4026
	94	94	188
Totals	2273	1941	4214

Main St W

	Out	In	Totals	
	0	0	0	
	0	5	5	
	94	1818	1912	
	0	14	14	

Peds: 56

Peds: 0



Peds: 0

Peds: 21

Main St W

Totals		
0	0	0
11	11	0
2227	2133	94
35	35	0

West Approach

	Out	In	Total
	1837	2136	3973
	94	95	189
Totals	1931	2231	4162

	3	0	28	0
	2	0	28	0
	1	0	0	0

Dow Ave

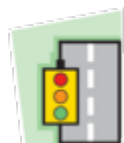
South Approach

	Out	In	Total
	30	49	79
	1	0	1
Totals	31	49	80

- Cars

- Trucks

Comments



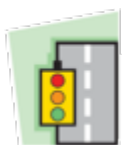
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Main St W & Dow Ave-Commercial Access
Count Date: Sep 17, 2019
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Commercial Access						South Approach Dow Ave						East Approach Main St W						West Approach Main St W						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	0	1	0	13	1	2	0	8	0	3	10	8	553	3	0	0	564	1	477	2	0	0	480	1055
08:15	1	0	0	0	13	1	1	0	8	0	10	9	10	598	0	0	0	608	2	493	3	0	0	498	1116
08:30	0	0	0	0	16	0	0	0	7	0	4	7	11	526	3	0	0	540	1	507	4	0	0	512	1059
08:45	0	0	0	0	14	0	0	0	5	0	4	5	6	550	5	0	0	561	1	435	5	0	0	441	1007
Grand Total	1	0	1	0	56	2	3	0	28	0	21	31	35	2227	11	0	0	2273	5	1912	14	0	0	1931	4237
Approach %	50	0	50	0	-	-	9.7	0	90.3	0	-	-	1.5	98	0.5	0	-	-	0.3	99	0.7	0	-	-	-
Totals %	0	0	0	0	0	0	0.1	0	0.7	0	0.7	0.7	0.8	52.6	0.3	0	53.6	53.6	0.1	45.1	0.3	0	45.6	45.6	45.6
PHF	0.25	0	0.25	0	0.5	0.5	0.38	0	0.88	0	0.78	0.78	0.8	0.93	0.55	0	0.93	0.93	0.63	0.94	0.7	0	0.94	0.94	0.95
Cars	1	0	1	0	2	2	2	0	28	0	30	30	35	2133	11	0	2179	2179	5	1818	14	0	1837	1837	4048
% Cars	100	0	100	0	100	66.7	66.7	0	100	0	96.8	96.8	100	95.8	100	0	95.9	95.9	100	95.1	100	0	95.1	95.1	95.5
Trucks	0	0	0	0	0	1	1	0	0	0	1	1	0	94	0	0	94	94	0	94	0	0	94	94	189
% Trucks	0	0	0	0	0	33.3	33.3	0	0	0	3.2	3.2	0	4.2	0	0	4.1	4.1	0	4.9	0	0	4.9	4.9	4.5
Peds					56	-					21	-					0	-					0	-	77
% Peds					72.7	-					27.3	-					0	-					0	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:15:00
To: 17:15:00

Intersection: Main St W & Dow Ave-Commercial Access

Site ID: 1930400002

Count Date: Sep 17, 2019

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Main St W runs E/W

North Approach

	Out	In	Total
	25	12	37
	0	0	0
Totals	25	12	37

Commercial Access

	0	0	0	0
	8	1	16	0
Totals	8	1	16	0

East Approach

	Out	In	Total
	1735	2546	4281
	48	44	92
Totals	1783	2590	4373

Main St W

	Out	In	Total	
	0	0	0	
	0	3	3	
	44	2510	2554	
	0	4	4	

Peds: 33

Peds: 3



Peds: 1

Peds: 49

Main St W

	Totals	Out	In
	0	0	0
	9	9	0
	1753	1705	48
	21	21	0

West Approach

	Out	In	Total
	2517	1715	4232
	44	48	92
Totals	2561	1763	4324

	2	0	20	0
	2	0	20	0
	0	0	0	0
	0	0	0	0

Dow Ave

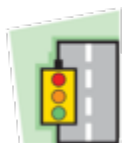
South Approach

	Out	In	Total
	22	26	48
	0	0	0
Totals	22	26	48

- Cars

- Trucks

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Main St W & Dow Ave-Commercial Access
Count Date: Sep 17, 2019
Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Commercial Access						South Approach Dow Ave						East Approach Main St W						West Approach Main St W						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:15	2	0	1	0	6	3	2	0	2	0	16	4	4	426	4	0	1	434	0	665	0	0	3	665	1106
16:30	4	0	1	0	10	5	0	0	5	0	11	5	2	445	0	0	0	447	0	623	2	0	0	625	1082
16:45	2	1	2	0	8	5	0	0	3	0	10	3	8	418	2	0	0	428	1	674	1	0	0	676	1112
17:00	8	0	4	0	9	12	0	0	10	0	12	10	7	464	3	0	0	474	2	592	1	0	0	595	1091
Grand Total	16	1	8	0	33	25	2	0	20	0	49	22	21	1753	9	0	1	1783	3	2554	4	0	3	2561	4391
Approach %	64	4	32	0	-	-	9.1	0	90.9	0	-	-	1.2	98.3	0.5	0	-	-	0.1	99.7	0.2	0	-	-	-
Totals %	0.4	0	0.2	0	0.6	0.6	0	0	0.5	0	0.5	0.5	0.5	39.9	0.2	0	40.6	0.1	58.2	0.1	0	58.3	58.3	58.3	
PHF	0.5	0.25	0.5	0	0.52	0.52	0.25	0	0.5	0	0.55	0.55	0.66	0.94	0.56	0	0.94	0.94	0.38	0.95	0.5	0	0.95	0.95	0.99
Cars	16	1	8	0	25	25	2	0	20	0	22	22	21	1705	9	0	1735	1735	3	2510	4	0	2517	2517	4299
% Cars	100	100	100	0	100	100	100	0	100	0	100	100	100	97.3	100	0	97.3	97.3	100	98.3	100	0	98.3	98.3	97.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	48	48	0	44	0	0	44	44	92
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	2.7	0	0	2.7	2.7	0	1.7	0	0	1.7	1.7	2.1
Peds					33	-					49	-					1	-					3	-	86
% Peds					38.4	-					57	-					1.2	-					3.5	-	

MAJOR BUS STOP NUMBERS			
Westbound		Westbound	
Jones At King	1151	Main At Longwood	1193
King At Potpourri	2591	Main Opp. 403 Ramp	1194
King At Lake Avenue	2592	King At Dawood	1195
King At Village Green	2593	King At Longwood	1199
St Joseph		King At Cline	1180
Ambulatory	1113	King At Sterling	2755
King At Nash	1153	Sterling At Dalewood	1181
Quigley At Greenhill	2450	Sterling At University	1182
Quigley At Vevers	2998	Opp. Life Sciences	1183
Quigley Opp. Albright	2999	University At Forsyth	1344
Cochrane		Emerson At Main	1185
King Opposite Quigley	1154	Whitney At Emerson	1187
King At Potpourri	1155	Whitney	1188
King At Walker	1090	At Rifle Range	1189
King At Potpourri	1157	Whitney Ave. Horning	1190
Greenhill		Whitney At Main	1190
Opposite Main		Opp. White Chapel	2605
Cochrane		At 2000 Main	2606
At Dundonald	1158	At 1260 Wilson	2607
At Montrose	1160	West Hamilton Loop	1191
Cochrane		Wilson	1192
At Lawrence	1161	At Montgomery	2608
King At Cochrane	1162	Rousseau At Wilson	2659
King At Kenilworth	1163	Mohawk At McNiven	2659
King At Wexford	1070	Mcniven At Golf Links	2660
King At Justice	1112	Golf Links	2661
Justice At Ottawa	1113	Opp. Life Sciences	2461
Justice At Balmoral	1165	Opposite Martindale	2474
Lawrence		At 122 Martindale	2452
At Gage Park	1166	Meadowlands	2453
Maplewood At Gage	1168	Platform 1	2470
Maplewood		Main Opp. Emerson	2601
At Sherman	1091	Main At Osler	1196
Delaware At Sanford	1171	Osler Opposite	
Delaware		University Plaza	1205
At Wentworth	1172	South At Osler	1315
At Victoria	1173	Ogilvie	1316
At Wellington	1174	Ogilvie At Governors	1197
Hunter At John	1175	Governors At Main	1198
King At Jackson	1092	Dundas At Main	1199
King At John	1093	Coates At Main	1398
King At James	1094	King At York	1200
Opp. MacNab	1089	King At Sydenham	1201
King At Bay	1098	At 1222 Dundas	1202
King At Caroline	1083	Wellington At King	1203
King At Queen	1176	Mill At Head	1432
King At Pearl	1177	Head St Loop	1431
King At Strathcona	1177	Governors	
King At Dufferin	1177	At Creighton	1374
King At Macklin	1178	At Castlewood	1375
Paradise At Main	1192	Governors At Davidson	1376
		Governors At Pirie	1370

 **5**
DELAWARE

Destination Signs

The route number, name and end destination are shown on the large overhead sign on the bus. Please ensure you know which of the Delaware routings you need.

5 Delaware - Travelling Westbound:

Downtown King & James
5C West Hamilton Loop
5C Meadowlands
52 Head Street
52 Governors & Pirie

5 Delaware - Travelling Eastbound:

Downtown Main & MacNab
Jones & King
5A Greenhill & Cochrane
5E Quigley & Greenhill

This timetable can be very confusing at first glance. This route covers a large area of the City and has various end of lines. When finding a time inside, look across to be sure it travels to the destination you need and note what the destination sign should be.

If you are unsure what Delaware bus is the one you need, just ask the Operator if they go to your destination. Major Bus Stop numbers are listed to the left, but a complete listing can be found online.

Need information?
905.527.4441
hamilton.ca/hsr
@hsr @hsrnw


Hamilton

[illegible]

ROUTE MAP

- [A] Point on Timetable
- 5 Route Destination

HSR TRANSIT INFORMATION

10 B Line Interlining with 55-Stoney Creek Central or 58-Stoney Creek Local

For some trips, when the 10B Line arrives at Eastgate Square, it may continue into Stoney Creek as a route 55 or 58 bus. The timetable inside indicates which trips do this. If you are continuing your trip into Stoney Creek, and it is the route you need, just stay on the bus. The same thing happens in reverse where some Stoney Creek buses will continue as a 10B Line once it arrives at Eastgate Square. When these routes are not interlined, please refer to the 55 Stoney Creek Central and 58 Stoney Creek Local timetables.

Christmas Service

During the period between Christmas Day and New Year's Day, the HSR usually operates on a modified schedule on selected days. Some routes do not operate at all. Check with our Information Clerks at 905.527.4441 or our website www.hamilton.ca/hsr for details at that time.

The HSR does not take responsibility for errors in this document, for damages or inconveniences caused by delayed schedules or failures to make connections.

Trans-Cab Service

If you're coming from (or heading to) the area north of the QEW or the area east of Jones Road in lower Stoney Creek, give Stoney Creek Trans-Cab a try. This service operates Monday through Saturday as an extension of HSR bus routes 2, 10, 55 and 55A.

When travelling from the Trans-Cab service area first dial our contractor, 905.777.7777, and request a Trans-Cab pick-up. They'll send a cab and drive you, and other customers, to the closest applicable TransCab transfer point. There is an additional fee for this service. Call HSR Information for details regarding the fare.

When heading to the Trans-Cab service area, just let the HSR Operator know that you require Trans-Cab service when boarding your bus. A cab will meet your bus at the applicable Trans-Cab transfer point and drive you the rest of the way.

BUS STOP NUMBERS

Westbound From Eastgate Square

Eastgate Platform 7	2512
Queenston At Nash	2727
Queenston At Parkdale	2730
Main At Kenilworth	2734
Main At Ottawa	2736
Main At Kensington	2738
King At Melrose	2740
King At Sherman	2741
King At Wentworth	2744
King At Wellington	2746
King At John	1093
King Opposite MacNab	1089
King At Queen	2754
King At Dundurn	1498
Main At Longwood	1193
Main Opp. Emerson	2601
Main St. W At Osler	1196
University Plaza Platform 2	1312

Eastbound From University Plaza

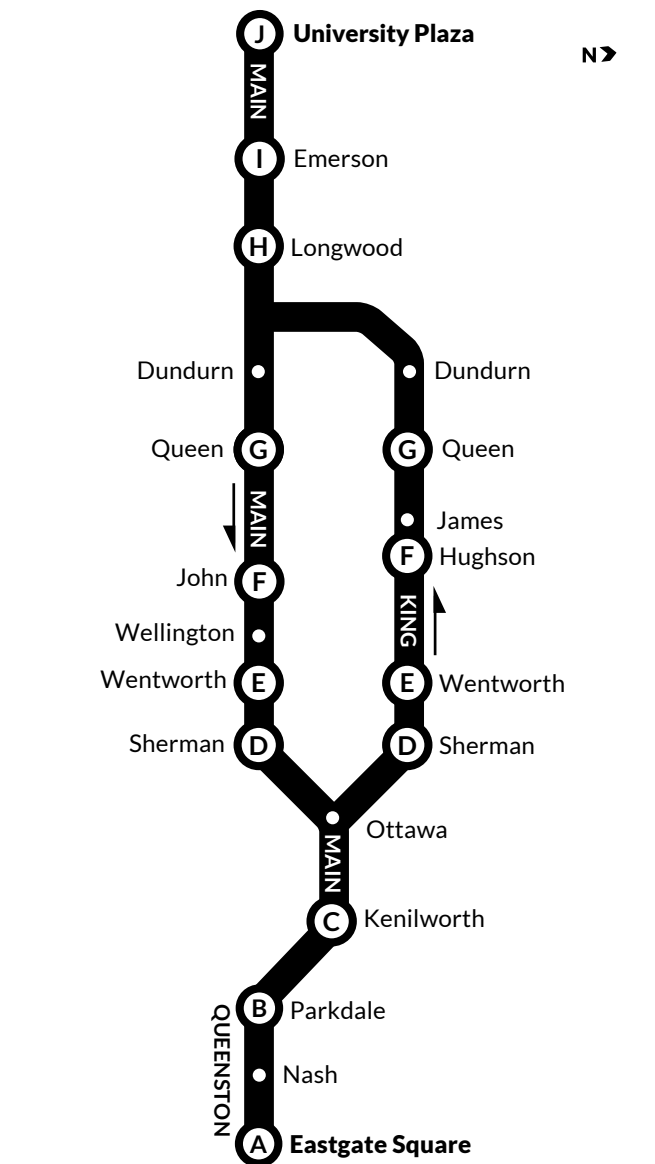
University Plaza Platform 2	1312
Osler At Main St. W.	2646
Main At Emerson	2649
Main At Longwood	1321
Main At Dundurn	2756
Main At Queen	2750
Main At MacNab	2920
Main At John	2702
Main At Wellington	2703
Main At Wentworth	2706
Main At Sherman	2708
Main Opposite Melrose	2709
Main At King	2711
Main At Ottawa	2712
Main At Kenilworth	2714
Queenston At Parkdale	2717
Queenston At Nash	2721
Eastgate Platform 1	2390
Eastgate Platform 2	2570
Eastgate Platform 7	2512

B Line Express
September 1, 2019

September 1, 2019 10

B Line Express
September 1, 2019

NO SUNDAY OR HOLIDAY SERVICE



hamilton.ca/hsr
905.527.4441
@hsr • @hsrnow

**SATURDAY SCHEDULE - Westbound**

TIMEPOINT	A	B	C	D	E	F	G	H	I	J
	Leaves Eastgate Sq.	Parkdale & Queenston	Main & Kenilworth	King & Sherman	King & Wentworth	King & Hughson	King & Queen	Main & Longwood	Main & Emerson	University Plaza
8 am	----	----	----	----	----	8:00	8:03	8:07	8:10	8:16
	----	----	----	----	----	8:15	8:18	8:22	8:25	8:31
	8:08	8:14	8:17	8:23	8:25	8:30	8:33	8:37	8:40	8:46
	8:23	8:29	8:32	8:38	8:40	8:45	8:48	8:52	8:55	9:01
	8:38	8:44	8:47	8:53	8:55	9:00	9:03	9:07	9:10	9:16
	8:53	8:59	9:02	9:08	9:10	9:15	9:18	9:22	9:25	9:31
9 am	9:08	9:14	9:17	9:23	9:25	9:30	9:33	9:37	9:40	9:46
	9:23	9:29	9:32	9:38	9:40	9:45	9:48	9:52	9:55	10:01
	9:35	9:41	9:45	9:52	9:54	10:00	10:03	10:07	10:11	10:17
	9:50	9:56	10:00	10:07	10:09	10:15	10:18	10:22	10:26	10:32
10am to 1 pm	Leave Eastgate Square from 10:05am to 1:50pm									
	:05	:11	:15	:22	:24	:30	:33	:37	:41	:47
	:20	:26	:30	:37	:39	:45	:48	:52	:56	:02
	:35	:41	:45	:52	:54	:00	:03	:07	:11	:17
	:50	:56	:00	:07	:09	:15	:18	:22	:26	:32
2 pm	2:05	2:11	2:15	2:22	2:24	2:30	2:33	2:37	2:41	2:47
	2:20	2:26	2:30	2:37	2:39	2:45	2:48	2:52	2:56	3:02
	2:35	2:41	2:45	2:52	2:54	3:00	3:03	3:07	3:11	3:17
	2:50	2:56	3:00	3:07	3:09	3:15	3:18	3:22	3:26	3:32
3 pm	3:05	3:11	3:15	3:22	3:24	3:30	3:33	3:37	3:41	3:47
	3:20	3:26	3:30	3:37	3:39	3:45	3:48	3:52	3:56	4:02
	3:35	3:41	3:45	3:52	3:54	4:00	4:03	4:07	4:11	4:17
	3:50	3:56	4:00	4:07	4:09	4:15	4:18	4:22	4:26	4:32
4 pm	4:05	4:11	4:15	4:22	4:24	4:30	4:33	4:37	4:41	4:47
	4:20	4:26	4:30	4:37	4:39	4:45	4:48	4:52	4:56	5:02
	4:35	4:41	4:45	4:52	4:54	5:00	5:03	5:07	5:11	5:17
	4:50	4:56	5:00	5:07	5:09	5:15	5:18	5:22	5:26	5:32
5 pm	5:05	5:11	5:15	5:22	5:24	5:30	5:33	5:37	5:41	5:47
	5:20	5:26	5:30	5:37	5:39	5:45	5:48	5:52	5:56	6:02
	5:35	5:41	5:45	5:52	5:54	6:00	6:03	6:07	6:11	6:17
	5:50	5:56	6:00	6:07	6:09	6:15	6:18	6:22	6:26	6:32
6 pm	6:05	6:11	6:15	6:22	6:24	6:30	6:33	6:37	6:41	6:47
	6:20	6:26	6:30	6:37	6:39	6:45	6:48	6:52	6:56	7:02
	6:38	6:44	6:47	6:53	6:55	7:00	7:03	7:07	7:10	7:16
	6:58	7:04	7:07	7:13	7:15	7:20	7:23	7:27	7:30	7:36
7 pm	7:18	7:24	7:27	7:33	7:35	7:40	7:43	7:47	7:50	7:56
	7:38	7:44	7:47	7:53	7:55	8:00	8:03	8:07	8:10	8:16
	7:58	8:04	8:07	8:13	8:15	8:20	8:23	8:27	8:30	8:36
8 pm	8:18	8:24	8:27	8:33	8:35	8:40	8:43	8:47	8:50	8:56
	8:38	8:44	8:47	8:53	8:55	9:00	9:03	9:07	9:10	9:16
	8:58	9:04	9:07	9:13	9:15	9:20	9:23	9:27	9:30	9:36
9 pm	9:18	9:24	9:27	9:33	9:35	9:40	9:43	9:47	9:50	9:56
	9:38	9:44	9:47	9:53	9:55	10:00	10:03	10:07	10:10	10:16

SATURDAY SCHEDULE - Eastbound

TIMEPOINT	J	I	H	G	F	E	D	C	B	A
	University Plaza	Main & Emerson	Main & Longwood	Main & Queen	Main & John	Main & Wentworth	Main & Sherman	Main & Kenilworth	Parkdale & Queenston	Arrive at Eastgate Sq.
8 am	----	----	----	----	8:02	8:05	8:07	8:13	8:15	8:21
	----	----	----	----	8:17	8:20	8:22	8:28	8:30	8:36
	8:14	8:20	8:23	8:28	8:32	8:35	8:37	8:43	8:45	8:51
	8:29	8:35	8:38	8:43	8:47	8:50	8:52	8:58	9:00	9:06
	8:44	8:50	8:53	8:58	9:02	9:05	9:07	9:13	9:15	9:21
	8:59	9:05	9:08	9:13	9:17	9:20	9:22	9:28	9:30	9:36
9 am	9:14	9:20	9:23	9:28	9:32	9:35	9:37	9:43	9:45	9:51
	9:29	9:35	9:38	9:43	9:47	9:50	9:52	9:58	10:00	10:06
	9:43	9:49	9:53	9:58	10:02	10:06	10:08	10:15	10:17	10:23
	9:58	10:04	10:08	10:13	10:17	10:21	10:23	10:30	10:32	10:38
10am to 1 pm	Leave University Plaza from 10:13am to 1:58pm									
	:13	:19	:23	:28	:32	:36	:38	:45	:47	:53
	:28	:34	:38	:43	:47	:51	:53	:00	:02	:08
	:43	:49	:53	:58	:02	:06	:08	:15	:17	:23
	:58	:04	:08	:13	:17	:21	:23	:30	:32	:38
2 pm	2:13	2:19	2:23	2:28	2:32	2:36	2:38	2:45	2:47	2:53
	2:28	2:34	2:38	2:43	2:47	2:51	2:53	3:00	3:02	3:08
	2:43	2:49	2:53	2:58	3:02	3:06	3:08	3:15	3:17	3:23
	2:58	3:04	3:08	3:13	3:17	3:21	3:23	3:30	3:32	3:38
3 pm	3:13	3:19	3:23	3:28	3:32	3:36	3:38	3:45	3:47	3:53
	3:28	3:34	3:38	3:43	3:47	3:51	3:53	4:00	4:02	4:08
	3:43	3:49	3:53	3:58	4:02	4:06	4:08	4:15	4:17	4:23
	3:58	4:04	4:08	4:13	4:17	4:21	4:23	4:30	4:32	4:38
4 pm	4:13	4:19	4:23	4:28	4:32	4:36	4:38	4:45	4:47	4:53
	4:28	4:34	4:38	4:43	4:47	4:51	4:53	5:00	5:02	5:08
	4:43	4:49	4:53	4:58	5:02	5:06	5:08	5:15	5:17	5:23
	4:58	5:04	5:08	5:13	5:17	5:21	5:23	5:30	5:32	5:38
5 pm	5:13	5:19	5:23	5:28	5:32	5:36	5:38	5:45	5:47	5:53
	5:28	5:34	5:38	5:43	5:47	5:51	5:53	6:00	6:02	6:08
	5:43	5:49	5:53	5:58	6:02	6:06	6:08	6:15	6:17	6:23
	5:58	6:04	6:08	6:13	6:17	6:21	6:23	6:30	6:32	6:38
6 pm	6:13	6:19	6:23	6:28	6:32	6:36	6:38	6:45	6:47	6:53
	6:28	6:34	6:38	6:43	6:47	6:51	6:53	7:00	7:02	7:08
	6:44	6:50	6:53	6:58	7:02	7:05	7:07	7:13	7:15	7:21
7 pm	7:04	7:10	7:13	7:18	7:22	7:25	7:27	7:33	7:35	7:41
	7:24	7:30	7:33	7:38	7:42	7:45	7:47	7:53	7:55	8:01
	7:44	7:50	7:53	7:58	8:02	8:05	8:07	8:13	8:15	8:21
8 pm	8:04	8:10	8:13	8:18	8:22	8:25	8:27	8:33	8:35	8:41
	8:24	8:30	8:33	8:38	8:42	8:45	8:47	8:53	8:55	9:01
	8:44	8:50	8:53	8:58	9:02	9:05	9:07	9:13	9:15	9:21
9 pm	9:04	9:10	9:13	9:18	9:22	9:25	9:27	9:33	9:35	9:41
	9:24	9:30	9:33	9:38	9:42	9:45	9:47	9:53	9:55	10:01
	9:44	9:50	9:53	9:58	10:02	----	----	----	----	----

