Updated Traffic Impact Study

88 Park Street East

Edenshaw Queen Developments Limited

June 8, 2023

→ The Power of Commitment

Executive Summary

GHD Limited was retained by Edenshaw Queen Developments Limited to prepare an updated Traffic Impact Study report for the proposed mixed-use development located at 88 Park Street East in the City of Mississauga.

This report determines the site related traffic and subsequent traffic related impacts on the adjacent road network during the weekday a.m. and p.m. peak hours. These impacts are based on the projected future background traffic and road network conditions derived for a 2028 future planning horizon year.

The proposed site plan prepared by Core Architects, dated May 2023, consists of two separate mixed-use buildings with 1,328 residential units and 4,604 m^2 of commercial/office/daycare GFA. The breakdown between the various commercial uses have not been finalized and are subject to change. The breakdown of the units and non-residential GFA between the two towers are as follows:

- North Tower: 712 units, 380 m^2 of commercial GFA, 2,017 m^2 of office GFA, and 907 m^2 of daycare GFA
- South Tower: 616 units and 1,300 m^2 of commercial GFA

Access to the development is proposed via a full-move driveway located at the intersection of Ann Street and Queen Street East and will operate as the east leg of the intersection.

The subject site is expected to generate a total of 412 new two-way trips consisting of 179 inbound and 233 outbound trips during weekday a.m. peak hour and 515 new two-way trips consisting of 270 inbound and 245 outbound trips during the weekday p.m. peak hour.

Under existing conditions, all study intersections are operating within capacity with the exception of the eastbound left-turn movement at the intersection of Park Street and Hurontario Street which is operating at capacity during the a.m. peak hour (v/c ratio of 1.00 LOS F) and at a critical level but below capacity during the p.m. peak hour with a v/c ratio of 0.95 LOS F.

Under 2028 future background traffic conditions, with the addition of corridor growth along Hurontario Street, the background development site traffic in addition to signal improvements, the study intersections are reported to operate with acceptable v/c ratios and levels of service with the exception of the eastbound left-turn movement at Hurontario Street and Park Street operating at a critical level during the p.m. peak hour but below capacity with a v/c ratio of 0.91 LOS E.

Under 2028 future total traffic conditions, with the addition of site generated traffic, all study intersections and the site driveway are reported to operate with acceptable v/c ratios, delays and queuing. The intersection of Hurontario Street and Park Street is reported to operate at a satisfactory level with an overall v/c ratio of 0.93 LOS D during the a.m. peak hour and 0.85 LOS C during the p.m. peak hour. The eastbound left-turn movement approaches critical levels during both peak hours; however the movement remains below the theoretical capacity of 1.0 during both peak hours.

Application of the current City of Mississauga By-Law parking rates to the subject site results in a requirement of 1,062 resident spaces. The proposed parking provision of 474 resident parking spaces is a deficit of 588 spaces from the Zoning By-law requirement. Additionally, the provision of 109 visitor/non-resident visitor parking spaces represents a shortfall of 157 parking spaces from the By-Law requirement of 266 visitor spaces for all proposed uses including residential visitor, commercial visitors, office and the Daycare facility.

Recognizing the transit-supportive vision for the Port Credit Community, the recommendation in the City's Transportation Master Plan to provide reduced transit supportive parking rates and reduced parking rates that have been approved for other developments in the recent past, the subject site is proposing a parking supply of 0.36 spaces per unit for residents and 0.08 spaces per unit for visitors which will be shared between all uses.

The proposed parking supply is based on the expected future market demand for the area and is meant to provide an opportunity to introduce transit-oriented development in the area as transit becomes more attractive and convenient. Reducing the parking supply at time of construction will lead to households and individuals making residential location and travel choice decisions jointly at time of purchase and is therefore expected to help the City achieve the envisioned transportation context for this area including future transit modal split targets.

The traffic study concludes that the proposed development can be adequately accommodated by the existing and/or planned transportation network.

We trust that this satisfies your requirements, but do not hesitate to contact the undersigned if you have any questions.

Sincerely,

GHD

William Maria, P. Eng.

Transportation Planning Lead

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1. Introduction

1.1 Retainer and Objective

GHD Limited was retained by Edenshaw Queen Developments Limited to prepare an updated Traffic Impact Study in support of a proposed mixed-use development located at 88 Park Street East in the City of Mississauga. The updated Traffic Impact Study is based on a new site plan, dated May 2023.

The site location is illustrated in **Figure 1**.

The purpose of this study is to:

- Establish baseline traffic conditions for the study area in 2023 and determine future background operating conditions for a future planning horizon in 2028.
- Utilizing Institute of Transportation Engineer's (ITE) Trip Generation data and first principles to estimate the site trips generated by the proposed development and distribute the traffic to the adjacent road network.
- Determine future operating traffic conditions during the weekday peak periods through intersection capacity analysis.
- Analyze and review the number of proposed parking spaces.

1.2 Study Team

The GHD team involved in the preparation of the study are:

- William Maria, P. Eng., Transportation Planning Lead
- Rafael Andrenacci, B.Eng., Transportation Planner

Figure 1 Site Location

2. Site Characteristics

2.1 Study Area

The following intersections were included in the study area:

- Hurontario Street and Park Street East
- Park Street East and Ann Street
- Ann Street and Queen Street East/Site Access

2.2 Proposed Development Content

An updated site plan prepared by Core Architects, dated May 2023, is shown in **Figure 2** and provided in **Appendix C**. In total, the mixed-use development proposes 1,328 residential units and 4,604 m^2 of commercial/office/daycare

GFA. The breakdown between the various non-residential uses have not been finalized and are subject to change. The unit breakdown and non-residential GFA for the two buildings are as follows:

- North Tower: 712 units, 380 m^2 of commercial GFA, 2,017 m^2 of office GFA, and 907 m^2 of daycare GFA
- South Tower: 616 units and 1,300 m^2 of commercial GFA

Access to the subject site is proposed via a full-move driveway on Ann Street directly opposite of Queen Street East and will operate as the east leg of the intersection of Ann Street and Queen Street East.