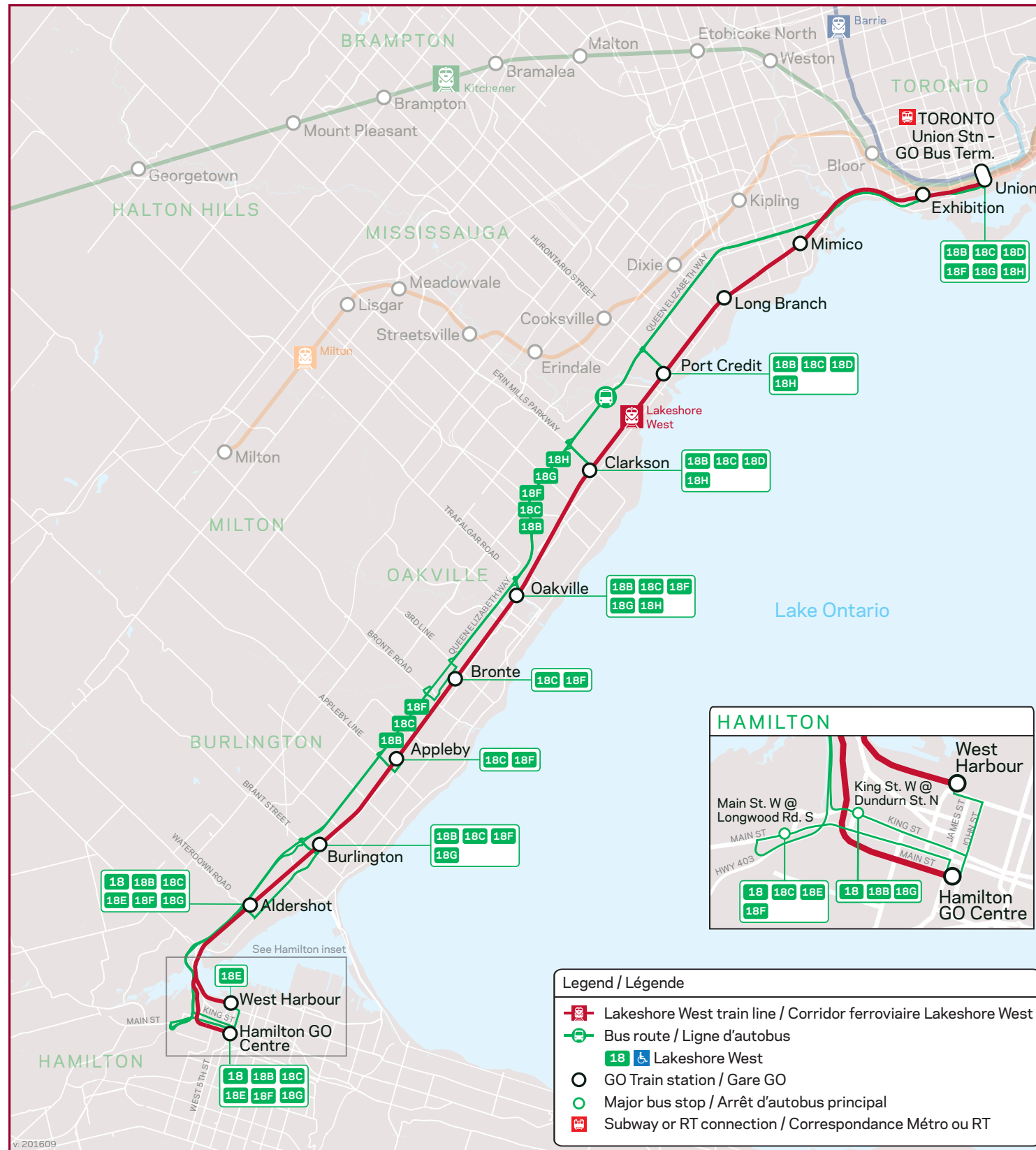
WEEKDAY SCHEDULE - Westbound										
TIMEPOINT	A	A	B	C	D	F	G	H	I	J
	Interlined with Route	Leaves Eastgate Sq.	Parkdale & Queenston	Main & Kenilworth	King & Sherman	King & Hughson	King & Queen	Main & Longwood	Main & Emerson	University Plaza
5 am	55	5:28	5:34	5:37	5:44	5:52	5:55	5:59	6:02	6:08
	----	5:43	5:49	5:52	5:59	6:07	6:10	6:14	6:17	6:23
	----	5:58	6:04	6:07	6:14	6:22	6:25	6:29	6:32	6:38
6 am	55A	6:13	6:19	6:22	6:29	6:37	6:40	6:44	6:47	6:53
	55	6:28	6:34	6:37	6:44	6:52	6:55	6:59	7:02	7:08
	58	6:43	6:49	6:52	6:59	7:07	7:10	7:14	7:17	7:23
	55	6:51	6:57	7:00	7:07	7:15	7:18	7:22	7:25	7:31
	----	6:58	7:04	7:07	7:14	7:22	7:25	7:29	7:32	7:38
7 am	55A	7:06	7:12	7:15	7:22	7:30	7:33	7:37	7:40	7:46
	58	7:13	7:19	7:22	7:29	7:37	7:40	7:44	7:47	7:53
	55	7:21	7:27	7:30	7:37	7:45	7:48	7:52	7:55	8:01
	----	7:28	7:34	7:37	7:44	7:52	7:55	7:59	8:02	8:08
	55A	7:36	7:42	7:45	7:52	8:00	8:03	8:07	8:10	8:16
	58	7:43	7:49	7:52	7:59	8:07	8:10	8:14	8:17	8:23
	55	7:51	7:57	8:00	8:07	8:15	8:18	8:22	8:25	8:31
	----	7:58	8:04	8:07	8:14	8:22	8:25	8:29	8:32	8:38
8 am	55A	8:06	8:12	8:15	8:22	8:30	8:33	8:37	8:40	8:46
	58	8:13	8:19	8:22	8:29	8:37	8:40	8:44	8:47	8:53
	----	8:21	8:27	8:30	8:37	8:45	8:48	8:52	8:55	9:01
	55	8:28	8:34	8:37	8:44	8:52	8:55	8:59	9:02	9:08
	55A	8:36	8:42	8:45	8:52	9:00	9:03	9:07	9:10	9:16
	58	8:43	8:49	8:52	8:59	9:07	9:10	9:14	9:17	9:23
	----	8:51	8:57	9:00	9:07	9:15	9:18	9:22	9:25	9:31
	55	8:58	9:04	9:07	9:14	9:22	9:25	9:29	9:32	9:38
9 am	55A	9:06	9:12	9:15	9:22	9:30	9:33	9:37	9:40	9:46
	----	9:18	9:24	9:27	9:34	9:42	9:45	9:49	9:52	9:58
	55	9:30	9:36	9:39	9:46	9:54	9:57	10:01	10:04	10:10
	55A	9:42	9:48	9:51	9:58	10:06	10:09	10:13	10:16	10:22
	----	9:54	10:00	10:03	10:10	10:18	10:21	10:25	10:28	10:34
10am	----	10:06	10:12	10:15	10:22	10:30	10:33	10:37	10:40	10:46
	----	10:18	10:24	10:27	10:34	10:42	10:45	10:49	10:52	10:58
	55	10:30	10:36	10:39	10:46	10:54	10:57	11:01	11:04	11:10
	----	10:42	10:48	10:51	10:58	11:06	11:09	11:13	11:16	11:22
	55A	10:54	11:00	11:03	11:10	11:18	11:21	11:25	11:28	11:34
11am	----	11:06	11:12	11:15	11:22	11:30	11:33	11:37	11:40	11:46
	----	11:18	11:24	11:27	11:34	11:42	11:45	11:49	11:52	11:58
	----	11:30	11:36	11:39	11:46	11:54	11:57	12:01	12:04	12:10
	----	11:42	11:48	11:51	11:58	12:06	12:09	12:13	12:16	12:22
	----	11:54	12:00	12:03	12:10	12:18	12:21	12:25	12:28	12:34
12pm	----	12:06	12:12	12:15	12:22	12:30	12:33	12:37	12:40	12:46
	----	12:18	12:24	12:27	12:34	12:42	12:45	12:49	12:52	12:58
	----	12:30	12:36	12:39	12:46	12:54	12:57	1:01	1:04	1:10
	----	12:42	12:48	12:51	12:58	1:06	1:09	1:13	1:16	1:22
	----	12:54	1:00	1:03	1:10	1:18	1:21	1:25	1:28	1:34
1 pm	----	1:06	1:12	1:15	1:22	1:30	1:33	1:37	1:40	1:46
	----	1:18	1:24	1:27	1:34	1:42	1:45	1:49	1:52	1:58
	----	1:30	1:36	1:39	1:46	1:54	1:57	2:01	2:04	2:10
	----	1:42	1:48	1:51	1:58	2:06	2:09	2:13	2:16	2:22
	----	1:51	1:57	2:00	2:07	2:15	2:18	2:22	2:25	2:31
	55	1:59	2:05	2:08	2:15	2:23	2:26	2:30	2:33	2:39
	----	2:06	2:12	2:15	2:22	2:30	2:33	2:37	2:40	2:46
2 pm	----	2:14	2:20	2:23	2:30	2:38	2:41	2:45	2:48	2:54
	58	2:21	2:27	2:30	2:37	2:45	2:48	2:52	2:55	3:01
	----	2:29	2:35	2:38	2:45	2:53	2:56	3:00	3:03	3:09
	55A	2:36	2:42	2:45	2:52	3:00	3:03	3:07	3:10	3:16
	58	2:44	2:50	2:53	3:00	3:08	3:11	3:15	3:18	3:24
	55	2:51	2:57	3:00	3:07	3:15	3:18	3:22	3:25	3:31
	----	2:59	3:05	3:08	3:15	3:23	3:26	3:30	3:33	3:39
	55A	3:06	3:12	3:15	3:22	3:30	3:33	3:37	3:40	3:46
3 pm	58	3:14	3:20	3:23	3:30	3:38	3:41	3:45	3:48	3:54
	55	3:21	3:27	3:30	3:37	3:45	3:48	3:52	3:55	4:01
	----	3:29	3:35	3:38	3:45	3:53	3:56	4:00	4:03	4:09
	55A	3:36	3:42	3:45	3:52	4:00	4:03	4:07	4:10	4:16
	58	3:44	3:50	3:53	4:00	4:08	4:11	4:15	4:18	4:24
	55	3:51	3:57	4:00	4:07	4:15	4:18	4:22	4:25	4:31
	----	3:59	4:05	4:08	4:15	4:23	4:26	4:30	4:33	4:39
	55A	4:06	4:12	4:15	4:22	4:30	4:33	4:37	4:40	4:46
4 pm	58	4:14	4:20	4:23	4:30	4:38	4:41	4:45	4:48	4:54
	55	4:21	4:27	4:30	4:37	4:45	4:48	4:52	4:55	5:01
	----	4:29	4:35	4:38	4:45	4:53	4:56	5:00	5:03	5:09
	55A	4:36	4:42	4:45	4:52	5:00	5:03	5:07	5:10	5:16
	58	4:44	4:50	4:53	5:00	5:08	5:11	5:15	5:18	5:24
	55	4:51	4:57	5:00	5:07	5:15	5:18	5:22	5:25	5:31
	----	4:59	5:05	5:08	5:15	5:23	5:26	5:30	5:33	5:39
5 pm	55A	5:06	5:12	5:15	5:22	5:30	5:33	5:37	5:40	5:46
	58	5:14	5:20	5:23	5:30	5:38	5:41	5:45	5:48	5:54
	55	5:21	5:27	5:30	5:37	5:45	5:48	5:52	5:55	6:01
	----	5:29	5:35	5:38	5:45	5:53	5:56	6:00	6:03	6:09
	55A	5:36	5:42	5:45	5:52	6:00	6:03	6:07	6:10	6:16
	----	5:48	5:54	5:57	6:04	6:12	6:15	6:19	6:22	6:28
6 pm	55	6:00	6:06	6:09	6:16	6:24	6:27	6:31	6:34	6:40
	55A	6:14	6:19	6:22	6:29	6:36	6:39	6:43	6:46	6:52
	----	6:26	6:31	6:34	6:41	6:48	6:51	6:55	6:58	7:04
	58	6:38	6:43	6:46	6:53	7:00	7:03	7:07	7:10	7:16
	55	6:50	6:55	6:58	7:05	7:12	7:15	7:19	7:22	7:28
7 pm	----	7:02	7:07	7:10	7:17	7:24	7:27	7:31	7:34	7:40
	----	7:14	7:19	7:22	7:29	7:36	7:39	7:43	7:46	7:52
	----	7:26	7:31	7:34	7:41	7:48	7:51	7:55	7:58	8:04
	----	7:38	7:43	7:46	7:53	8:00	8:03	8:07	8:10	8:16
	----	7:50	7:55	7:58	8:05	8:12	8:15	8:19	8:22	8:28
8 pm	----	8:02	8:07	8:10	8:17	8:24	8:27	8:31	8:34	8:40
	----	8:14	8:19	8:22	8:29	8:36	8:39	8:43	8:46	8:52
	----	8:26	8:31	8:34	8:41	8:48	8:51	8:55	8:58	9:04
	----	8:38	8:43	8:46	8:53	9:00	9:03	9:07	9:10	9:16
	----	8:50	8:55	8:58	9:05	9:12	9:15	9:19	9:22	9:28
9 pm	----	9:02	9:07	9:10	9:17	9:24	9:27	9:31	9:34	9:40
	----	9:14	9:19	9:22	9:29	9:36	9:39	9:43	9:46	9:52
	----	9:26	9:31	9:34	9:41	9:48	9:51	9:55	9:58	10:04

WEEKDAY SCHEDULE - Eastbound										
TIMEPOINT	J	I	H	G	F	D	C	B	A	A
	University Plaza	Main & Emerson	Main & Longwood	Main & Queen	Main & John	Main & Sherman	Main & Kenilworth	Parkdale & Queenston	Arrive at Eastgate Sq.	Interlined with Route
6 am	6:07	6:13	6:16	6:21	6:25	6:31	6:38	6:40	6:46	55A
	6:17	6:23	6:26	6:31	6:35	6:41	6:48	6:50	6:56	----
	6:27	6:33	6:36	6:41	6:45	6:51	6:58	7:00	7:06	55
	6:37	6:43	6:46	6:51	6:55	7:01	7:08	7:10	7:16	55A
	6:47	6:53	6:56	7:01	7:05	7:11	7:18	7:20	7:26	----
	6:57	7:03	7:06	7:11	7:15	7:21	7:28	7:30	7:36	----
7 am	7:07	7:13	7:16	7:21	7:25	7:31	7:38	7:40	7:46	55A
	7:14	7:20	7:23	7:28	7:32	7:38	7:45	7:47	7:53	58
	7:22	7:28	7:31	7:36	7:40	7:46	7:53	7:55	8:01	55
	7:29	7:35	7:38	7:43	7:47	7:53	8:00	8:02	8:08	----
	7:37	7:43	7:46	7:51	7:55	8:01	8:08	8:10	8:16	55A
	7:44	7:50	7:53	7:58	8:02	8:08	8:15	8:17	8:23	58
	7:52	7:58	8:01	8:06	8:10	8:16	8:23	8:25	8:31	55
8 am	7:59	8:05	8:08	8:13	8:17	8:23	8:30	8:32	8:38	----
	8:07	8:13	8:16	8:21	8:25	8:31	8:38	8:40	8:46	55A
	8:14	8:20	8:23	8:28	8:32	8:38	8:45	8:47	8:53	58
	8:22	8:28	8:31	8:36	8:40	8:46	8:53	8:55	9:01	55
	8:29	8:35	8:38	8:43	8:47	8:53	9:00	9:02	9:08	----
	8:37	8:43	8:46	8:51	8:55	9:01	9:08	9:10	9:16	55A
	8:44	8:50	8:53	8:58	9:02	9:08	9:15	9:17	9:23	58
9 am	8:52	8:58	9:01	9:06	9:10	9:16	9:23	9:25	9:31	55
	8:59	9:05	9:08	9:13	9:17	9:23	9:30	9:32	9:38	----
	9:07	9:13	9:16	9:21	9:25	9:31	9:38	9:40	9:46	55A
	9:14	9:20	9:23	9:28	9:32	9:38	9:45	9:47	9:53	----
	9:22	9:28	9:31	9:36	9:40	9:46	9:53	9:55	10:01	----
	9:34	9:40	9:43	9:48	9:52	9:58	10:05	10:07	10:13	----
10am	9:46	9:52	9:55	10:00	10:04	10:10	10:17	10:19	10:25	58
	9:58	10:04	10:07	10:12	10:16	10:22	10:29	10:31	10:37	----
	10:10	10:16	10:19	10:24	10:28	10:34	10:41	10:43	10:49	----
	10:22	10:28	10:31	10:36	10:40	10:46	10:53	10:55	11:01	----
	10:34	10:40	10:43	10:48	10:52	10:58	11:05	11:07	11:13	----
11am	10:46	10:52	10:55	11:00	11:04	11:10	11:17	11:19	11:25	----
	10:58	11:04	11:07	11:12	11:16	11:22	11:29	11:31	11:37	----
	11:10	11:16	11:19	11:24	11:28	11:34	11:41	11:43	11:49	----
	11:22	11:28	11:31	11:36	11:40	11:46	11:53	11:55	12:01	----
	11:34	11:40	11:43	11:48	11:52	11:58	12:05	12:07	12:13	----
12pm	11:46	11:52	11:55	12:00	12:04	12:10	12:17	12:19	12:25	----
	11:58	12:04	12:07	12:12	12:16	12:22	12:29	12:31	12:37	----
	12:10	12:16	12:19	12:24	12:28	12:34	12:41	12:43	12:49	----
	12:22	12:28	12:31	12:36	12:40	12:46	12:53	12:55	1:01	----
	12:34	12:40	12:43	12:48	12:52	12:58	1:05	1:07	1:13	----
1 pm	12:46	12:52	12:55	1:00	1:04	1:10	1:17	1:19	1:25	----
	12:58	1:04	1:07	1:12	1:16	1:22	1:29	1:31	1:37	----
	1:10	1:16	1:19	1:24	1:28	1:34	1:41	1:44	1:50	58
	1:22	1:28	1:31	1:36	1:40	1:46	1:53	1:56	2:02	----
	1:34	1:40	1:43	1:48	1:52	1:58	2:05	2:08	2:14	----
2 pm	1:46	1:52	1:55	2:00	2:04	2:10	2:17	2:20	2:26	----
	1:54	2:00	2:03	2:08	2:12	2:18	2:25	2:28	2:34	55
	2:01	2:07	2:10	2:15	2:19	2:25	2:32	2:35	2:41	----
	2:09	2:15	2:18	2:23	2:27	2:33	2:40	2:43	2:49	55A
	2:16	2:22	2:25	2:30	2:34	2:40	2:47	2:50	2:56	58
	2:24	2:30	2:33	2:38	2:42	2:48	2:55	2:58	3:04	55
	2:31	2:37	2:40	2:45	2:49	2:55	3:02	3:05	3:11	----
3 pm	2:39	2:45	2:48	2:53	2:57	3:03	3:10	3:13	3:19	55A
	2:46	2:52	2:55	3:00	3:04	3:10	3:17	3:20	3:26	58
	2:54	3:00	3:03	3:08	3:12	3:18	3:25	3:28	3:34	55
	3:01	3:07	3:10	3:15	3:19	3:25	3:32	3:35	3:41	----
	3:09	3:15	3:18	3:23	3:27	3:33	3:40	3:43	3:49	55A
	3:16	3:22	3:25	3:30	3:34	3:40	3:47	3:50	3:56	58
	3:24	3:30	3:33	3:38	3:42	3:48	3:55	3:58	4:04	55
4 pm	3:31	3:37	3:40	3:45	3:49	3:55	4:02	4:05	4:11	----
	3:39	3:45	3:48	3:53	3:57	4:03	4:10	4:13	4:19	55A
	3:46	3:52	3:55	4:00	4:04	4:10	4:17	4:20	4:26	58
	3:54	4:00	4:03	4:08	4:12	4:18	4:25	4:28	4:34	55
	4:01	4:07	4:10	4:15	4:19	4:25	4:32	4:35	4:41	----
	4:09	4:15	4:18	4:23	4:27	4:33	4:40	4:43	4:49	55A
	4:16	4:22	4:25	4:30	4:34	4:40	4:47	4:50	4:56	58
5 pm	4:24	4:30	4:33	4:38	4:42	4:48	4:55	4:58	5:04	55
	4:31	4:37	4:40	4:45	4:49	4:55	5:02	5:05	5:11	----
	4:39	4:45	4:48	4:53	4:57	5:03	5:10	5:13	5:19	55A
	4:46	4:52	4:55	5:00	5:04	5:10	5:17	5:20	5:26	58
	4:54	5:00	5:03	5:08	5:12	5:18	5:25	5:28	5:34	----
	5:01	5:07	5:10	5:15	5:19	5:25	5:32	5:35	5:41	----
	5:09	5:15	5:18	5:23	5:27	5:33	5:40	5:43	5:49	55A
6 pm	5:16	5:22	5:25	5:30	5:34	5:40	5:47	5:50	5:56	58
	5:24	5:30	5:33	5:38	5:42	5:48	5:55	5:58	6:04	55
	5:31	5:37	5:40	5:45	5:49	5:55	6:02	6:05	6:11	55A
	5:39	5:45	5:48	5:53	5:57	6:03	6:10	6:13	6:19	----
	5:54	6:00	6:03	6:08	6:12	6:18	6:25	6:28	6:34	55
7 pm	6:06	6:12	6:15	6:20	6:24	6:30	6:37	6:40	6:46	55A
	6:18	6:24	6:27	6:32	6:36	6:42	6:49	6:52	6:58	----
	6:31	6:37	6:40	6:44	6:48	6:53	6:59	7:02	7:08	----
	6:43	6:49	6:52	6:56	7:00	7:05	7:11	7:14	7:20	----
	6:55	7:01	7:04	7:08	7:12	7:17	7:23	7:26	7:32	----
8 pm	7:07	7:13	7:16	7:20	7:24	7:29	7:35	7:38	7:44	----
	7:19	7:25	7:28	7:32	7:36	7:41	7:47	7:50	7:56	----
	7:31	7:37	7:40	7:44	7:48	7:53	7:59	8:02	8:08	----
	7:43	7:49	7:52	7:56	8:00	8:05	8:11	8:14	8:20	----
	7:55	8:01	8:04	8:08	8:12	8:17	8:23	8:26	8:32	----
9 pm	8:07	8:13	8:16	8:20	8:24	8:29	8:35	8:38	8:44	----
	8:19	8:25	8:28	8:32	8:36	8:41	8:47	8:50	8:56	----
	8:31	8:37	8:40	8:44	8:48	8:53	8:59	9:02	9:08	----
	8:43	8:49	8:52	8:56	9:00	9:05	9:11	9:14	9:20	----
	8:55	9:01	9:04	9:08	9:12	9:17	9:23	9:26	9:32	----
	9:07	9:13	9:16	9:20	9:24	9:29	9:35	9:38	9:44	----
	9:19	9:25	9:28	9:32	9:36	9:41	9:47	9:50	9:56	----

01 - 18

Route numbers
Numéros des trajets

Lakeshore West



CONTACT US

1-888-438-6646
416-869-3200
TTY/ATS:
1-800-387-3652

gotransit.com/schedules

@GOtransitLW

See Something?
Say Something.
24/7 Transit Safety Dispatch:
1-877-297-0642

prestocard.ca

Sign-up for email or
text alerts/ Inscrivez-
vous pour recevoir des
alertes par courriel ou
message texte.
gotransit.com/OnTheGO

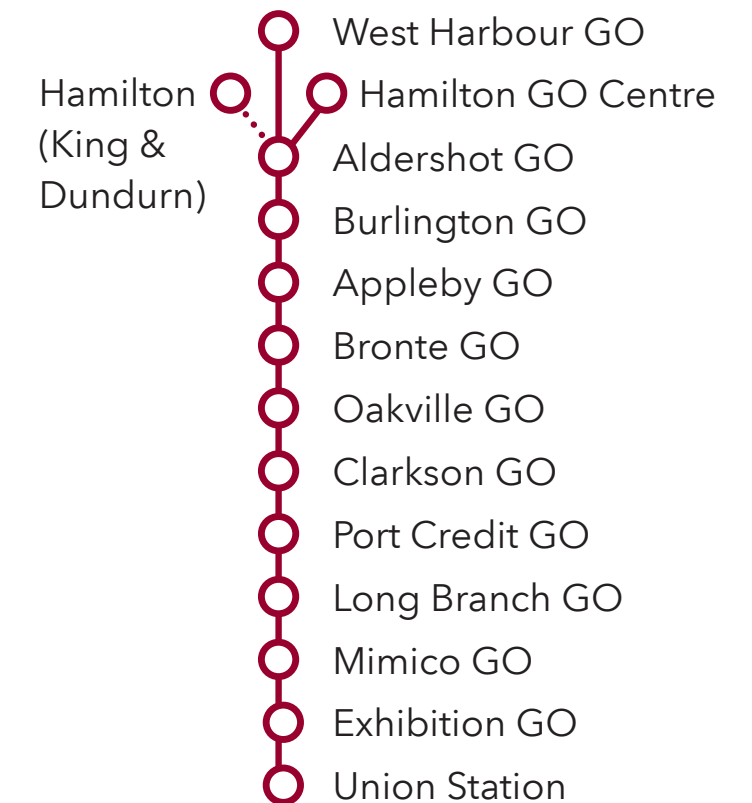
Lakeshore West



GO Train and Bus Schedule/
Horaire des trains et des autobus GO

METROLINX

LW 18



Daily / Quotidiennement

Includes GO Bus route 18 /
Inclut le trajet 18 d'autobus GO

Effective / À partir de:

31 AUGUST
AOÛT 2019

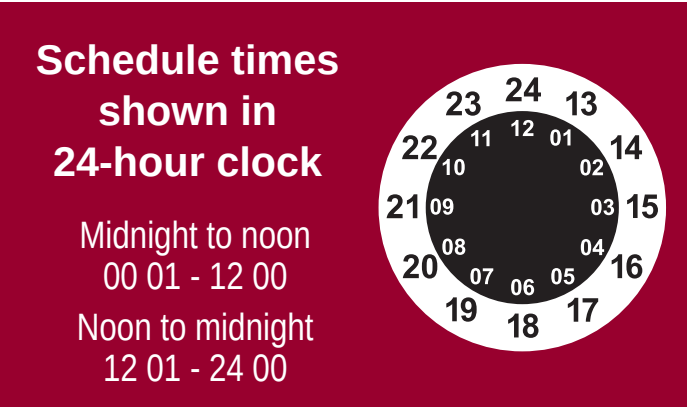


How to read our schedules

- Step 1**
Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2
The upper left corner tells you what day the schedule is for and the direction of travel.
- Step 3**
Look across the rows for available departure times.

Step 4
Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.



Legend

- Train trips
- Bus trips
- Trip does not serve this location.
- Check below for connecting trips.
- GO Train service is accessible to passengers using mobility devices at this location.
- GO Bus service is accessible to passengers using mobility devices at this location.
- GO Train & GO Bus service is accessible to passengers using mobility devices at this location.
- Parking available.

For the latest schedule information and updates, please visit gotransit.com/schedules.

Notes

- M-Th** Trip operates Monday to Thursday ONLY.
- Fri** Trip operates on Fridays ONLY. If Friday is a holiday, the trip operates on the Thursday before the holiday.
- Sat** Trip Operates on Saturdays ONLY.
- Sun** Trip Operates on Sundays ONLY.
- D** Stops to let off passengers on request only.
- h** Trip holds for connection from bus.

Bicycles

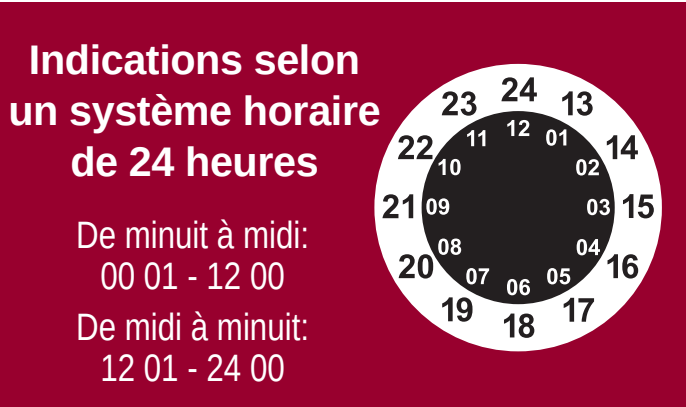
- Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.
- Foldable bicycles are allowed on-board trains at all times.

Comment lire nos horaires

- Étape 1**
Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2
Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.
- Étape 3**
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4
Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.



Légende

- Horaire des trains
- Horaire des autobus
- Trajet ne sert pas cette station.
- Vérifiez les trajets de correspondance cidessous.
- Service de trains GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
- Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.
- Stationnement disponible.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

Notes

- M-Th** Service offert du lundi au jeudi.
- Fri** Service offert les vendredis SEULEMENT ou les jeudis précédant un vendredi férié.
- Sat** Service offert les samedis SEULEMENT.
- Sun** Service offert les dimanche SEULEMENT.
- D** Arrêt sur demande seulement.
- h** Attentes des trajets pour les connexions d'autobus.

Vélos

- Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).
- Les vélos pliables sont permis à bord des trains en tout temps.

Monday to Friday (except holidays) Du lundi au vendredi (sauf les jours fériés)																					
EASTBOUND / EN DIRECTION EST																					
Route Number Numéro du trajet	Zone→			Hamilton 18 Dp West Harbour GO	Hamilton 18 Dp Hamilton GO Centre	Hamilton 18 Dp King St. W. & Dundurn St. N.	17 Ar Aldershot GO	Transfer - Correspondances Trip Number/Numéro du parcours	17 Dp Aldershot GO	16 Dp Burlington GO	15 Dp Burlington GO	14 Dp Appleby GO	14 Dp Bronte GO	13 Dp Oakville GO	12 Dp Mississauga GO	10 Dp Mississauga GO	59 Dp Port Credit GO	79 Dp Long Branch GO	2 Dp Etobicoke GO	Toronto 2 Dp Exhibition GO	Toronto 2 Dp Union Station
18G	18020				04 15	04 19	04 30	→	04 30	04 40	→	→	→	04 55↓	→	→	→	→	→	→	05 25
18H	18022													04 55h	05 05	05 15	→	→	→		05 40
18	18040				04 33	04 37	04 48	1002	05 03	05 09	05 16	05 21	05 27	05 35	05 42	05 47	05 53	05 59			06 10
18	18060				05 03	05 07	05 18	1202	05 33	05 39	05 46	05 51	05 57	06 05	06 12	06 17	06 23	06 29			06 40
18	18090				05 33	05 37	05 48↓														
	1852				05 48	→	06 03	→	06 03	06 09	06 16	06 21	06 27↓	06 35	→	→	→	→	→		07 00
								1504		06 17	06 24	06 29	06 35	06 43	06 50	06 55	07 01	07 08			07 15
	1754			06 09	→	→	06 23	→	06 23	06 29	06 36	06 41	06 47	06 55	→	→	→	→	→		07 20
18	18160				06 03	06 07	06 18↓														
	1854				06 18	→	06 33	→	06 33	06 39	06 46	06 51	06 57↓	07 05	→	→	→	→	→		07 30
								1604		06 47	06 54	06 59	07 05	07 13	07 20	07 25	07 31	07 38			07 45
	1954			06 39	→	→	06 53	→	06 53	06 59	07 06	07 11	07 17	07 25	→	→	→	→	→		07 50
18	18170				06 33	06 37	06 48↓														
	1856				06 48	→	07 03	→	07 03	07 09	07 16	07 21	07 27↓	07 35	→	→	→	→	→		08 00
								1306						07 35	07 43	07 50	07 55	08 01	08 08		08 15
	1756			07 09	→	→	07 23	→	07 23	07 29	07 36	07 41	07 47	07 55	→	→	→	→	→		08 20
18	18220				07 01	07 08	07 18↓														
	1858				07 18	→	07 33	→	07 33	07 39	07 46	07 51	07 57↓	08 05	→	→	→	→	→		08 30
								1108						08 05	08 13	08 20	08 26	08 32	08 40		08 48
								1256	07 53	07 59	08 06	08 11	08 18	08 27	→	→	→	→	→		08 52
18	18250				07 31	07 38	07 48↓														
	1758			07 49	→	→	08 03	→	08 03	08 09	08 16	08 21	08 27	08 35	→	→	→	→	→		09 00
								1308						08 32	08 40	08 47	08 52	08 58	09 04		09 15
								1608			08 31	08 37	08 43	08 51	08 58	09 03	09 11	09 17			09 28
18	18290				08 04	08 11	08 21	1208	08 36	08 42	08 49	08 55	09 01	09 09	09 16	09 21	09 29	09 35			09 46
18	18340				08 34	08 41	08 51	1010	09 06	09 12	09 19	09 25	09 31	09 39	09 46	09 51	09 59	10 05			10 16
18	18370				09 01	09 08	09 16	1210	09 31	09 37	09 44	09 50	09 56	10 04	10 11	10 16	10 24	10 30			10 41
								1310						10 13	10 21	10 28	10 33	10 41	10 47		10 58
18	18400				09 36	09 43	09 51↓	1012	10 06	10 12	10 19	10 25	10 31	10 39	10 46	10 51	10 59	11 05			11 16
18	18420				10 06	10 13	10 21	1212	10 36	10 42	10 49	10 55	11 01	11 09	11 16	11 21	11 29	11 35			11 46
								1312						11 14	11 22	11 29	11 34	11 42	11 48		11 59
18	18440				10 31	10 38	10 46	1014	11 01	11 07	11 14	11 20	11 26	11 34	11 41	11 46	11 54	12 00			12 11
18	18460				11 01	11 08	11 16	1214	11 31	11 37	11 44	11 50	11 56	12 04	12 11	12 16	12 24	12 30			12 41
								1314						12 11	12 19	12 26	12 31	12 39	12 45		12 56
18	18490				11 31	11 38	11 46	1016	12 01	12 07	12 14	12 20	12 26	12 34	12 41	12 46	12 54	13 00			13 11

Monday to Friday (except holidays) Du lundi au vendredi (sauf les jours fériés)																					
EASTBOUND / EN DIRECTION EST																					
Route Number Numéro du trajet	Zone→			Hamilton 18 West Harbour GO Dp	Hamilton 18 Hamilton GO Centre Dp	Hamilton 18 King St. W. & Dundurn St. N. Dp	17 Burlington Aldershot GO Ar	Transfer -Correspondances Trip Number/Numéro du parcours	17 Burlington Dp Aldershot GO	16 Burlington Dp Burlington GO	15 Burlington Dp Appleby GO	14 Oakville Dp Bronte GO	13 Oakville Dp Oakville GO	12 Mississauga Dp Clarkson GO	10 Mississauga Dp Port Credit GO	59 Etobicoke Dp Long Branch GO	79 Etobicoke Dp Mimico GO	2 Toronto Dp Exhibition GO	2 Toronto Dp Union Station	Ar	
18	18510				12 01	12 08	12 16	1216	12 31	12 37	12 44	12 50	12 56	13 04	13 11	13 16	13 24	13 30	13 41		
								1316					13 11	13 19	13 26	13 31	13 39	13 45	13 56		
18	18530				12 31	12 38	12 46	1018	13 01	13 07	13 14	13 20	13 26	13 34	13 41	13 46	13 54	14 00	14 11		
18	18550				13 01	13 08	13 16	1218	13 31	13 37	13 44	13 50	13 56	14 04	14 11	14 16	14 24	14 30	14 41		
								1318					14 11	14 19	14 26	14 31	14 39	14 45	14 56		
18	18570				13 31	13 38	13 46	1020	14 01	14 07	14 14	14 20	14 26	14 34	14 41	14 46	14 54	15 00	15 11		
18	18590				14 01	14 08	14 16	1220	14 31	14 37	14 44	14 50	14 56	15 04	15 11	15 16	15 24	15 30	15 41		
								1320					15 10	15 18	15 25	15 30	15 38	15 44	15 55		
18	18610				14 28	14 35	14 43	1022	14 58	15 04	15 11	15 17	15 23	15 31	15 38	15 43	15 51	15 57	16 08		
								1122					15 40	15 48	15 55	16 00	16 08	16 14	16 25		
18	18630				14 56	15 06	15 13	1222	15 28	15 34	15 41	15 47	15 53	16 01	16 08	16 13	16 21	16 27	16 38		
								1322					16 10	16 18	16 25	16 30	16 38	16 44	16 55		
18	18650				15 29	15 39	15 46	1024	16 01	16 07	16 14	16 20	16 26	16 34	16 41	16 46	16 54	17 00	17 11		
18	18670				15 57	16 07	16 14	1224	16 29	16 35	16 42	16 48	16 54	17 02	17 09	17 14	17 22	17 27	17 35		
								1426									17 30	17 37	18 00		
18	18690				16 29	16 39	16 46	1026	17 01	17 07	17 14	17 20	17 26	17 34	17 41	17 46	17 54	18 00	18 11		
18	18720				16 59	17 09	17 16	1226	17 31	17 37	17 44	17 50	17 56	18 04	18 11	18 16	18 24	18 30	18 41		
18	18730				17 29	17 39	17 46	1028	18 01	18 07	18 14	18 20	18 26	18 34	18 41	18 46	18 54	19 00	19 11		
18	18750				18 04	18 11	18 21	1228	18 36	18 42	18 49	18 55	19 01	19 09	19 16	19 21	19 29	19 35	19 46		
18	18770				18 31	18 38	18 46	1030	19 01	19 07	19 14	19 20	19 26	19 34	19 41	19 46	19 54	20 00	20 11		
18	18790				19 01	19 08	19 16	1230	19 31	19 37	19 44	19 50	19 56	20 04	20 11	20 16	20 24	20 30	20 41		
18	18810				19 31	19 38	19 46	1032	20 01	20 07	20 14	20 20	20 26	20 34	20 41	20 46	20 54	21 00	21 11		
18	18830				20 01	20 08	20 16	1232	20 31	20 37	20 44	20 50	20 56	21 04	21 11	21 16	21 24	21 30	21 41		
18	18840				20 31	20 38	20 46	1034	21 01	21 07	21 14	21 20	21 26	21 34	21 41	21 46	21 54	22 00	22 11		
18	18860				21 01	21 08	21 16	1234	21 31	21 37	21 44	21 50	21 56	22 04	22 11	22 16	22 24	22 30	22 41		
18	18870				21 31	21 38	21 46	1036	22 01	22 07	22 14	22 20	22 26	22 34	22 41	22 46	22 54	23 00	23 11		
18	18880				22 01	22 08	22 16	1236	22 31	22 37	22 44	22 50	22 56	23 04	23 11	23 16	23 24	23 30	23 41		
18	18900				22 31	22 38	22 46	1038	23 01	23 07	23 14	23 20	23 26	23 34	23 41	23 46	23 54	00 00	00 11		
18	18920				23 01	23 08	23 16	1238	23 31	23 37	23 44	23 50	23 56	00 04	00 11	00 16	00 24	00 30	00 41		
18	18930				23 31	23 38	23 46	1490	00 01	→	→	→	→	→	→	00 30					
								1492	00 31	→	→	→	→	→	→	01 00					
								1494	01 01	→	→	→	→	→	→	01 30					
								1496	01 31	→	→	→	→	→	→	02 00					
								1498	02 01	→	→	→	→	→	→	02 30					

Monday to Friday (except holidays) Du lundi au vendredi (sauf les jours fériés)																			
WESTBOUND / EN DIRECTION OUEST																			
Route Number Numéro du trajet	Zone→		Toronto 2 Dp	Toronto 2	Etobicoke 79	Etobicoke 59	Mississauga 10	Mississauga 12	Oakville 13	Oakville 14	Burlington 15	Burlington 16	Burlington 17 Ar	Transfer -Correspondances Trip Number/Numéro du parcours	Burlington 17 Dp	Hamilton 18	Hamilton 18 Ar	Hamilton 18	Hamilton 18 Ar
Exception 1			Union Station	Exhibition GO	Mimico GO	Long Branch GO	Port Credit GO	Clarkson GO	Oakville GO	Bronte GO	Appleby GO	Burlington GO	Aldershot GO			Main St. W. @ Longwood Rd. S	Hamilton GO Centre	Hamilton GO	West Harbour GO
18C	18051		05 30	→	→	→	05 48	06 00	06 12	06 23	06 33	06 45	06 55	→	06 55	07 02	07 15		
18	1003		06 13	06 19	06 27	06 32	06 38	06 44	06 51	06 57	07 03	07 10	07 16	18071	07 24	07 34	07 44		
18	1203		06 43	06 50	06 58	07 04	07 10	07 16	07 24	07 30	07 37	07 44	07 51	18091	07 59	08 09	08 19		
	1155		07 00	→	→	→	→	→											
18	1005		07 18	07 25	07 33	07 39	07 45	07 51	07 59	08 05	08 12	08 19	08 26	18121	08 34	08 44	08 54		
	1355		07 30	→	→	→	→	→											
	1655		07 34	→	→	→	→	→	→	→	08 17								
18	1205		07 48	07 55	08 03	08 09	08 15	08 21	08 29	08 35	08 42	08 49	08 56	18141	09 04	09 11	09 21		
	1407		08 08	08 15	08 23														
18	1007		08 13	08 20	08 28	08 34	08 40	08 46	08 54	09 00	09 07	09 14	09 21	18161	09 29	09 36	09 46		
	1409		08 28	08 35	08 43														
18	1207		08 48	08 55	09 03	09 09	09 15	09 21	09 29	09 35	09 42	09 49	09 56	18171	10 04	10 11	10 21		
	1307		09 03	09 10	09 18	09 24	09 30	09 36	09 44										
18	1009		09 18	09 25	09 33	09 39	09 45	09 51	09 59	10 05	10 12	10 19	10 26	18191	10 34	10 41	10 51		
18	1209		09 43	09 50	09 58	10 04	10 10	10 16	10 24	10 30	10 37	10 44	10 51	18201	10 59	11 06	11 16		
	1309		09 58	10 05	10 13	10 19	10 25	10 31	10 39										
18	1011		10 13	10 20	10 28	10 34	10 40	10 46	10 54	11 00	11 07	11 14	11 21	18221	11 29	11 36	11 46		
18	1211		10 43	10 50	10 58	11 04	11 10	11 16	11 24	11 30	11 37	11 44	11 51	18241	11 59	12 06	12 16		
	1311		10 58	11 05	11 13	11 19	11 25	11 31	11 39										
18	1013		11 13	11 20	11 28	11 34	11 40	11 46	11 54	12 00	12 07	12 14	12 21	18261	12 29	12 36	12 46		
18E	1213		11 43	11 50	11 58	12 04	12 10	12 16	12 24	12 30	12 37	12 44	12 51	18281	12 59	13 06	13 16	D13 26	
	1313		11 58	12 05	12 13	12 19	12 25	12 31	12 39										
18	1015		12 13	12 20	12 28	12 34	12 40	12 46	12 54	13 00	13 07	13 14	13 21	18301	13 29	13 36	13 46		
18E	1215		12 43	12 50	12 58	13 04	13 10	13 16	13 24	13 30	13 37	13 44	13 51	18331	13 59	14 06	14 16	D14 26	
	1315		12 58	13 05	13 13	13 19	13 25	13 31	13 39										
18	1017		13 13	13 20	13 28	13 34	13 40	13 46	13 54	14 00	14 07	14 14	14 21	18371	14 29	14 36	14 46		
18E	1217		13 43	13 50	13 58	14 04	14 10	14 16	14 24	14 30	14 37	14 44	14 51	18411	14 59	15 06	15 19	D15 29	
18	1019		14 13	14 20	14 28	14 34	14 40	14 46	14 54	15 00	15 07	15 14	15 21	18451	15 29	15 36	15 49		
18E	1219		14 43	14 50	14 58	15 04	15 10	15 16	15 24	15 30	15 37	15 44	15 51	18491	15 59	16 06	16 19	D16 29	
	1021		15 13	15 20	15 28	15 34	15 40	15 46	15 54	16 00	16 07	16 14	16 21						
18	1071		15 30	→	→	→	→	15 53	16 01	16 07	16 14	16 21	16 28	18541	16 36	16 48	17 00		
18	1221		15 40	15 47	15 55	16 01	16 07	16 13	16 21	16 27	16 34	16 41	16 48	18571	16 56	17 08	17 20		
	1775		16 00	→	→	→	→	16 23	16 31	16 37	16 44	16 51	16 58	→	16 58	→	→	17 12	

Monday to Friday (except holidays) Du lundi au vendredi (sauf les jours fériés)																			
WESTBOUND / EN DIRECTION OUEST																			
Route Number Numéro du trajet	Zone→		Toronto 2 Dp	Toronto 2	Etobicoke 79	Etobicoke 59	Mississauga 10	Mississauga 12	Oakville 13	Oakville 14	Burlington 15	Burlington 16	Burlington 17 Ar	Transfer -Correspondances Trip Number/Numéro du parcours	Burlington 17 Dp	Hamilton 18	Main St. W. @ Longwood Rd. S	Hamilton 18 Ar	Hamilton 18 Ar
		Exception 1	 Union Station	 Exhibition GO	 Mimico GO	 Long Branch GO	 Port Credit GO	 Clarkson GO	 Oakville GO	 Bronte GO	 Appleby GO	 Burlington GO	 Aldershot GO		 Aldershot GO				
18	1023		16 10	16 17	16 25	16 31	16 37	16 43	16 51	16 57	17 04	17 11	17 18	18581	17 26	17 38	17 50		
	1873		16 30	→	→	→	→	16 53	17 01	17 07	17 14	17 21	17 28	→	17 28	→	17 45		
18	1223		16 40	16 47	16 55	17 01	17 07	17 13	17 21	17 27	17 34	17 41	17 48	18641	17 56	18 08	18 20		
	1777		16 45	→	→	→	→	17 08	17 16	17 22	17 29	17 36	17 43	→	17 43	→	→	17 57	
	1875		17 00	→	→	→	→	17 23	17 31	17 37	17 44	17 51	17 58	→	17 58	→	18 15		
18	1025		17 10	17 17	17 25	17 31	17 37	17 45	17 53	17 59	18 06	18 13	18 21	18671	18 29	18 39	18 49		
	1975		17 15	→	→	→	→	17 38	17 46	17 52	17 59	18 06	18 13	→	18 13	→	→	18 27	
	1877		17 30	→	→	→	→	17 53	18 01	18 07	18 14	18 21	18 28	→	18 28	→	18 45		
18E	1225		17 40	17 47	17 55	18 01	18 07	18 13	18 21	18 27	18 34	18 41	18 48	18721	18 56	19 03	19 13	D19 18	
	1879		18 00	→	→	→	→	18 23	18 31	18 37	18 44	18 51	18 58	→	18 58	→	19 15		
	1027		18 15	18 22	18 30	18 36	18 42	18 48	18 56	19 02	19 09	19 16	19 23						
	1779		18 30	→	→	→	→	18 53	19 01	19 07	19 14	19 21	19 28	→	19 28↓	→	→	19 42	
18														18741	19 36	19 43	19 53		
18E	1227		18 46	18 52	18 59	19 05	19 11	19 18	19 26	19 32	19 38	19 44	19 51	18781	19 59	20 06	20 16	D20 21	
18	1029		19 13	19 20	19 28	19 34	19 40	19 46	19 54	20 00	20 07	20 14	20 21	18801	20 29	20 36	20 44		
18E	1229		19 43	19 50	19 58	20 04	20 10	20 16	20 24	20 30	20 37	20 44	20 51	18841	20 59	21 06	21 14	D21 19	
18	1031		20 13	20 20	20 28	20 34	20 40	20 46	20 54	21 00	21 07	21 14	21 21	18861	21 29	21 36	21 44		
18E	1231		20 43	20 50	20 58	21 04	21 10	21 16	21 24	21 30	21 37	21 44	21 51	18871	21 59	22 06	22 14	D22 19	
18	1033		21 13	21 20	21 28	21 34	21 40	21 46	21 54	22 00	22 07	22 14	22 21	18881	22 29	22 36	22 44		
18	1233		21 43	21 50	21 58	22 04	22 10	22 16	22 24	22 30	22 37	22 44	22 51	18901	22 59	23 06	23 14		
18	1035		22 13	22 20	22 28	22 34	22 40	22 46	22 54	23 00	23 07	23 14	23 21	18911	23 29	23 36	23 44		
18	1235		22 43	22 50	22 58	23 04	23 10	23 16	23 24	23 30	23 37	23 44	23 51	18921	23 59	00 06	00 14		
18	1037		23 13	23 20	23 28	23 34	23 40	23 46	23 54	00 00	00 07	00 14	00 21	18931	00 29	00 36	00 44		
18	1237		23 43	23 50	23 58	00 04	00 10	00 16	00 24	00 30	00 37	00 44	00 51	18941	00 59	01 06	01 14		
18	1039		00 13	00 20	00 28	00 34	00 40	00 46	00 54	01 00	01 07	01 14	01 21	18951	01 29	01 36	01 44		
18	1239		00 43	00 50	00 58	01 04	01 10	01 16	01 24	01 30	01 37	01 44	01 51	18961	01 59	02 06	02 14		
18D	18975	Fri	01 30	→	→	→	01 48	02 00											
18F	18973	Fri	01 30	→	→	→	→	→	01 57	02 05	02 15	02 23	02 33	→	02 33	D02 40	D02 50		
18C	18971	M-Th	01 30	→	→	→	01 48	01 58	02 07	02 15	02 25	02 33	02 43	→	02 43	D02 50	D03 00		
18C	18981	Fri	02 00	→	→	→	02 18	02 28	02 37	02 45	02 55	03 03	03 13	→	03 13	D03 20	D03 30		
18D	18995	Fri	02 30	→	→	→	02 48	03 00											
18F	18993	Fri	02 30	→	→	→	→	→	02 57	03 05	03 15	03 23	03 33	→	03 33	D03 40	D03 50		
18C	18991	M-Th	02 30	→	→	→	02 48	02 58	03 07	03 15	03 25	03 33	03 43	→	03 43	D03 50	D04 00		

Saturday and Sunday Samedi et dimanche																		
EASTBOUND / EN DIRECTION EST																		
Route Number Numéro du trajet	Trip Number Numéro du parcours	Zone→	Exception 1	 Hamilton 18 Dp Hamilton GO Centre	 Hamilton 18 King St. W. & Dundurn St. N.	 Burlington 17 Ar Aldershot GO	Transfer -Correspondances Trip Number/Numéro du parcours	 Burlington 17 Dp Aldershot GO	 Burlington 16 Burlington GO	 Burlington 15 Appleby GO	 Oakville 14 Bronte GO	 Oakville 13 Oakville GO	 Mississauga 12 Clarkson GO	 Mississauga 10 Port Credit GO	 Etobicoke 59 Long Branch GO	 Etobicoke 79 Mimico GO	 Toronto 2 Exhibition GO	 Toronto 2 Ar Union Station
18B	18050			04 30	04 37	04 45	→	04 45	04 55	→	→	05 10	05 20	05 30	→	→	→	05 55
18G	18090	Sat		05 30	05 37	05 45	→	05 45	05 55	→	→	06 10	→	→	→	→	→	06 40
18B	18090	Sun		05 30	05 37	05 45	→	05 45	05 55	→	→	06 10	06 20	06 30	→	→	→	06 55
18H	18092	Sat										06 10	06 20	06 30	→	→	→	06 55
18	18100			06 01	06 08	06 16	1204	06 31	06 37	06 44	06 50	06 56	07 04	07 11	07 16	07 24	07 30	07 40
18	18170			06 31	06 38	06 46	1006	07 01	07 07	07 14	07 20	07 26	07 34	07 41	07 46	07 54	08 00	08 10
18	18200			07 01	07 08	07 16	1206	07 31	07 37	07 44	07 50	07 56	08 04	08 11	08 16	08 24	08 30	08 40
18	18250			07 31	07 38	07 46	1008	08 01	08 07	08 14	08 20	08 26	08 34	08 41	08 46	08 54	09 00	09 10
18	18300			08 01	08 08	08 16	1208	08 31	08 37	08 44	08 50	08 56	09 04	09 11	09 16	09 24	09 30	09 40
18	18340			08 31	08 38	08 46	1010	09 01	09 07	09 14	09 20	09 26	09 34	09 41	09 46	09 54	10 00	10 10
18	18360			09 01	09 08	09 16	1210	09 31	09 37	09 44	09 50	09 56	10 04	10 11	10 16	10 24	10 30	10 40
18	18400			09 31	09 38	09 46	1012	10 01	10 07	10 14	10 20	10 26	10 34	10 41	10 46	10 54	11 00	11 10
18	18420			10 01	10 08	10 16	1212	10 31	10 37	10 44	10 50	10 56	11 04	11 11	11 16	11 24	11 30	11 40
18	18440			10 31	10 38	10 46	1014	11 01	11 07	11 14	11 20	11 26	11 34	11 41	11 46	11 54	12 00	12 10
18	18470			11 01	11 08	11 16	1214	11 31	11 37	11 44	11 50	11 56	12 04	12 11	12 16	12 24	12 30	12 40
18	18490			11 31	11 38	11 46	1016	12 01	12 07	12 14	12 20	12 26	12 34	12 41	12 46	12 54	13 00	13 10
18	18510			12 01	12 08	12 16	1216	12 31	12 37	12 44	12 50	12 56	13 04	13 11	13 16	13 24	13 30	13 40
18	18530			12 31	12 38	12 46	1018	13 01	13 07	13 14	13 20	13 26	13 34	13 41	13 46	13 54	14 00	14 10
18	18550			13 01	13 08	13 16	1218	13 31	13 37	13 44	13 50	13 56	14 04	14 11	14 16	14 24	14 30	14 40
18	18570			13 31	13 38	13 46	1020	14 01	14 07	14 14	14 20	14 26	14 34	14 41	14 46	14 54	15 00	15 10
18	18590			14 01	14 08	14 16	1220	14 31	14 37	14 44	14 50	14 56	15 04	15 11	15 16	15 24	15 30	15 40
18	18610			14 31	14 38	14 46	1022	15 01	15 07	15 14	15 20	15 26	15 34	15 41	15 46	15 54	16 00	16 10

Saturday and Sunday Samedi et dimanche																	
EASTBOUND / EN DIRECTION EST																	
Route Number Numéro du trajet	Zone→		Hamilton 18 Dp Hamilton GO Centre	Hamilton 18 King St. W. & Dundurn St. N.	17 Ar Burlington Aldershot GO	Transfer -Correspondances Trip Number/Numéro du parcours	17 Dp Burlington Aldershot GO	16 Burlington GO	15 Burlington GO	14 Oakville GO	13 Oakville GO	12 Mississauga GO	10 Mississauga Port Credit GO	59 Etobicoke Long Branch GO	79 Etobicoke Mimico GO	2 Toronto Exhibition GO	2 Toronto Union Station
18	18630		15 01	15 08	15 16	1222	15 31	15 37	15 44	15 50	15 56	16 04	16 11	16 16	16 24	16 30	16 40
18	18650		15 31	15 38	15 46	1024	16 01	16 07	16 14	16 20	16 26	16 34	16 41	16 46	16 54	17 00	17 10
18	18670		16 01	16 08	16 16	1224	16 31	16 37	16 44	16 50	16 56	17 04	17 11	17 16	17 24	17 30	17 40
18	18690		16 31	16 38	16 46	1026	17 01	17 07	17 14	17 20	17 26	17 34	17 41	17 46	17 54	18 00	18 10
18	18710		17 01	17 08	17 16	1226	17 31	17 37	17 44	17 50	17 56	18 04	18 11	18 16	18 24	18 30	18 40
18	18730		17 31	17 38	17 46	1028	18 01	18 07	18 14	18 20	18 26	18 34	18 41	18 46	18 54	19 00	19 10
18	18750		18 01	18 08	18 16	1228	18 31	18 37	18 44	18 50	18 56	19 04	19 11	19 16	19 24	19 30	19 40
18	18770		18 31	18 38	18 46	1030	19 01	19 07	19 14	19 20	19 26	19 34	19 41	19 46	19 54	20 00	20 10
18	18790		19 01	19 08	19 16	1230	19 31	19 37	19 44	19 50	19 56	20 04	20 11	20 16	20 24	20 30	20 40
18	18810		19 31	19 38	19 46	1032	20 01	20 07	20 14	20 20	20 26	20 34	20 41	20 46	20 54	21 00	21 10
18	18820		20 01	20 08	20 16	1232	20 31	20 37	20 44	20 50	20 56	21 04	21 11	21 16	21 24	21 30	21 40
18	18840		20 31	20 38	20 46	1034	21 01	21 07	21 14	21 20	21 26	21 34	21 41	21 46	21 54	22 00	22 10
18	18860		21 01	21 08	21 16	1234	21 31	21 37	21 44	21 50	21 56	22 04	22 11	22 16	22 24	22 30	22 40
18	18870		21 31	21 38	21 46	1036	22 01	22 07	22 14	22 20	22 26	22 34	22 41	22 46	22 54	23 00	23 10
18	18880		22 01	22 08	22 16	1236	22 31	22 37	22 44	22 50	22 56	23 04	23 11	23 16	23 24	23 30	23 40
18	18900		22 31	22 38	22 46	1038	23 01	23 07	23 14	23 20	23 26	23 34	23 41	23 46	23 54	00 01	00 10
18	18920		23 01	23 08	23 16	1238	23 31	23 37	23 44	23 50	23 56	00 04	00 11	00 16	00 24	00 30	00 40
18	18930		23 31	23 38	23 46	1490	00 01	→	→	→	→	→	→	00 30			
						1492	00 31	→	→	→	→	→	→	01 00			
						1494	01 01	→	→	→	→	→	→	01 30			
						1496	01 31	→	→	→	→	→	→	02 00			
						1498	02 01	→	→	→	→	→	→	02 30			

Saturday and Sunday Samedi et dimanche																	
WESTBOUND / EN DIRECTION OUEST																	
Route Number Numéro du trajet	Trip Number Numéro du parcours	Exception 1	Toronto 2 Dp	Toronto 2	Etobicoke 79	Etobicoke 59	Mississauga 10	Mississauga 12	Oakville 13	Oakville 14	Burlington 15	Burlington 16	Burlington 17	Ar	Transfer -Correspondances Trip Number/Numéro du parcours	Burlington 17 Dp	Hamilton 18 Ar
																	
18	1203		06 43	06 50	06 58	07 04	07 10	07 16	07 24	07 30	07 37	07 44	07 51		18081	07 59	08 06
18	1005		07 13	07 20	07 28	07 34	07 40	07 46	07 54	08 00	08 07	08 14	08 21		18111	08 29	08 36
18	1205		07 43	07 50	07 58	08 04	08 10	08 16	08 24	08 30	08 37	08 44	08 51		18131	08 59	09 06
18	1007		08 13	08 20	08 28	08 34	08 40	08 46	08 54	09 00	09 07	09 14	09 21		18151	09 29	09 36
18	1207		08 43	08 50	08 58	09 04	09 10	09 16	09 24	09 30	09 37	09 44	09 51		18171	09 59	10 06
18	1009		09 13	09 20	09 28	09 34	09 40	09 46	09 54	10 00	10 07	10 14	10 21		18191	10 29	10 36
18	1209		09 43	09 50	09 58	10 04	10 10	10 16	10 24	10 30	10 37	10 44	10 51		18201	10 59	11 06
18	1011		10 13	10 20	10 28	10 34	10 40	10 46	10 54	11 00	11 07	11 14	11 21		18221	11 29	11 36
18	1211		10 43	10 50	10 58	11 04	11 10	11 16	11 24	11 30	11 37	11 44	11 51		18241	11 59	12 06
18	1013		11 13	11 20	11 28	11 34	11 40	11 46	11 54	12 00	12 07	12 14	12 21		18261	12 29	12 37
18	1213		11 43	11 50	11 58	12 04	12 10	12 16	12 24	12 30	12 37	12 44	12 51		18281	12 59	13 07
18	1015		12 13	12 20	12 28	12 34	12 40	12 46	12 54	13 00	13 07	13 14	13 21		18301	13 29	13 37
18	1215		12 43	12 50	12 58	13 04	13 10	13 16	13 24	13 30	13 37	13 44	13 51		18331	13 59	14 07
18	1017		13 13	13 20	13 28	13 34	13 40	13 46	13 54	14 00	14 07	14 14	14 21		18371	14 29	14 37
18	1217		13 43	13 50	13 58	14 04	14 10	14 16	14 24	14 30	14 37	14 44	14 51		18411	14 59	15 07
18	1019		14 13	14 20	14 28	14 34	14 40	14 46	14 54	15 00	15 07	15 14	15 21		18451	15 29	15 37
18	1219		14 43	14 50	14 58	15 04	15 10	15 16	15 24	15 30	15 37	15 44	15 51		18491	15 59	16 07
18	1021		15 13	15 20	15 28	15 34	15 40	15 46	15 54	16 00	16 07	16 14	16 21		18511	16 29	16 37
18	1221		15 43	15 50	15 58	16 04	16 10	16 16	16 24	16 30	16 37	16 44	16 51		18541	16 59	17 07
18	1023		16 13	16 20	16 28	16 34	16 40	16 46	16 54	17 00	17 07	17 14	17 21		18591	17 29	17 37
18	1223		16 43	16 50	16 58	17 04	17 10	17 16	17 24	17 30	17 37	17 44	17 51		18641	17 59	18 07
18	1025		17 13	17 20	17 28	17 34	17 40	17 46	17 54	18 00	18 07	18 14	18 21		18681	18 29	18 37

Saturday and Sunday Samedi et dimanche																	
WESTBOUND / EN DIRECTION OUEST																	
Route Number Numéro du trajet	Trip Number Numéro du parcours	Exception 1	Toronto 2 Dp	Toronto 2	Etobicoke 79	Etobicoke 59	Mississauga 10	Mississauga 12	Oakville 13	Oakville 14	Burlington 15	Burlington 16	Burlington 17	Ar	Transfer -Correspondances Trip Number/Numéro du parcours	Burlington 17 Dp	Hamilton 18 Ar
																	
18	1225		17 43	17 50	17 58	18 04	18 10	18 16	18 24	18 30	18 37	18 44	18 51		18721	18 59	19 06
18	1027		18 13	18 20	18 28	18 34	18 40	18 46	18 54	19 00	19 07	19 14	19 21		18751	19 29	19 36
18	1227		18 43	18 50	18 58	19 04	19 10	19 16	19 24	19 30	19 37	19 44	19 51		18781	19 59	20 06
18	1029		19 13	19 20	19 28	19 34	19 40	19 46	19 54	20 00	20 07	20 14	20 21		18801	20 29	20 36
18	1229		19 43	19 50	19 58	20 04	20 10	20 16	20 24	20 30	20 37	20 44	20 51		18841	20 59	21 06
18	1031		20 13	20 20	20 28	20 34	20 40	20 46	20 54	21 00	21 07	21 14	21 21		18851	21 29	21 36
18	1231		20 43	20 50	20 58	21 04	21 10	21 16	21 24	21 30	21 37	21 44	21 51		18871	21 59	22 06
18	1033		21 13	21 20	21 28	21 34	21 40	21 46	21 54	22 00	22 07	22 14	22 21		18881	22 29	22 36
18	1233		21 43	21 50	21 58	22 04	22 10	22 16	22 24	22 30	22 37	22 44	22 51		18901	22 59	23 06
18	1035		22 13	22 20	22 28	22 34	22 40	22 46	22 54	23 00	23 07	23 14	23 21		18911	23 29	23 36
18	1235		22 43	22 50	22 58	23 04	23 10	23 16	23 24	23 30	23 37	23 44	23 51		18931	23 59	00 06
18	1037		23 13	23 20	23 28	23 34	23 40	23 46	23 54	00 00	00 07	00 14	00 21		18941	00 29	00 36
18	1237		23 43	23 50	23 58	00 04	00 10	00 16	00 24	00 30	00 37	00 44	00 51		18961	00 59	01 06
18	1039		00 13	00 20	00 28	00 34	00 40	00 46	00 54	01 00	01 07	01 14	01 21		18971	01 29	01 36
18	1239		00 43	00 50	00 58	01 04	01 10	01 16	01 24	01 30	01 37	01 44	01 51		18981	01 59	02 06
18D	18993	Sat	01 30	→	→	→	01 48	02 00									
18F	18991	Sat	01 30	→	→	→	→	→	01 57	02 05	02 15	02 23	02 33	→		02 33	D02 40
18C	18991	Sun	01 30	→	→	→	01 48	01 58	02 07	02 15	02 25	02 33	02 43	→		02 43	D02 50
18C	18995	Sat	02 00	→	→	→	02 18	02 28	02 37	02 45	02 55	03 03	03 13	→		03 13	D03 20
18D	18989	Sat	02 30	→	→	→	02 48	03 00									
18F	18997	Sat	02 30	→	→	→	→	→	02 57	03 05	03 15	03 23	03 33	→		03 33	D03 40
18C	18999	Sun	02 30	→	→	→	02 48	02 58	03 07	03 15	03 25	03 33	03 43	→		03 43	D03 50

Appendix B

Existing traffic conditions

HCM Unsignalized Intersection Capacity Analysis

1: Cline Ave S & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	1915	10	42	2109	77	3	0	27	10	0	3
Future Volume (Veh/h)	6	1915	10	42	2109	77	3	0	27	10	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	6	2016	11	44	2220	81	3	0	28	11	0	3
Pedestrians								21			20	
Lane Width (m)								3.3			3.3	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								2			2	
Right turn flare (veh)												
Median type		TWLT			TWLT							
Median storage (veh)		2			2							
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2321			2048			3256	4464	698	3080	4428	1170
vC1, stage 1 conf vol							2054	2054		2368	2368	
vC2, stage 2 conf vol							1201	2409		712	2060	
vCu, unblocked vol	2321			2048			3256	4464	698	3080	4428	1170
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			83			94	100	93	62	100	98
cM capacity (veh/h)	214			256			50	40	381	29	35	186
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	6	806	806	414	44	1480	821	31	14			
Volume Left	6	0	0	0	44	0	0	3	11			
Volume Right	0	0	0	11	0	0	81	28	3			
cSH	214	1700	1700	1700	256	1700	1700	233	35			
Volume to Capacity	0.03	0.47	0.47	0.24	0.17	0.87	0.48	0.13	0.40			
Queue Length 95th (m)	0.7	0.0	0.0	0.0	4.6	0.0	0.0	3.4	10.0			
Control Delay (s)	22.3	0.0	0.0	0.0	22.0	0.0	0.0	22.8	162.4			
Lane LOS	C				C			C	F			
Approach Delay (s)	0.1				0.4			22.8	162.4			
Approach LOS								C	F			
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			71.0%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Dow Ave/Commercial Access & Main St W

GHD

																			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Traffic Volume (veh/h)	5	1912	14	35	2227	11	3	0	28	1	0	1							
Future Volume (Veh/h)	5	1912	14	35	2227	11	3	0	28	1	0	1							
Sign Control	Free				Free				Stop		Stop								
Grade	0%				0%				0%		0%								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95							
Hourly flow rate (vph)	5	2013	15	37	2344	12	3	0	29	1	0	1							
Pedestrians								21		56									
Lane Width (m)								3.3		3.3									
Walking Speed (m/s)								1.2		1.2									
Percent Blockage								2		4									
Right turn flare (veh)																			
Median type	TWLTL			TWLTL															
Median storage veh	2			2															
Upstream signal (m)																			
pX, platoon unblocked																			
vC, conflicting volume	2412			2049			3298	4538	700	3190	4539	1234							
vC1, stage 1 conf vol							2052	2052			2480	2480							
vC2, stage 2 conf vol							1247	2486			710	2059							
vCu, unblocked vol	2412			2049			3298	4538	700	3190	4539	1234							
tC, single (s)	4.1			4.1			8.2	6.5	6.9	7.5	6.5	6.9							
tC, 2 stage (s)							7.2	5.5			6.5	5.5							
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.3							
p0 queue free %	97			86			91	100	92	96	100	99							
cM capacity (veh/h)	192			274			34	38	380	25	35	164							
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1										
Volume Total	5	805	805	418	37	1563	793	32	2										
Volume Left	5	0	0	0	37	0	0	3	1										
Volume Right	0	0	0	15	0	0	12	29	1										
cSH	192	1700	1700	1700	274	1700	1700	195	43										
Volume to Capacity	0.03	0.47	0.47	0.25	0.14	0.92	0.47	0.16	0.05										
Queue Length 95th (m)	0.6	0.0	0.0	0.0	3.5	0.0	0.0	4.4	1.1										
Control Delay (s)	24.2	0.0	0.0	0.0	20.2	0.0	0.0	27.0	92.3										
Lane LOS	C					C			D	F									
Approach Delay (s)	0.1					0.3			27.0	92.3									
Approach LOS							D			F									
Intersection Summary																			
Average Delay				0.4															
Intersection Capacity Utilization				71.9%	ICU Level of Service				C										
Analysis Period (min)				15															

HCM Unsignalized Intersection Capacity Analysis

1: Cline Ave S & Main St W

GHD

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Traffic Volume (veh/h)	14	2491	6	38	1696	31	3	0	43	23	0	18								
Future Volume (Veh/h)	14	2491	6	38	1696	31	3	0	43	23	0	18								
Sign Control	Free			Free			Stop			Stop										
Grade	0%			0%			0%			0%										
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98								
Hourly flow rate (vph)	14	2542	6	39	1731	32	3	0	44	23	0	18								
Pedestrians								30	20											
Lane Width (m)								3.3	3.3											
Walking Speed (m/s)								1.2	1.2											
Percent Blockage								2	2											
Right turn flare (veh)																				
Median type	TWLTL			TWLTL																
Median storage veh)	2			2																
Upstream signal (m)																				
pX, platoon unblocked																				
vC, conflicting volume	1783			2578			3564	4464	880	2764	4451	902								
vC1, stage 1 conf vol							2603	2603			1845	1845								
vC2, stage 2 conf vol							962	1861			919	2606								
vCu, unblocked vol	1783			2578			3564	4464	880	2764	4451	902								
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9								
tC, 2 stage (s)							6.5	5.5			6.6	5.5								
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3								
p0 queue free %	96			77			87	100	85	57	100	94								
cM capacity (veh/h)	347			169			23	39	287	53	9	280								
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1											
Volume Total	14	1017	1017	514	39	1154	609	47	41											
Volume Left	14	0	0	0	39	0	0	3	23											
Volume Right	0	0	0	6	0	0	32	44	18											
cSH	347	1700	1700	1700	169	1700	1700	167	82											
Volume to Capacity	0.04	0.60	0.60	0.30	0.23	0.68	0.36	0.28	0.50											
Queue Length 95th (m)	1.0	0.0	0.0	0.0	6.5	0.0	0.0	8.3	16.0											
Control Delay (s)	15.8	0.0	0.0	0.0	32.7	0.0	0.0	34.9	85.8											
Lane LOS	C					D			D	F										
Approach Delay (s)	0.1					0.7			34.9	85.8										
Approach LOS				D			F													
Intersection Summary																				
Average Delay										1.5										
Intersection Capacity Utilization							64.0%	ICU Level of Service					B							
Analysis Period (min)							15													

HCM Unsignalized Intersection Capacity Analysis

2: Dow Ave/Commercial Access & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	2554	4	21	1753	9	2	0	20	16	1	8
Future Volume (Veh/h)	3	2554	4	21	1753	9	2	0	20	16	1	8
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	3	2580	4	21	1771	9	2	0	20	16	1	8
Pedestrians	3			1			49			33		
Lane Width (m)	3.3			3.3			3.3			3.3		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	0			0			4			3		
Right turn flare (veh)												
Median type	TWLTL			TWLTL								
Median storage veh	2			2								
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1813			2633			3576	4492	912	2738	4490	926
vC1, stage 1 conf vol							2637	2637		1850	1850	
vC2, stage 2 conf vol							939	1855		887	2639	
vCu, unblocked vol	1813			2633			3576	4492	912	2738	4490	926
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			87			91	100	93	74	96	97
cM capacity (veh/h)	335			158			23	41	270	62	24	267
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1			
Volume Total	3	1032	1032	520	21	1181	599	22	25			
Volume Left	3	0	0	0	21	0	0	2	16			
Volume Right	0	0	0	4	0	0	9	20	8			
cSH	335	1700	1700	1700	158	1700	1700	135	76			
Volume to Capacity	0.01	0.61	0.61	0.31	0.13	0.69	0.35	0.16	0.33			
Queue Length 95th (m)	0.2	0.0	0.0	0.0	3.4	0.0	0.0	4.3	9.3			
Control Delay (s)	15.9	0.0	0.0	0.0	31.3	0.0	0.0	36.7	73.6			
Lane LOS	C				D			E	F			
Approach Delay (s)	0.0				0.4			36.7	73.6			
Approach LOS								E	F			
Intersection Summary												
Average Delay	0.8											
Intersection Capacity Utilization	63.0%			ICU Level of Service					B			
Analysis Period (min)	15											

Appendix C
Excerpts of City's Rapid Transit Initiative
Acoustic Assessment & traffic growth review

**City of Hamilton Rapid Transit
Initiative Acoustic Assessment
Report - FINAL**

March 2009



City of Hamilton
08-1310

Submitted by
Dillon Consulting Limited

2.1 Current (2008) Condition

This scenario consists of the current road configuration and current traffic conditions. Existing peak PM traffic volumes for the primary road segments along Main St. and King St. of the study area were provided in Exhibits 1 and 2 in Appendix B of the Rapid Transit Feasibility Study. This data is presented in Table 1.

The percentage of truck traffic was based on traffic volume and class data recorded by the City of Hamilton (the City) at King St. west of Wellington St. N and Main St. west of Wellington St. N. The respective percentages were assumed to be consistent on all road segments of Main St. and King St. that are under study. The percentage truck traffic on Main St. and King St. were estimated to be 3.0% and 2.2%, respectively. Traffic speed was assumed to be 50 km/h along subject routes (except west of Dundurn St. for which a flow speed of 60 km/h was used, based on information provided by the City).

Table 1 – Current 2008 Peak PM Peak Traffic Volumes

Road Segment	PM Peak (veh/ hr)	
	EB	WB
Main Street (West to East)		
West of Cootes/ Leland	1000	1500
Cootes/ Leland to McMaster Entrance/ Emerson	1700	2300
McMaster Entrance/ Emerson to Haddon/ Bowman	1500	1900
Haddon/ Bowman to 403	2200	1700
403 to Longwood	1800	1500
Longwood to Dundurn	2800	-
Dundurn to Locke	2900	-
Locke to Queen	2800	-
Queen to Bay	2400	-
Bay to James	3000	-
James to John	3000	-
John to Catharine	2500	-
Catharine to Wellington	2600	-
Wellington to Victoria	2400	-
Victoria to Wentworth	2400	-
Wentworth to Sanford	2400	-
Sanford to Sherman	2300	-
Sherman to Gage	2400	-
Gage to King	2400	-
King to Ottawa	1400	800
Ottawa to Kenilworth	1200	1000

2.3 Future 2031 Mature State of Development – with-LRT Option 1

The with-LRT Option 1 consists of the LRT and vehicular traffic travelling in both directions on Main Street west of Paradise Road South. Between Paradise Road South and the intersection of Main and King Streets, the LRT and traffic travels east only on Main Street and west only on King Street. East of the Main and King intersection the LRT and traffic again travels in both directions along Main St.

The 2031 traffic volumes with the LRT were determined by applying a compounded annual growth rate of 2% to the 2008 1-hour PM peak traffic volumes, followed by a 25% reduction in non-commercial vehicular traffic and replacement of express buses along subject routes with the LRT. The PM peak traffic volumes for the roadway segments modelled is presented Table 3, below. As a result of the reduced volume in non-commercial traffic volumes, the percentage truck traffic on Main St. and King St. were estimated to be 5.6% and 3.5%, respectively.

The current 2008 city bus transit volumes were also assumed to remain the same in 2031 for both the no-build and with-LRT cases. For the future with-LRT scenarios, the express buses along the subject routes were assumed to be replaced by the proposed LRT. Traffic speed was assumed to be 50 km/h along subject routes (except west of Dundurn St. for which a flow speed of 60 km/h was used, based on information provided by the City). The LRT was assumed to be 26 m in length with a travel speed of 50 km/h. The peak frequency of 12 LRTs per hour on each route was assumed for modelling purposes. For Option 1 the number of traffic lanes on both Main St. and King St. was reduced by one.

Table 3 – Peak PM Volumes for 2031 with-LRT Option 1 Condition

Road Segment	PM Peak (veh/ hr)	
	EB	WB
Main Street (West to East)		
West of Cootes/ Leland	1183	1774
Cootes/ Leland to McMaster Entrance/ Emerson	2011	2720
McMaster Entrance/ Emerson to Haddon/ Bowman	1774	2247
Haddon/ Bowman to 403	2602	2011
403 to Longwood	2129	1774
Longwood to Dundurn	3311	-
Dundurn to Locke	3430	-
Locke to Queen	3311	-
Queen to Bay	2838	-
Bay to James	3548	-

system in place and two-way traffic on all sections of Main and King Streets. The methodology described above in Section 2.3 was used in predicting the 2031 traffic volumes with the LRT.

To account for the proposed two-way traffic on Main and King streets, traffic volumes for the one-way road segments between Paradise Road South to the King Street and Main Street intersection described above in Option 1, were halved and assigned to the eastbound and westbound traffic. The peak PM traffic volumes for the roadway segments modelled can be found in Table 4. As a result of the reduced volume in non-commercial traffic volumes, the percentage truck traffic on Main St. and King St. were estimated to be 5.6% and 3.5%, respectively.

The current 2008 city bus transit volumes were also assumed to remain the same in 2031 for both the no-build and with-LRT cases. For the future with-LRT scenarios, the express buses along the subject routes were assumed to be replaced by the proposed LRT. Traffic speed was assumed to be 50 km/h along subject routes (except west of Dundurn St. for which a flow speed of 60 km/h was used, based on information provided by the City). The LRT was assumed to be 26 m in length with a speed of 50 km/h. The peak frequency of 12 LRTs per hour on each east-bound and west-bound route was assumed for modelling purposes. For Option 2 the number of traffic lanes on King St. was reduced by two.

Table 4 – Peak PM Volumes for 2031 with-LRT Option 2 Condition

Road Segment	PM Peak (veh/ hr)	
	EB	WB
Main Street (West to East)		
West of Cootes/ Leland	1183	1774
Cootes/ Leland to McMaster Entrance/ Emerson	2011	2720
McMaster Entrance/ Emerson to Haddon/ Bowman	1774	2247
Haddon/ Bowman to 403	2602	2011
403 to Longwood	2129	1774
Longwood to Dundurn	1656	2129
Dundurn to Locke	1715	1951
Locke to Queen	1656	1537
Queen to Bay	1419	1360
Bay to James	1774	946
James to John	1774	946
John to Catharine	1478	710
Catharine to Wellington	1537	1360
Wellington to Victoria	1419	946

Main St Eastbound, Haddon / Bowman to 403 (2008-2031 Link Volumes) - Annual Growth Rate

First Year; 2008

Horizon; 2031

Overall Growth; 1.183

EB Volume 2,200

EB Volume 2,602

Span in Years; 23

Annual Growth Rate; 0.73%

Calculation Check (should = Overall Growth): 1.182727273

Formulae: =10^(LOG(overall growth)/number of years)-1

=(1+annual growth)^no of years

Main St Westbound, Haddon / Bowman to 403 (2008-2031 Link Volumes) - Annual Growth Rate

First Year; 2008

Horizon; 2031

Overall Growth; 1.183

WB Volume 1,700

WB Volume 2,011

Span in Years; 23

Annual Growth Rate; 0.73%

Calculation Check (should = Overall Growth): 1.182941176

Formulae: =10^(LOG(overall growth)/number of years)-1

=(1+annual growth)^no of years

Appendix D

Background traffic conditions

HCM Unsignalized Intersection Capacity Analysis

1: Cline Ave S & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑				↗			↗
Traffic Volume (veh/h)	0	2091	56	0	2332	89	0	0	32	0	0	14
Future Volume (Veh/h)	0	2091	56	0	2332	89	0	0	32	0	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	2201	59	0	2455	94	0	0	34	0	0	15
Pedestrians								21			20	
Lane Width (m)								3.3			3.3	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2569			2281			3494	4820	784	3290	4803	1294
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2569			2281			3494	4820	784	3290	4803	1294
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
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			100			100	100	90	100	100	90
cM capacity (veh/h)	171			206			2	1	335	3	1	153
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	880	880	499	1637	912	34	15					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	59	0	94	34	15					
cSH	1700	1700	1700	1700	1700	335	153					
Volume to Capacity	0.52	0.52	0.29	0.96	0.54	0.10	0.10					
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.6	2.4					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	17.0	31.0					
Lane LOS						C	D					
Approach Delay (s)	0.0			0.0		17.0	31.0					
Approach LOS						C	D					
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			77.4%			ICU Level of Service			D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Dow Ave/Commercial Access & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑				↗			↗
Traffic Volume (veh/h)	0	2076	53	0	2453	17	0	0	33	0	0	2
Future Volume (Veh/h)	0	2076	53	0	2453	17	0	0	33	0	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	2185	56	0	2582	18	0	0	35	0	0	2
Pedestrians								21			56	
Lane Width (m)								3.3			3.3	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								2			4	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2656			2262			3527	4890	777	3410	4909	1356
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2656			2262			3527	4890	777	3410	4909	1356
tC, single (s)	4.1			4.1			8.2	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	90	100	100	99
cM capacity (veh/h)	154			226			1	1	338	2	1	136
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	874	874	493	1721	879	35	2					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	56	0	18	35	2					
cSH	1700	1700	1700	1700	1700	338	136					
Volume to Capacity	0.51	0.51	0.29	1.01	0.52	0.10	0.01					
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.6	0.3					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	16.9	31.9					
Lane LOS						C	D					
Approach Delay (s)	0.0			0.0		16.9	31.9					
Approach LOS						C	D					
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			78.4%			ICU Level of Service			D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Cline Ave S & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2737	47	0	1881	49	0	0	50	0	0	44
Future Volume (Veh/h)	0	2737	47	0	1881	49	0	0	50	0	0	44
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	2793	48	0	1919	50	0	0	51	0	0	45
Pedestrians								30			20	
Lane Width (m)								3.3			3.3	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1989			2871			3852	4836	985	2946	4835	1004
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1989			2871			3852	4836	985	2946	4835	1004
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
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			100			100	100	79	100	100	81
cM capacity (veh/h)	289			129			1	1	245	5	1	240
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	1117	1117	607	1279	690	51	45					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	48	0	50	51	45					
cSH	1700	1700	1700	1700	1700	245	240					
Volume to Capacity	0.66	0.66	0.36	0.75	0.41	0.21	0.19					
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	5.8	5.1					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	23.5	23.5					
Lane LOS						C	C					
Approach Delay (s)	0.0			0.0		23.5	23.5					
Approach LOS						C	C					
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			64.0%			ICU Level of Service			B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Dow Ave/Commercial Access & Main St W

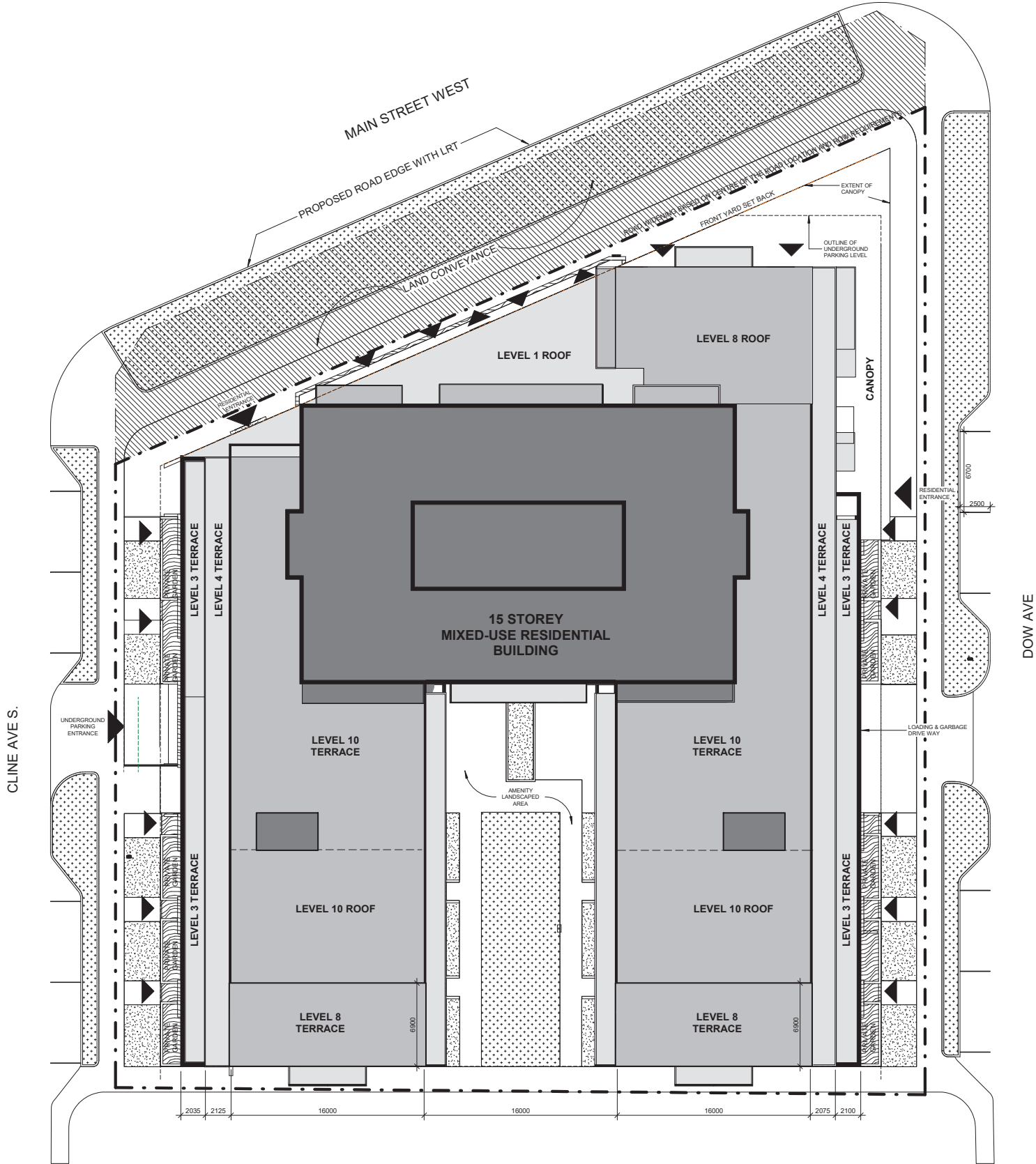
GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2786	28	0	1923	13	0	0	24	0	0	27
Future Volume (Veh/h)	0	2786	28	0	1923	13	0	0	24	0	0	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	2814	28	0	1942	13	0	0	24	0	0	27
Pedestrians		3			1			49			33	
Lane Width (m)		3.3			3.3			3.3			3.3	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			4			3	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1988			2891			3878	4865	1002	2944	4872	1014
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1988			2891			3878	4865	1002	2944	4872	1014
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
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			100			100	100	90	100	100	88
cM capacity (veh/h)	286			125			1	1	235	6	1	234
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	1126	1126	591	1295	660	24	27					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	28	0	13	24	27					
cSH	1700	1700	1700	1700	1700	235	234					
Volume to Capacity	0.66	0.66	0.35	0.76	0.39	0.10	0.12					
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.6	2.9					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	22.1	22.4					
Lane LOS						C	C					
Approach Delay (s)	0.0			0.0		22.1	22.4					
Approach LOS						C	C					
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			64.8%			ICU Level of Service			C			
Analysis Period (min)			15									

Appendix E
Site plan (residential unit breakdown)

Do not scale drawings. Contractors must check and verify all dimensions and report any discrepancies to the Architect before proceeding with the work. All documents remain the property of the Architect. Unauthorized use, modification, or reproduction of these documents is prohibited without written permission. The Contract Documents were prepared by the Consultant for the account of the Owner. The material contained herein reflects the Consultant's best judgment in light of the information available to him at the time of preparation. Any use which is a third party makes of the Contract Documents, or any reliance on or decisions to be made based on them are the responsibility of such third parties. The Consultant accepts no responsibility for damages, in any, suffered by any third party as a result of decisions made or actions based on the Contract Documents. C:\Users\kjensen\Documents\19052 - 1107 Main st W, Hamilton_V13_kjensen@srmarchitects.ca.rvt

1 SITE PLAN
1 : 200



SITE DATA		
1107 MAIN STREET WEST, HAMILTON, ONTARIO		
DATA	REQUIRED	PROVIDED
ZONING	ZONING - TOC-1	
LOT AREA - PRE ROAD WIDENING	XX (m²)	5,169.3 m²
LOT AREA - POST ROAD WIDENING	XX (m²)	4,517.0 m²
FRONT YARD (metres)	4.5 (m)	1.6 m
EXTERIOR SIDE YARD (m)	6 (m) CLINE AVE S.	5.4 m
EXTERIOR SIDE YARD (m)	6 (m) DOW AVE	5.3 m
REAR YARD (m)	7.5 (m)	1.7 m

BUILDING DATA		
DATA	REQUIRED	PROVIDED
TOTAL DENSITY (# of units)	XX (units)	310 units
BUILDING AREA (m²)	XX (m²)	2766.3 m² / 29777 SF
GROSS FLOOR AREA - ABOVE GRADE (m²)	XX (m²)	23125.7 m² / 248,924 SF
PROJECT FSR	XX (m²)	5.1
UG PARKING FLOOR AREA (m²)	XX (m²)	—
NUMBER OF STOREYS	—	15
BUILDING HEIGHT (m)	22 (m) MAX.	45 m (to roof)
COMMERCIAL/RETAIL AREA (m²)	XX (m²)	535.1 m² / 5,760.3 SF
RESIDENTIAL SALABLE AREA (M²)	XX (m²)	19,008.45 m² / 204,605.23 SF
AMENITY AREA (m²)	XX (m²)	251.15 m² / 2,703.4 SF

VEHICLE PARKING DATA		
DATA	REQUIRED	PROVIDED
RESIDENTIAL PARKING	XX	217
		0.64/UNIT
TOWNHOME PARKING (INCL.)	1.0 / units = 16	8 at grade
BARRIER FREE PARKING (INCL.)	1 + 3% = 6.55	9
VISITOR PARKING	0.1 / units = 30	0
COMMERCIAL PARKING	0.X / units	XX
TOTAL	185	234

PARKING STALL BREAKDOWN		
UNDER GROUND - LEVEL 3		77 STALLS
UNDER GROUND - LEVEL 2		75 STALLS
UNDER GROUND - LEVEL 1		74 STALLS
TOWNHOME- STREET PARKING		8 STALLS

BICYCLE PARKING DATA		
DATA	REQUIRED	PROVIDED
RESIDENTIAL BICYCLE PARKING		
SHORT TERM	5	0
LONG TERM	0.5 / units = 300x 0.5= 150	150
COMMERCIAL BICYCLE PARKING		
SHORT TERM	10	6
LONG TERM	2 / units (if 450 - 1000 m²) = 7x2 = 14	XX
TOTAL	179	156

TOTAL COMBINED UNIT BREAKDOWN		
DATA	PROVIDED	OVERALL %
BACHELOR	4 UNITS	1.2%
1 BEDROOM	166 UNITS	53.5%
2 BEDROOM	99 UNITS	32.0%
3 BEDROOM	24 UNITS	7.8%
1 STOREY FAMILY UNIT	11 (1, 2 AND 3 BEDS)	3.5%
2 STOREY TOWNS	6 UNITS	2.0%
GRAND TOTAL	310 UNITS	100%

8	2020-01-10	ISSUED FOR COORDINATION
7	2019-12-16	ISSUED FOR REVIEW
6	2019-10-21	ISSUED FOR COORDINATION
5	2019-10-02	ISSUED FOR REVIEW
4	2019-09-10	ISSUED FOR REVIEW
3	2019-07-19	ISSUED FOR REVIEW
2	2019-03-18	ISSUED FOR PRE-CONSULTATION
1	2019-03-12	ISSUED FOR OWNER REVIEW
No.	Date	Revision



Project No	19052
Project Date	2020-01-10
Drawn by	KMJ
Checked by	MYV
Plot Date / Time	2020-01-13 3:50:37 PM

1107 MAIN ST. W.
HAMILTON

SITE PLAN

PRELIMINARY

Drawing Scale	As indicated
Status	
RE-ZONING	
Drawing No.	Revision No.

A1.1 - r8

AREA SCHEDULE - UNITS BY TYPE

Unit - Name	Area	Count	
BACHELOR	319.74 SF	1	
BACHELOR	321.36 SF	2	
BACHELOR	321.48 SF	3	
BACHELOR	322.35 SF	4	
1 BED	328.15 SF	5	
1 BED	329.55 SF	6	
1 BED	381.64 SF	7	
1 BED	385.01 SF	8	
1 BED	398.72 SF	9	
1 BED	398.72 SF	10	
1 BED	398.72 SF	11	
1 BED	398.72 SF	12	
1 BED	398.72 SF	13	
1 BED	398.86 SF	14	
1 BED	398.86 SF	15	
1 BED	398.86 SF	16	
1 BED	398.86 SF	17	
1 BED	398.86 SF	18	
1 BED	409.01 SF	19	
1 BED	409.37 SF	20	
1 BED	409.37 SF	21	
1 BED	409.37 SF	22	
1 BED	409.37 SF	23	
1 BED	454.61 SF	24	
1 BED	454.85 SF	25	
1 BED	454.85 SF	26	
1 BED	454.85 SF	27	
1 BED	454.85 SF	28	
1 BED	454.85 SF	29	
1 BED	454.85 SF	30	
1 BED	454.85 SF	31	
1 BED	454.85 SF	32	
1 BED	454.85 SF	33	
1 BED	454.85 SF	34	
1 BED	454.85 SF	35	
1 BED	461.28 SF	36	
1 BED + DEN	475.21 SF	37	
1 BED + DEN	475.21 SF	38	
1 BED + DEN	475.21 SF	39	
1 BED + DEN	475.21 SF	40	
1 BED	475.21 SF	41	
1 BED	488.39 SF	42	
1 BED + DEN	497.75 SF	43	
1 BED + DEN	501.08 SF	44	
1 BED + DEN	501.43 SF	45	
1 BED + DEN	501.43 SF	46	

AREA SCHEDULE - UNITS BY TYPE

Unit - Name	Area	Count	
1 BED + DEN	501.43 SF	47	
1 BED + DEN	501.44 SF	48	
1 BED	501.44 SF	49	
1 BED + DEN	501.44 SF	50	
1 BED	512.49 SF	51	
1 BED	513.86 SF	52	
1 BED	514.51 SF	53	
1 BED	514.84 SF	54	
1 BED	515.09 SF	55	
1 BED	515.51 SF	56	
1 BED	515.76 SF	57	
1 BED	516.58 SF	58	
1 BED	516.58 SF	59	
1 BED	516.58 SF	60	
1 BED	516.61 SF	61	
1 BED	516.74 SF	62	
1 BED	516.74 SF	63	
1 BED	516.74 SF	64	
1 BED	520.22 SF	65	
1 BED + DEN	525.69 SF	66	
1 BED + DEN	525.69 SF	67	
1 BED + DEN	525.69 SF	68	
1 BED + DEN	525.69 SF	69	
1 BED + DEN	525.69 SF	70	
1 BED + DEN	526.93 SF	71	
1 BED + DEN	526.93 SF	72	
1 BED + DEN	526.93 SF	73	
1 BED + DEN	526.93 SF	74	
1 BED + DEN	526.93 SF	75	
1 BED + DEN	526.95 SF	76	
1 BED	527.93 SF	77	
1 BED	527.99 SF	78	
1 BED	527.99 SF	79	
1 BED	527.99 SF	80	
1 BED + DEN	528.17 SF	81	
1 BED + DEN	528.19 SF	82	
1 BED	530.11 SF	83	
1 BED	530.11 SF	84	
1 BED	530.11 SF	85	
1 BED	530.11 SF	86	
1 BED	533.94 SF	87	
1 BED	533.94 SF	88	
1 BED	533.94 SF	89	
1 BED	533.94 SF	90	
1 BED	533.94 SF	91	
1 BED	535.21 SF	92	92

AREA SCHEDULE - UNITS BY TYPE

Unit - Name	Area	Count	
1 BED + DEN	542.22 SF	1	
1 BED + DEN	542.63 SF	2	
1 BED + DEN	542.66 SF	3	
1 BED + DEN	543.16 SF	4	
1 BED + DEN	543.48 SF	5	
1 BED	544.82 SF	6	
1 BED + DEN	544.86 SF	7	
1 BED + DEN	544.86 SF	8	
1 BED + DEN	544.86 SF	9	
1 BED + DEN	545.49 SF	10	
1 BED + DEN	545.67 SF	11	
1 BED + DEN	545.67 SF	12	
1 BED + DEN	545.67 SF	13	
1 BED + DEN	545.69 SF	14	
1 BED + DEN	545.71 SF	15	
1 BED + DEN	545.89 SF	16	
1 BED + DEN	545.89 SF	17	
1 BED + DEN	545.89 SF	18	
1 BED	545.89 SF	19	
1 BED + DEN	545.89 SF	20	
1 BED + DEN	545.89 SF	21	
1 BED + DEN	545.89 SF	22	
1 BED + DEN	546.30 SF	23	
1 BED + DEN	546.30 SF	24	
1 BED + DEN	546.30 SF	25	
1 BED	546.76 SF	26	
1 BED + DEN	547.16 SF	27	
1 BED + DEN	547.16 SF	28	
1 BED + DEN	547.16 SF	29	
1 BED + DEN	547.19 SF	30	
1 BED + DEN	547.26 SF	31	
1 BED + DEN	547.53 SF	32	
1 BED + DEN	547.53 SF	33	
1 BED + DEN	547.53 SF	34	
1 BED + DEN	547.53 SF	35	
1 BED + DEN	547.53 SF	36	
1 BED + DEN	547.53 SF	37	
1 BED + DEN	547.53 SF	38	
1 BED + DEN	547.53 SF	39	
1 BED + DEN	547.53 SF	40	
1 BED + DEN	547.53 SF	41	
1 BED + DEN	547.53 SF	42	
1 BED	552.17 SF	43	
1 BED + DEN	554.27 SF	44	
1 BED	554.46 SF	45	
1 BED	557.23 SF	46	

AREA SCHEDULE - UNITS BY TYPE

Unit - Name	Area	Count	
2 BED	557.56 SF	47	
1 BED	557.76 SF	48	
2 BED	559.41 SF	49	
1 BED + DEN	567.82 SF	50	
1 BED + DEN	567.82 SF	51	
1 BED + DEN	567.82 SF	52	
1 BED + DEN	567.82 SF	53	
1 BED + DEN	567.82 SF	54	
1 BED + DEN	568.69 SF	55	
1 BED + DEN	569.02 SF	56	
1 BED + DEN	569.02 SF	57	
1 BED + DEN	569.02 SF	58	
1 BED + DEN	569.02 SF	59	
1 BED + DEN	569.02 SF	60	
1 BED + DEN	569.02 SF	61	
1 BED + DEN	569.02 SF	62	
1 BED + DEN	569.02 SF	63	
1 BED + DEN	569.02 SF	64	
1 BED + DEN	569.02 SF	65	
1 BED + DEN	569.02 SF	66	
1 BED + DEN	569.06 SF	67	
1 BED + DEN	572.26 SF	68	
1 BED + DEN	573.24 SF	69	
1 BED + DEN	575.64 SF	70	
2 BED	583.81 SF	71	
2 BED + DEN	647.73 SF	72	
2 BED + DEN	649.70 SF	73	
2 BED + DEN	649.70 SF	74	
2 BED + DEN	649.89 SF	75	
2 BED + DEN	650.50 SF	76	
2 BED + DEN	650.55 SF	77	
2 BED + DEN	655.01 SF	78	
2 BED	659.11 SF	79	
2 BED	662.89 SF	80	
2 BED	665.15 SF	81	
2 BED + DEN	665.32 SF	82	
2 BED + DEN	665.74 SF	83	
2 BED + DEN	665.74 SF	84	
2 BED + DEN	665.74 SF	85	
2 BED	666.50 SF	86	
2 BED	667.86 SF	87	
2 BED	668.28 SF	88	
2 BED	668.28 SF	89	
2 BED	668.63 SF	90	
2 BED	671.13 SF	91	
2 BED	673.16 SF	92	

AREA SCHEDULE - UNITS BY TYPE

Unit - Name	Area	Count	
2 BED	673.28 SF	93	
2 BED	673.28 SF	94	
2 BED	673.28 SF	95	
2 BED	682.83 SF	96	
2 BED	682.83 SF	97	
2 BED	682.83 SF	98	
2 BED	682.83 SF	99	
2 BED	682.83 SF	100	
2 BED	685.23 SF	101	
1 BED + DEN	690.72 SF	102	
1 BED + DEN	694.43 SF	103	
1 BED + DEN	694.43 SF	104	
1 BED + DEN	694.43 SF	105	
2 BED	695.99 SF	106	
2 BED	695.99 SF	107	
2 BED	695.99 SF	108	
2 BED	695.99 SF	109	
2 BED	695.99 SF	110	
2 BED	697.48 SF	111	
2 BED	698.84 SF	112	
2 BED	698.84 SF	113	
2 BED	698.84 SF	114	
2 BED	698.84 SF	115	
2 BED	698.84 SF	116	
2 BED	699.59 SF	117	
2 BED	700.93 SF	118	
2 BED	703.78 SF	119	
2 BED	703.94 SF	120	
2 BED	703.94 SF	121	
2 BED	703.94 SF	122	
2 BED	704.07 SF	123	
2 BED	704.07 SF	124	
2 BED	704.07 SF	125	
2 BED	704.07 SF	126	
2 BED	704.07 SF	127	
2 BED	704.07 SF	128	
2 BED	704.85 SF	129	
2 BED	706.46 SF	130	
2 BED	706.46 SF	131	
2 BED	706.46 SF	132	
2 BED	707.25 SF	133	
2 BED	707.25 SF	134	
2 BED	707.25 SF	135	
2 BED	707.25 SF	136	
2 BED	707.25 SF	137	
1 BED + DEN	711.97 SF	138	

AREA SCHEDULE - UNITS BY TYPE

Unit - Name	Area	Count	
2 BED	714.71 SF	139	
1 BED + DEN	715.77 SF	140	
1 BED + DEN	716.47 SF	141	
1 BED + DEN	716.80 SF	142	
1 BED + DEN	716.80 SF	143	
1 BED + DEN	716.80 SF	144	
2 BED	717.28 SF	145	
2 BED	725.80 SF	146	
2 BED	725.80 SF	147	
2 BED	725.80 SF	148	
2 BED	725.80 SF	149	
2 BED	733.71 SF	150	
2 BED	737.47 SF	151	
2 BED + DEN	739.07 SF	152	
2 BED + DEN	739.07 SF	153	
2 BED + DEN	739.07 SF	154	
2 BED + DEN	739.49 SF	155	
2 BED + DEN	739.49 SF	156	
2 BED	740.53 SF	157	
2 BED + DEN	750.85 SF	158	
2 BED	751.22 SF	159	
2 BED + DEN	753.16 SF	160	
2 BED + DEN	754.64 SF	161	
2 BED + DEN	754.64 SF	162	
2 BED + DEN	754.64 SF	163	
2 BED + DEN	754.64 SF	164	
2 BED	754.67 SF	165	
2 BED + DEN	755.08 SF	166	
2 BED	755.71 SF	167	
2 BED	756.08 SF	168	
2 BED	756.08 SF	169	
2 BED	756.08 SF	170	
2 BED + DEN	757.31 SF	171	
2 BED + DEN	757.92 SF	172	
2 BED + DEN	758.11 SF	173	
2 BED	763.81 SF	174	
2 BED FAMILY UNIT	785.62 SF	175	
2 BED FAMILY UNIT	839.27 SF	176	
2 BED FAMILY UNIT	841.73 SF	177	
3 BED	861.65 SF	178	
3 BED	862.14 SF	179	
3 BED	863.45 SF	180	
3 BED	863.83 SF	181	
3 BED	863.83 SF	182	
3 BED	863.83 SF	183	
3 BED	907.18 SF	184	

AREA SCHEDULE - UNITS BY TYPE

Unit - Name	Area	Count	
3 BED	908.22 SF	185	
2 BED + DEN	923.30 SF	186	
3 BED + DEN	1001.13 SF	187	
2 BED FAMILY UNIT	1039.73 SF	188	
2 BED TOWN (A)	1042.97 SF	189	
2 BED FAMILY UNIT	1056.12 SF	190	
2 BED + DEN	1094.13 SF	191	
2 BED + DEN	1099.16 SF	192	
3 BED	1118.66 SF	193	
3 BED -Family Unit	1153.30 SF	194	
3 BED + DEN	1153.85 SF	195	
3 BED + DEN	1156.42 SF	196	
3 BED + DEN	1156.42 SF	197	
3 BED + DEN	1156.42 SF	198	
3 BED + DEN	1156.61 SF	199	
3 BED + DEN	1163.78 SF	200	
3 BED + DEN	1164.40 SF	201	
2 BED TOWN (C)	1178.29 SF	202	
2 BED TOWN (B)	1182.05 SF	203	
3 BED + DEN	1187.86 SF	204	
3 BED + DEN	1190.58 SF	205	
3 BED + DEN	1190.58 SF	206	
3 BED + DEN	1190.58 SF	207	
3 BED + DEN	1191.02 SF	208	
3 BED + DEN	1194.70 SF	209	
3 BED + DEN	1198.97 SF	210	
2 BED TOWN (E)	1293.05 SF	211	
3 BED -Family Unit	1343.32 SF	212	
3 BED -Family Unit	1357.44 SF	213	
2 BED TOWN (D)	1432.78 SF	214	
2 BED -Town (G)	1436.48 SF	215	
3 BED -Family Unit	1564.47 SF	216	
3 BED -Town (F)	1557.58 SF	217	
3 BED -Family Unit	1580.36 SF	218	218

Appendix F

Total traffic conditions

HCM Unsignalized Intersection Capacity Analysis

1: Cline Ave S & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑				↗			↗
Traffic Volume (veh/h)	0	2091	80	0	2408	89	0	0	108	0	0	14
Future Volume (Veh/h)	0	2091	80	0	2408	89	0	0	108	0	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	2201	84	0	2535	94	0	0	114	0	0	15
Pedestrians								21			20	
Lane Width (m)								3.3			3.3	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2649			2306			3546	4913	797	3450	4908	1334
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2649			2306			3546	4913	797	3450	4908	1334
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
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			100			100	100	65	100	100	90
cM capacity (veh/h)	159			202			2	1	329	2	1	144
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	880	880	524	1690	939	114	15					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	84	0	94	114	15					
cSH	1700	1700	1700	1700	1700	329	144					
Volume to Capacity	0.52	0.52	0.31	0.99	0.55	0.35	0.10					
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	11.5	2.6					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	21.7	32.8					
Lane LOS						C	D					
Approach Delay (s)	0.0			0.0		21.7	32.8					
Approach LOS						C	D					
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			79.5%			ICU Level of Service			D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Dow Ave/Commercial Access & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑				↗			↗
Traffic Volume (veh/h)	0	2152	53	0	2529	17	0	0	33	0	0	2
Future Volume (Veh/h)	0	2152	53	0	2529	17	0	0	33	0	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	2265	56	0	2662	18	0	0	35	0	0	2
Pedestrians								21			56	
Lane Width (m)								3.3			3.3	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								2			4	
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2736			2342			3647	5050	804	3517	5069	1396
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2736			2342			3647	5050	804	3517	5069	1396
tC, single (s)	4.1			4.1			8.2	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	89	100	100	98
cM capacity (veh/h)	143			210			1	1	325	2	1	127
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	906	906	509	1775	905	35	2					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	56	0	18	35	2					
cSH	1700	1700	1700	1700	1700	325	127					
Volume to Capacity	0.53	0.53	0.30	1.04	0.53	0.11	0.02					
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.7	0.4					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	17.4	33.7					
Lane LOS						C	D					
Approach Delay (s)	0.0			0.0		17.4	33.7					
Approach LOS						C	D					
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			80.5%			ICU Level of Service				D		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

3: Cline Ave S & Site Access

GHD

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	76	32	0	24	56
Future Volume (Veh/h)	0	76	32	0	24	56
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)	0	83	35	0	26	61
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	148	35			35	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	148	35			35	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			98	
cM capacity (veh/h)	835	1044			1589	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	83	35	87			
Volume Left	0	0	26			
Volume Right	83	0	0			
cSH	1044	1700	1589			
Volume to Capacity	0.08	0.02	0.02			
Queue Length 95th (m)	2.0	0.0	0.4			
Control Delay (s)	8.7	0.0	2.3			
Lane LOS	A		A			
Approach Delay (s)	8.7	0.0	2.3			
Approach LOS	A					
Intersection Summary						
Average Delay		4.5				
Intersection Capacity Utilization		22.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

1: Cline Ave S & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2737	117	0	1925	49	0	0	94	0	0	44
Future Volume (Veh/h)	0	2737	117	0	1925	49	0	0	94	0	0	44
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	2793	119	0	1964	50	0	0	96	0	0	45
Pedestrians								30			20	
Lane Width (m)								3.3			3.3	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2034			2942			3910	4916	1020	3036	4951	1027
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2034			2942			3910	4916	1020	3036	4951	1027
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
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			100			100	100	59	100	100	81
cM capacity (veh/h)	278			121			1	1	232	3	1	232
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	1117	1117	678	1309	705	96	45					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	119	0	50	96	45					
cSH	1700	1700	1700	1700	1700	232	232					
Volume to Capacity	0.66	0.66	0.40	0.77	0.41	0.41	0.19					
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	14.5	5.3					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	31.0	24.3					
Lane LOS						D	C					
Approach Delay (s)	0.0			0.0		31.0	24.3					
Approach LOS						D	C					
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			68.1%			ICU Level of Service			C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Dow Ave/Commercial Access & Main St W

GHD

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑				↗			↗
Traffic Volume (veh/h)	0	2830	28	0	1967	13	0	0	24	0	0	27
Future Volume (Veh/h)	0	2830	28	0	1967	13	0	0	24	0	0	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	2859	28	0	1987	13	0	0	24	0	0	27
Pedestrians		3			1			49			33	
Lane Width (m)		3.3			3.3			3.3			3.3	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			4			3	
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2033			2936			3946	4955	1017	3004	4962	1036
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2033			2936			3946	4955	1017	3004	4962	1036
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
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			100			100	100	90	100	100	88
cM capacity (veh/h)	275			120			1	1	230	5	1	226
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	1144	1144	600	1325	675	24	27					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	28	0	13	24	27					
cSH	1700	1700	1700	1700	1700	230	226					
Volume to Capacity	0.67	0.67	0.35	0.78	0.40	0.10	0.12					
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.6	3.1					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	22.5	23.1					
Lane LOS						C	C					
Approach Delay (s)	0.0			0.0		22.5	23.1					
Approach LOS						C	C					
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			65.8%			ICU Level of Service			C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

3: Cline Ave S & Site Access

GHD

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	44	50	0	70	47
Future Volume (Veh/h)	0	44	50	0	70	47
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)	0	48	54	0	76	51
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	257	54			54	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	257	54			54	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			95	
cM capacity (veh/h)	700	1019			1564	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	48	54	127			
Volume Left	0	0	76			
Volume Right	48	0	0			
cSH	1019	1700	1564			
Volume to Capacity	0.05	0.03	0.05			
Queue Length 95th (m)	1.1	0.0	1.2			
Control Delay (s)	8.7	0.0	4.6			
Lane LOS	A		A			
Approach Delay (s)	8.7	0.0	4.6			
Approach LOS	A					
Intersection Summary						
Average Delay			4.4			
Intersection Capacity Utilization			23.0%	ICU Level of Service		A
Analysis Period (min)			15			

Appendix G
City's Parking By-Law requirements
and parking survey summary

SECTION 5: PARKING**ZONING BY-LAW**

1000 or more spaces	Minimum 11 + 1% of the total number of required parking spaces.
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- b) Subsection 5.5 a) shall not apply to Single Detached Dwellings, Semi-Detached Dwellings, Duplex Dwellings and Street Townhouses abutting a public street.
- c) Where the application of the parking standards in Section a) above results in a numeric fraction, fractions shall be rounded down to the nearest whole number.

(By-law No. 06-324, October 25, 2006)

(By-law No. 16-265, October 12, 2016)

(By-law No. 18-219, August 17, 2018)

(By-law No. 19-062, March 27, 2019)

5.6 PARKING SCHEDULES

Parking spaces shall be provided in the minimum quantity specified in Column 2 hereunder for each use listed in Column 1, subject to the provisions of Subsection b) herein:

- a) Parking Schedule for All Downtown Zones

Column 1			Column 2	
i. Residential Uses				
Single Detached Dwelling, Semi-Detached Dwelling, Street Townhouse Dwelling Duplex Dwelling, Dwelling Unit			0 parking spaces per unit.	
a)	Multiple Dwelling		Minimum	Maximum
	i)	Dwelling units less than 50.0 square metres in gross floor area		
		Units 1-12	0 per unit	1.25 per unit
		Units 13+	0.3 per unit	

SECTION 5: PARKING**ZONING BY-LAW**

	ii)	Units greater than 50.0 square metres in gross floor area		
		Units 1-12	0 per unit	1.25 per unit
		Units 13-50	0.5 per unit	
		Units 51+	0.7 per unit	
	iii)	Units with 3 or more bedrooms		
		Units 1-12	0 per unit	1.25 per unit
		Units 13+	0.3 per unit	
	b)	Residential Care Facility, Emergency Shelter, Lodging House, Retirement Home	1 for each 3 persons accommodated or designed for accommodation.	
	ii. Institutional			
	a)	Long Term Care Facility	1 for each 3 patient beds.	
	b)	Day Nursery	i.	1 for each 125.0 square metres of gross floor area which accommodates such use.
			ii.	Notwithstanding i. above, no parking shall be required where a Day Nursery is located within an Education Establishment.
	c)	Social Services Establishment	1 for each 50.0 square metres of gross floor area which accommodates such use.	
	iii. Educational Establishments			
	a)	Elementary School	1.25 for each classroom.	

	(d) 1.0 for each three or more bedroom dwelling unit; and (ii) at a maximum rate of: (a) 0.4 for each bachelor dwelling unit up to 45 square metres and 1.2 for each bachelor dwelling unit greater than 45 square metres; (b) 0.7 for each one bedroom dwelling unit; (c) 1.2 for each two bedroom dwelling unit; and (d) 1.5 for each three or more bedroom dwelling unit; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3): (i) at a minimum rate of: (a) 0.6 for each bachelor dwelling unit up to 45 square metres and 1.0 for each bachelor dwelling unit greater than 45 square metres; (b) 0.7 for each one bedroom dwelling unit; (c) 0.9 for each two bedroom dwelling unit; and (d) 1.0 for each three or more bedroom dwelling unit; and (ii) at a maximum rate of: (a) 0.9 for each bachelor dwelling unit up to 45 square metres and 1.3 for each bachelor dwelling unit greater than 45 square metres; (b) 1.0 for each one bedroom dwelling unit; (c) 1.3 for each two bedroom dwelling unit; and (d) 1.5 for each three or more bedroom dwelling unit; and (C) in Policy Area 4 (PA4): (i) at a minimum rate of: (a) 0.7 for each bachelor dwelling unit up to 45 square metres and 1.0 for each bachelor dwelling unit greater than 45 square metres; (b) 0.8 for each one bedroom dwelling unit; (c) 0.9 for each two bedroom dwelling unit; and (d) 1.1 for each three or more bedroom dwelling unit; and (ii) at a maximum rate of: (a) 1.0 for each bachelor dwelling unit up to 45 square metres and 1.3 for each bachelor dwelling unit greater than 45 square metres; (b) 1.2 for each one bedroom dwelling unit; (c) 1.3 for each two bedroom dwelling unit; and (d) 1.6 for each three or more bedroom dwelling unit; and (D) in all other areas of the City: (i) at a minimum rate of: (a) 0.8 for each bachelor dwelling unit up to 45 square metres and 1.0 for each bachelor dwelling unit greater than 45 square metres; (b) 0.9 for each one bedroom dwelling unit; (c) 1.0 for each two bedroom dwelling unit; and (d) 1.2 for each three or more bedroom dwelling unit.			
Dwelling unit in an Apartment Building – (Visitor requirement)	For a dwelling unit in an Apartment Building, parking spaces for visitors must be provided:	10%	35%	100%
	(A) in Policy Area 1 (PA1) at a minimum rate of 0.1 for each dwelling unit; (B) in Policy Area 2 (PA2) at a minimum rate of 0.1 for each dwelling unit; (C) in Policy Area 3 (PA3) at a minimum rate of 0.1 for each dwelling unit; (D) in Policy Area 4 (PA4) at a minimum rate of 0.15 for each dwelling unit; and (E) in all other areas of the City at a minimum rate of 0.2 for each dwelling unit.			
Dwelling unit in a Mixed Use Building	Parking spaces are to be provided at the same rate as a Dwelling unit in an Apartment Building. (Tenant Requirement) [1675-2013]	100%	100%	100%
Dwelling unit in a Mixed Use Building Visitor Parking	For a dwelling unit in an Mixed Use Building, parking spaces for visitors must be provided:	10%	35%	100%
	(A) in Policy Area 1 (PA1) at a minimum rate of 0.1 for each dwelling unit; (B) in Policy Area 2 (PA2) at a minimum rate of 0.1 for each dwelling unit; (C) in Policy Area 3 (PA3) at a minimum rate of 0.1 for each dwelling unit; (D) in Policy Area 4 (PA4) at a minimum rate of 0.15 for each dwelling unit; and (E) in all other areas of the City at a minimum rate of 0.2 for each dwelling unit. [1676-2013]			
Eating Establishment	Parking spaces must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum of 0; and (ii) at a maximum rate of 3.5 for each 100 square metres of gross floor area; and (B) in Policy Area 2 (PA2): (i) at a minimum of 0; and (ii) at a maximum rate of 4.0 for each 100 square metres of gross floor area; and (C) in Policy Areas 3 (PA3) and 4 (PA4): (i) at a minimum of 0; and (ii) at a maximum rate of 5.0 for each 100 square metres of gross floor area; and (D) in all other areas of the City: (i) where the gross floor area used for eating establishments in a building is less than 200 square metres no parking space is required; (ii) where the gross floor area used for eating establishments in a building is 200 square metres or more but less than 500 square metres, parking spaces must be provided at a minimum rate of 3.0 for each 100 square metres of gross floor area; and (iii) where the gross floor area used for eating establishments in a building is 500 square metres or more, parking spaces must be provided at a minimum rate of 5.0 for each 100 square metres of gross floor area.	100%	100%	100%
Education Use	Parking spaces must be provided:	100%	100%	50%

Location 1525, 1535 Diefenbaker Court and 1530, 1540 Pickering Parkway
Municipality City of Pickering
Date Saturday, Feb 06, 2016
Number of units 273 units

Time	Visitor 60 spaces		
	occupied	%occupied	ratio
17:00	16	27%	0.059
18:01	15	25%	0.055
18:58	15	25%	0.055
19:55	16	27%	0.059
20:53	14	23%	0.051
Maximum demand	16	27%	0.059

Location 1600 Charles St
Municipality Town of Whitby
Date Saturday, Feb 06, 2016
Number of units 140 units

Time	Visitor 35 spaces		
	occupied	%occupied	ratio
17:41	10	17%	0.071
18:35	11	18%	0.079
19:31	11	18%	0.079
20:29	10	17%	0.071
21:31	10	17%	0.071
Maximum demand	11	18%	0.079

Location 340 Watson St W
Municipality Town of Whitby
Date Saturday, Feb 06, 2016
Number of units 215 units

Time	Visitor 71 spaces		
	occupied	%occupied	ratio
17:43	23	38%	0.107
18:36	25	42%	0.116
19:33	25	42%	0.116
20:30	24	40%	0.112
21:34	24	40%	0.112
Maximum demand	25	42%	0.116

Location 4 Randall Dr
Municipality Town of Ajax
Date Saturday, Feb 06, 2016
Number of units 143 units

Time	Visitor 35 spaces		
	occupied	%occupied	ratio
17:20	17	28%	0.119
18:15	18	30%	0.126
19:12	18	30%	0.126
20:10	17	28%	0.119
21:08	16	27%	0.112
Maximum demand	18	30%	0.126

Location 1525, 1535 Diefenbaker Court and 1530, 1540 Pickering Parkway
Municipality City of Pickering
Date Saturday, Feb 13, 2016
Number of units 273 units

Time	Visitor 60 spaces		
	occupied	%occupied	ratio
17:03	15	25%	0.055
18:05	16	27%	0.059
19:01	17	28%	0.062
20:05	14	23%	0.051
21:07	15	25%	0.055
Maximum demand	17	28%	0.062

Location 1600 Charles St
Municipality Town of Whitby
Date Saturday, Feb 13, 2016
Number of units 140 units

Time	Visitor 35 spaces		
	occupied	%occupied	ratio
17:45	11	18%	0.079
18:41	10	17%	0.071
19:35	11	18%	0.079
20:33	12	20%	0.086
21:38	11	18%	0.079
Maximum demand	12	20%	0.086

Location 340 Watson St W
Municipality Town of Whitby
Date Saturday, Feb 13, 2016
Number of units 215 units

Time	Visitor 71 spaces		
	occupied	%occupied	ratio
17:47	24	40%	0.112
18:41	23	38%	0.107
19:37	21	35%	0.098
20:34	24	40%	0.112
21:39	24	40%	0.112
Maximum demand	24	40%	0.112

Location 4 Randall Dr
Municipality Town of Ajax
Date Saturday, Feb 13, 2016
Number of units 143 units

Time	Visitor 35 spaces		
	occupied	%occupied	ratio
17:25	15	25%	0.105
18:19	17	28%	0.119
19:17	15	25%	0.105
20:14	16	27%	0.112
21:13	17	28%	0.119
Maximum demand	17	28%	0.119

Location 4 locations, Weighted Average 540 Pickering Parkway
Municipality Durham Region
Date Saturday, Feb 6, 2016
Number of units 771 units total

Time	Visitor 201 spaces		
	occupied	%occupied	sp / unit
Maximum demand	70	35%	0.091

Location 4 locations, Weighted Average
Municipality Durham Region
Date Saturday, Feb 13, 2016
Number of units 771 units total

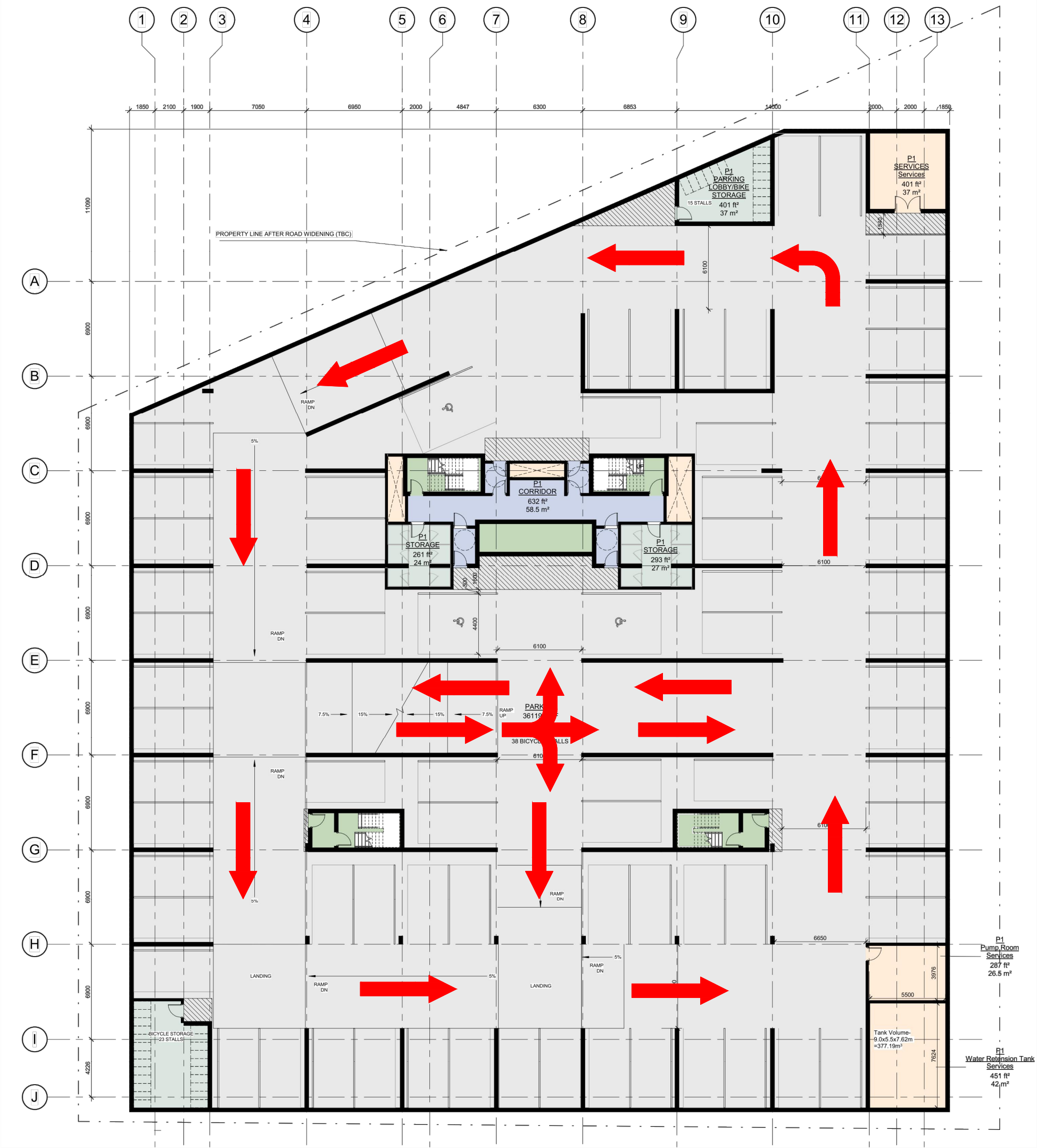
Time	Visitor 201 spaces		
	occupied	%occupied	sp / unit
Maximum demand	70	35%	0.091

Location 4 locations, Weighted Average
Municipality Durham Region
Date (2 Saturdays) Saturday, Feb 06 and 13, 2016
Number of units 1542 units total

Time	Visitor 402 spaces		
	occupied	%occupied	sp / unit
Maximum demand	140	35%	0.091

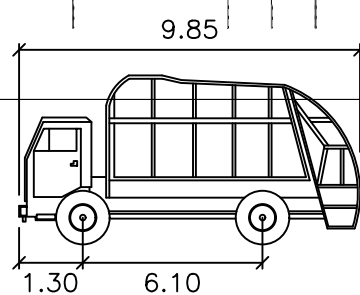
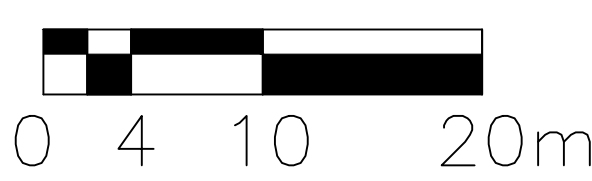
Appendix H

Site circulation review



1107 MAIN STREET DEVELOPMENT
CIRCULATION PLAN

FIGURE
PROJECT NO. 11203044
DATE: JAN. 24, 2020

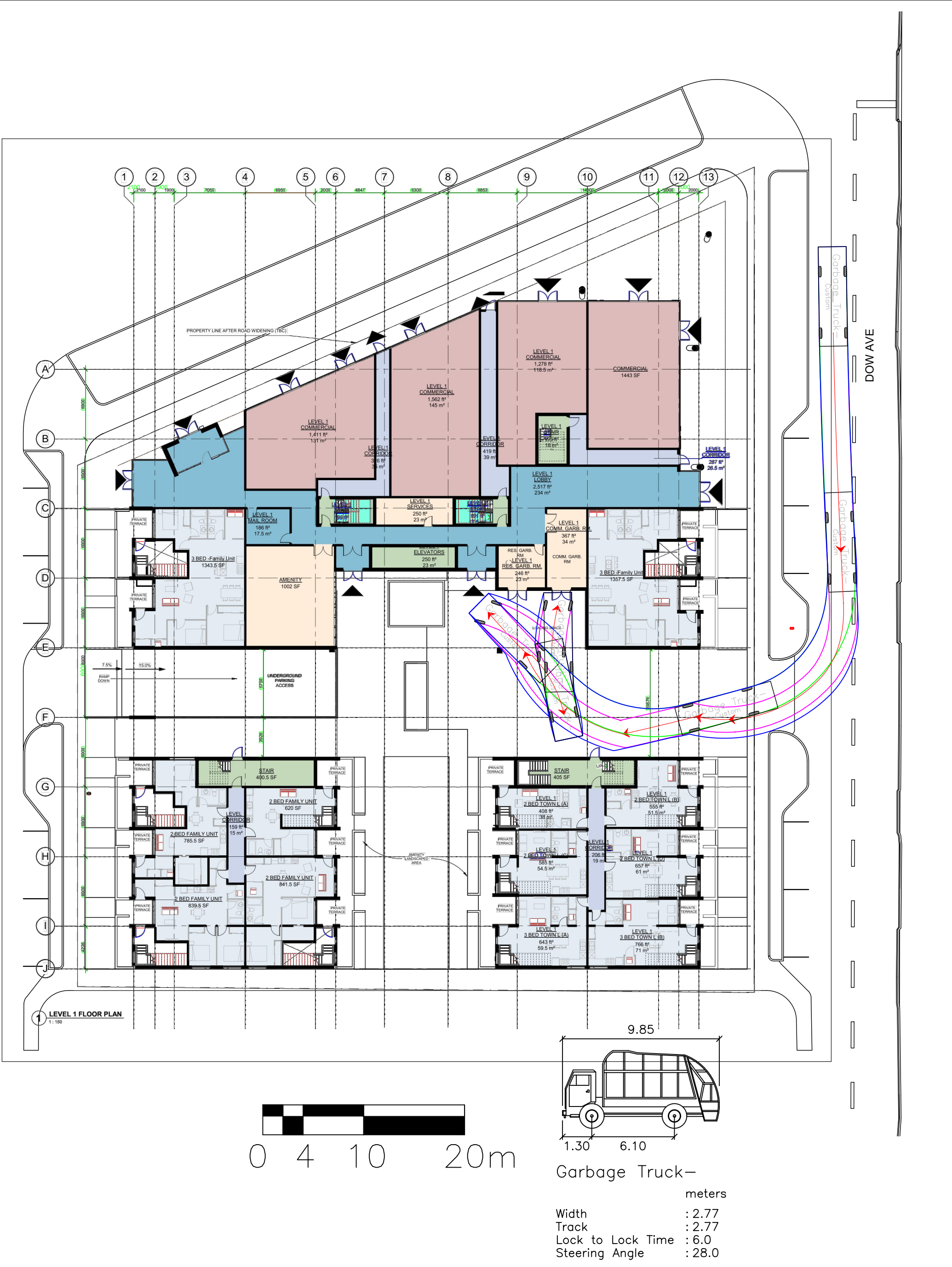


Garbage Truck—
meters
Width : 2.77
Track : 2.77
Lock to Lock Time : 6.0
Steering Angle : 28.0



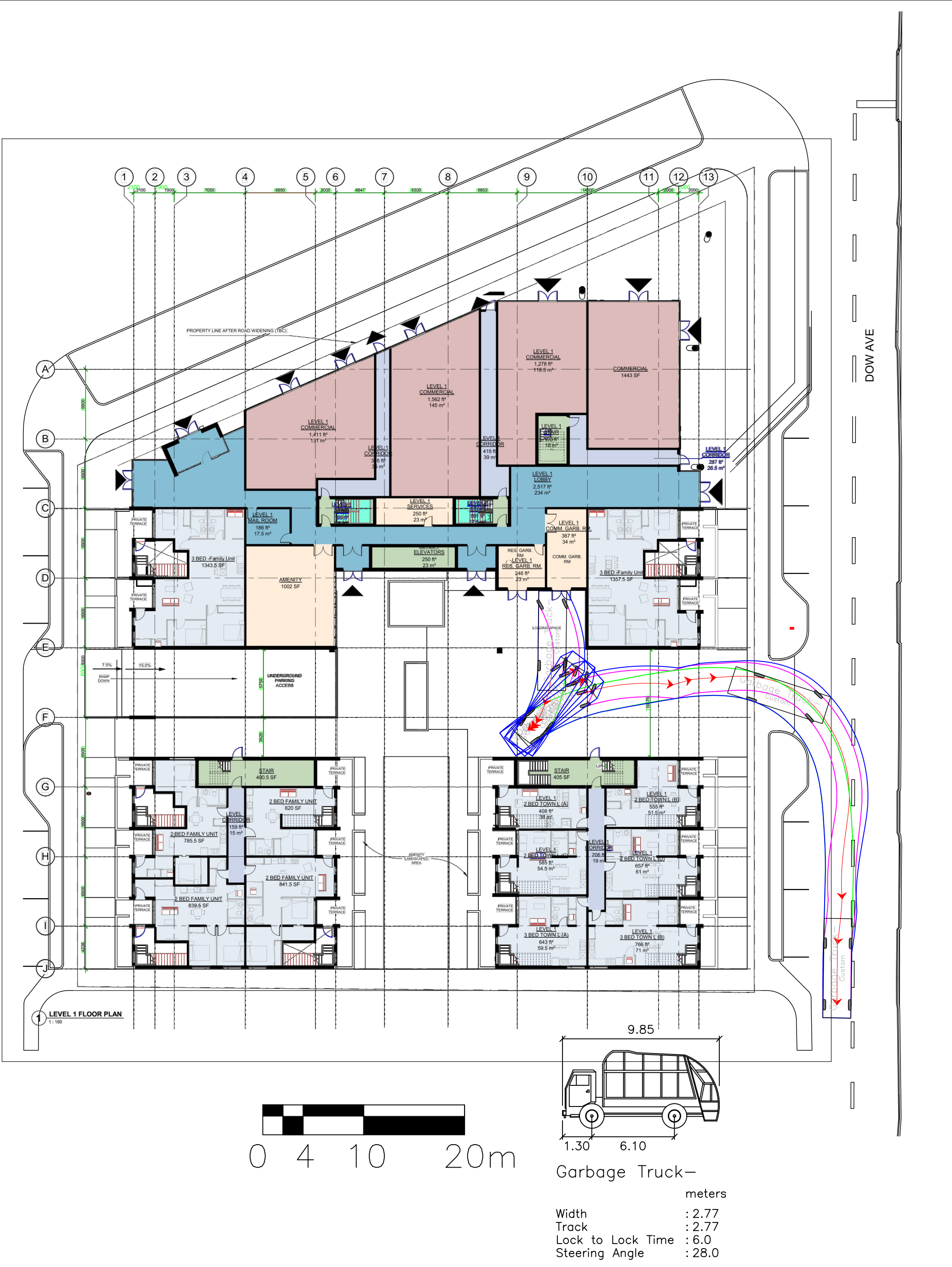
1107 MAIN STREET DEVELOPMENT GARBAGE TRUCK - IN 1 (REVERSE-IN)

FIGURE 1
PROJECT NO. 11203044
DATE: JAN. 24, 2020



1107 MAIN STREET DEVELOPMENT
GARBAGE TRUCK - IN 2 (FORWARD-IN)

FIGURE 3
PROJECT NO. 11203044
DATE: JAN. 24, 2020



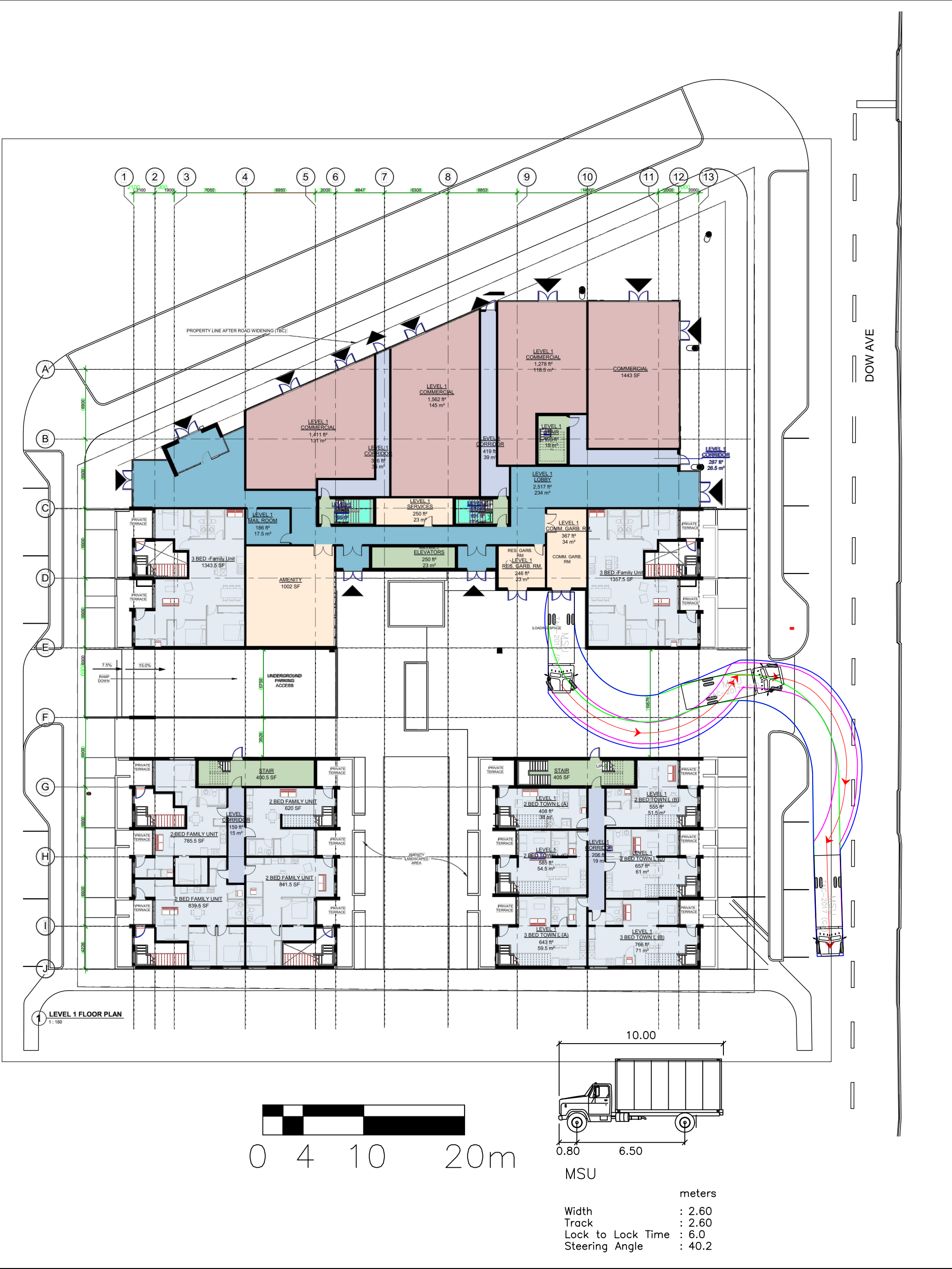
1107 MAIN STREET DEVELOPMENT GARBAGE TRUCK - OUT 2 (FORWARD-IN)

FIGURE 4
PROJECT NO. 11203044
DATE: JAN. 24, 2020

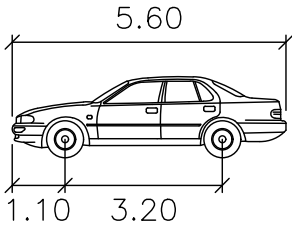
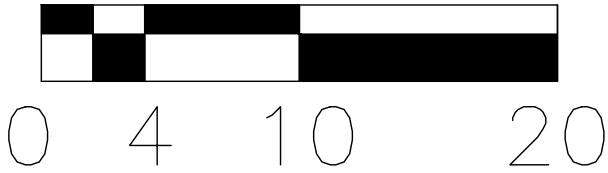
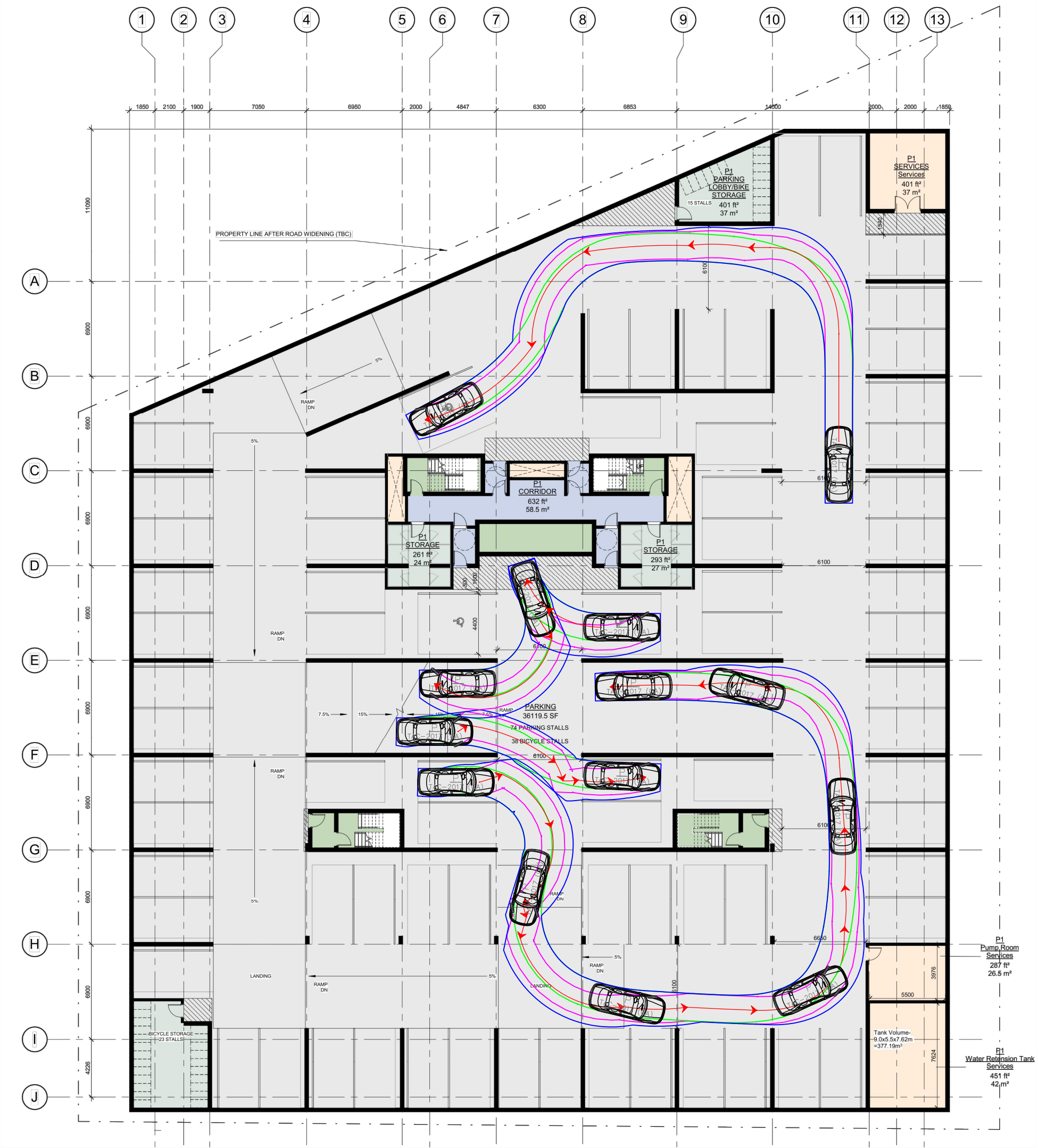


1107 MAIN STREET DEVELOPMENT MSU TRUCK - IN (REVERSE-IN)

FIGURE 5
PROJECT NO. 11203044
DATE: JAN. 24, 2020



1107 MAIN STREET DEVELOPMENT
MSU TRUCK - OUT

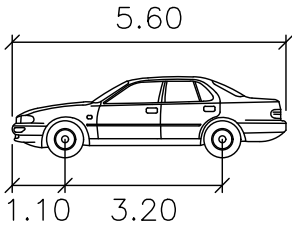
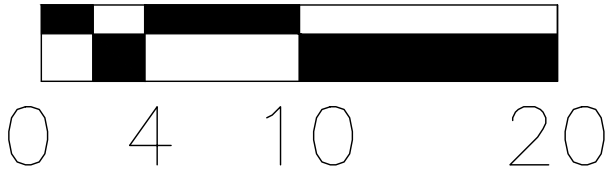
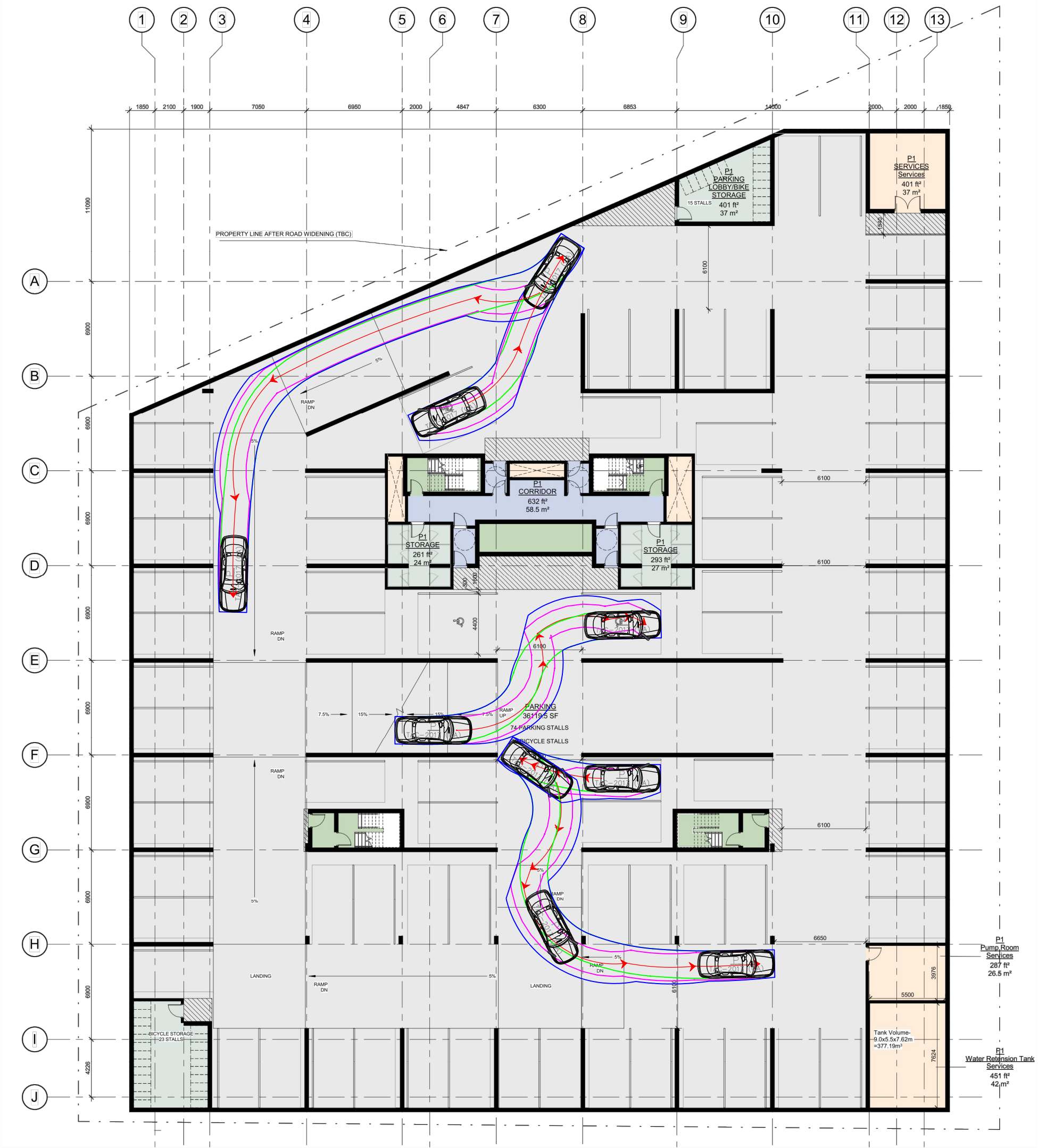


P	Width	: 2.00	meters
	Track	: 2.00	
	Lock to Lock Time	: 6.0	
	Steering Angle	: 35.9	



1107 MAIN STREET DEVELOPMENT
PASSENGER CAR - 2

FIGURE 8
PROJECT NO. 11203044
DATE: JAN. 24, 2020

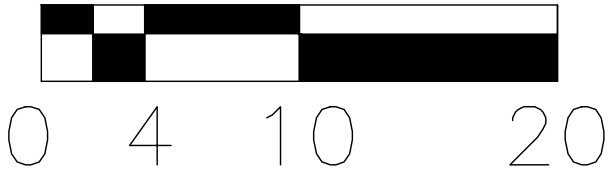
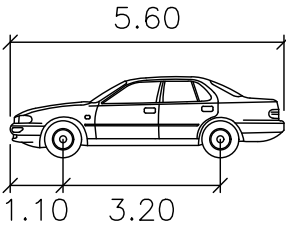
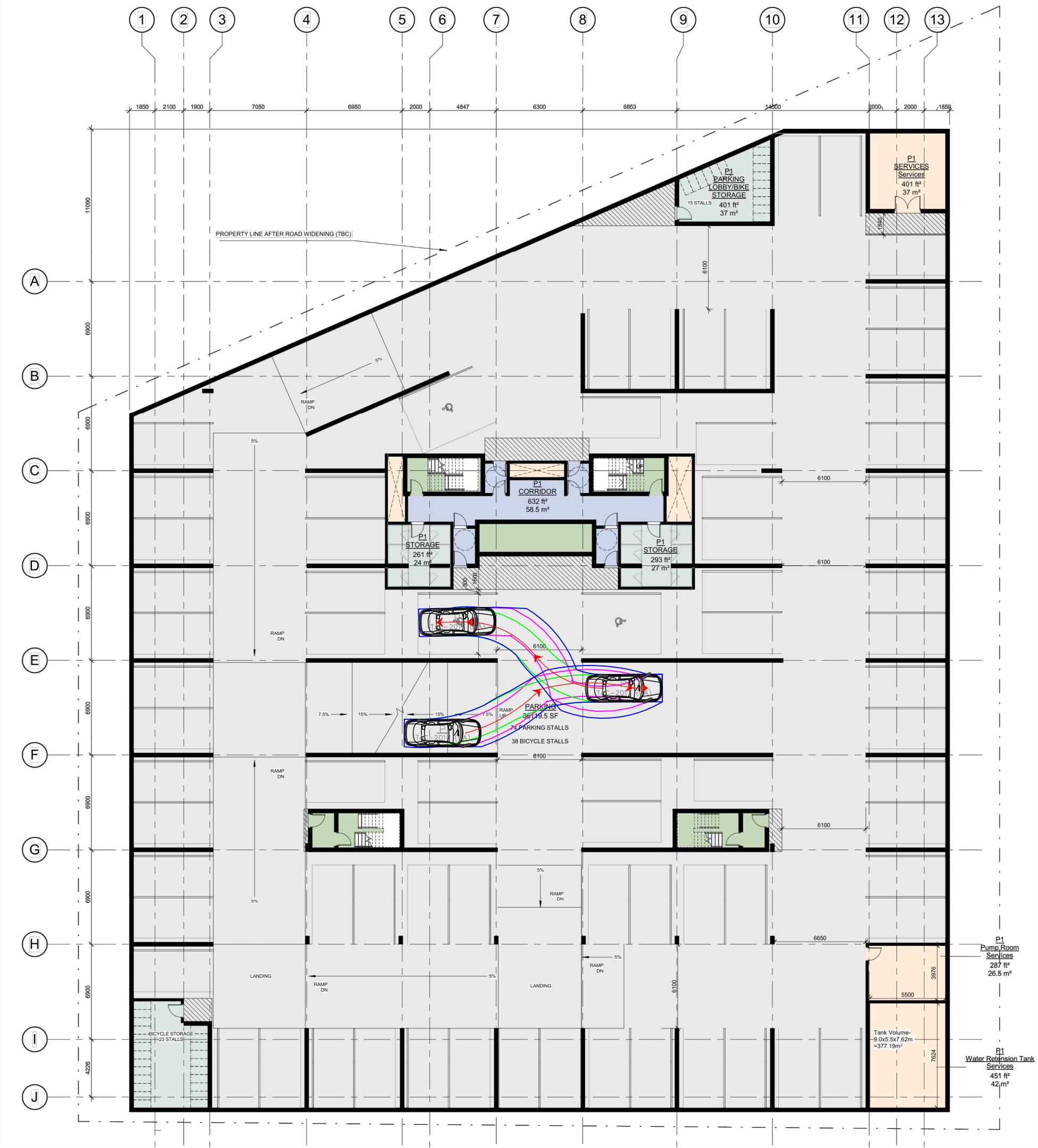


P	Width	: 2.00
	Track	: 2.00
	Lock to Lock Time	: 6.0
	Steering Angle	: 35.9



1107 MAIN STREET DEVELOPMENT
PASSENGER CAR - 3

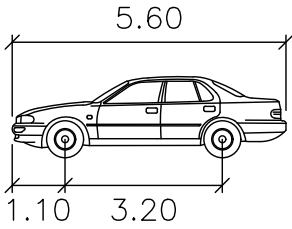
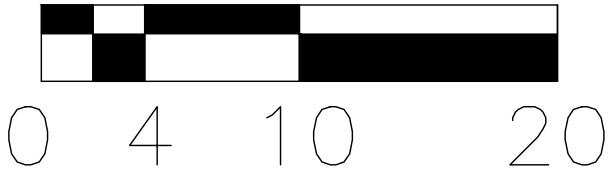
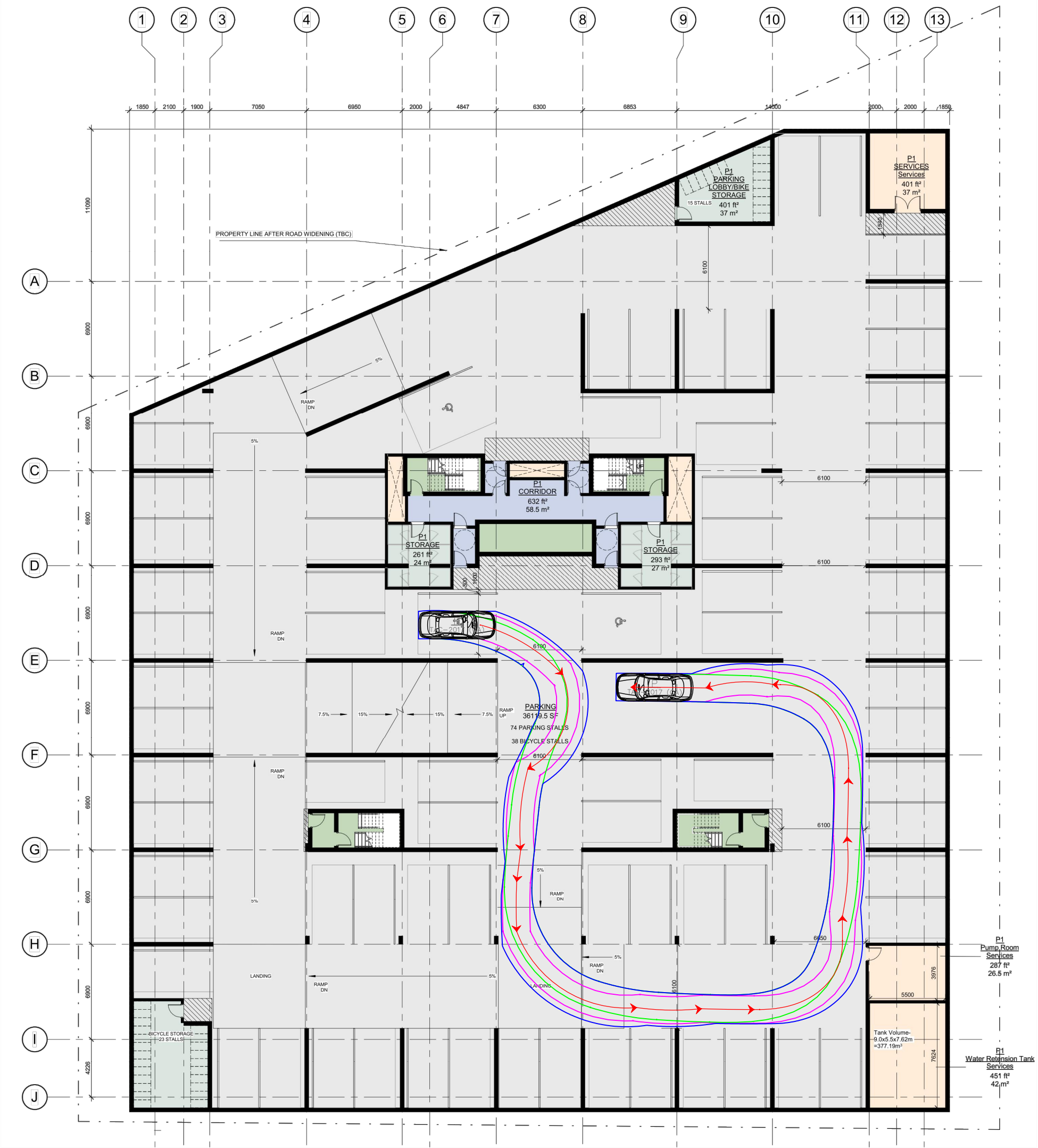
FIGURE 9
PROJECT NO. 11203044
DATE: JAN. 24, 2020



P	Width	: 2.00
	Track	: 2.00
	Lock to Lock Time	: 6.0
	Steering Angle	: 35.9

1107 MAIN STREET DEVELOPMENT
PASSENGER CAR - 4

FIGURE 10
PROJECT NO. 11203044
DATE: JAN. 24, 2020



P

	Width	Track	Lock to Lock Time	Steering Angle
	: 2.00	: 2.00	: 6.0	: 35.9



1107 MAIN STREET DEVELOPMENT PASSENGER CAR - 5

FIGURE 11
PROJECT NO. 11203044
DATE: JAN. 24, 2020

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