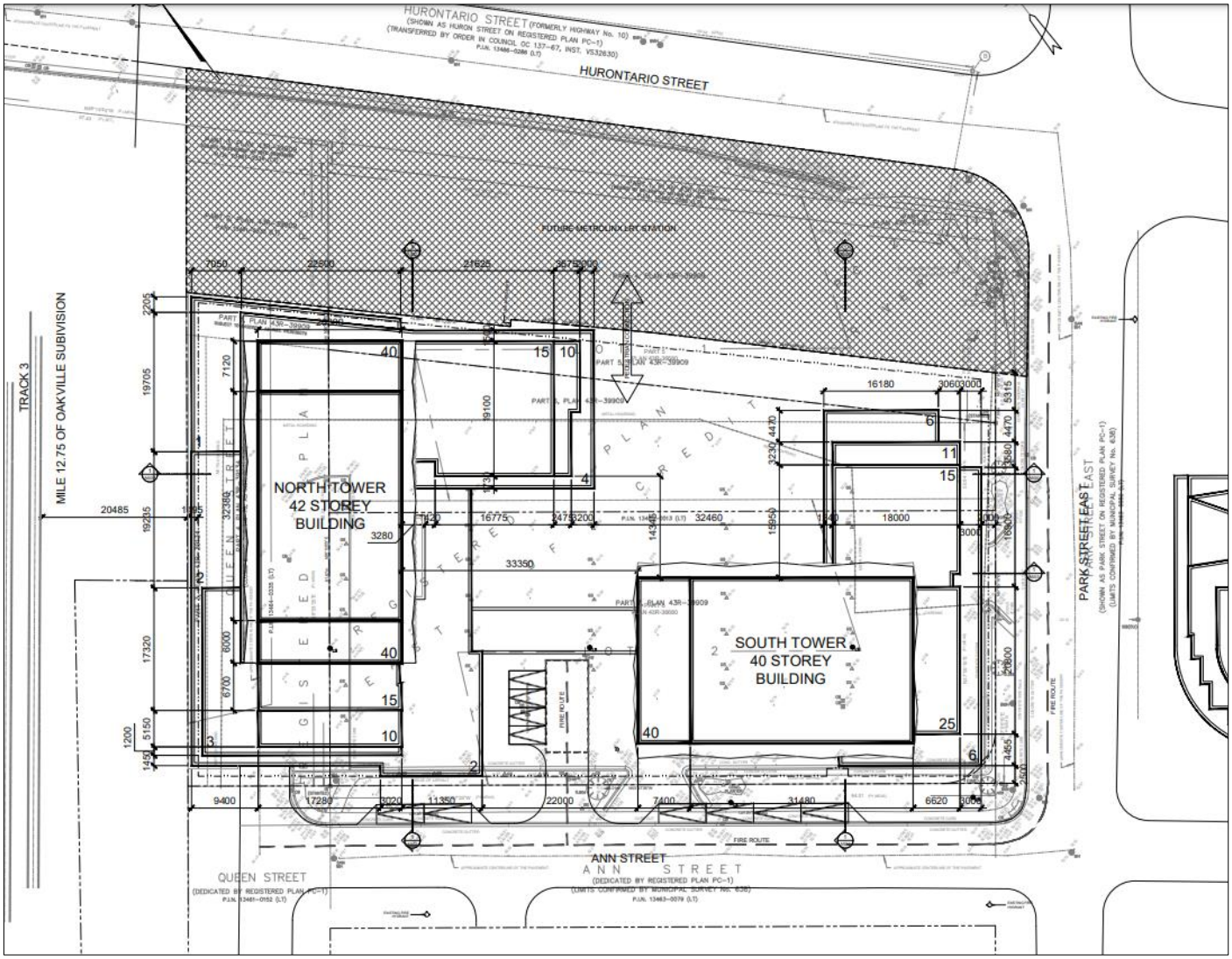

Figure 2 Site Plan

3. Existing Conditions

3.1 Existing Road Network

Hurontario Street is a north/south arterial road under the jurisdiction of the City of Mississauga. In the study area it has a four-lane urban cross section. The intersection of Hurontario Street and Park Street East is signalized, with a left-turn, through lane and a right-turn lane in both the northbound and southbound directions. The posted speed limit on Hurontario Street is 50 km/h.

Ann Street is a north/south minor collector road under the jurisdiction of the City of Mississauga. In the study area it has a two-lane urban cross section and its intersection with Park Street East is unsignalized. The assumed posted speed limit on Ann Street is 50 km/h.

Park Street East is an east/west local road under the jurisdiction of the City of Mississauga. In the study area it has a two-lane urban cross section. Its intersection with Ann Street is unsignalized, with a through-left and a right-turn lane in the westbound direction. Its intersection with Hurontario Street is signalized, with a through-right and a left-turn lane in both the eastbound and westbound directions. The posted speed limit on Park Street East is 40 km/h.

Queen Street is an east/west minor collector road under the jurisdiction of the City of Mississauga. In the study area it has a two-lane urban cross section and operates as a one-way street in the westbound direction. Its intersection with Ann Street is unsignalized, with the north and west legs of the intersection consisting of GO Station accesses. The assumed posted speed limit on Queen Street East is 50 km/h.

The existing lane configuration is shown on **Figure 3**.

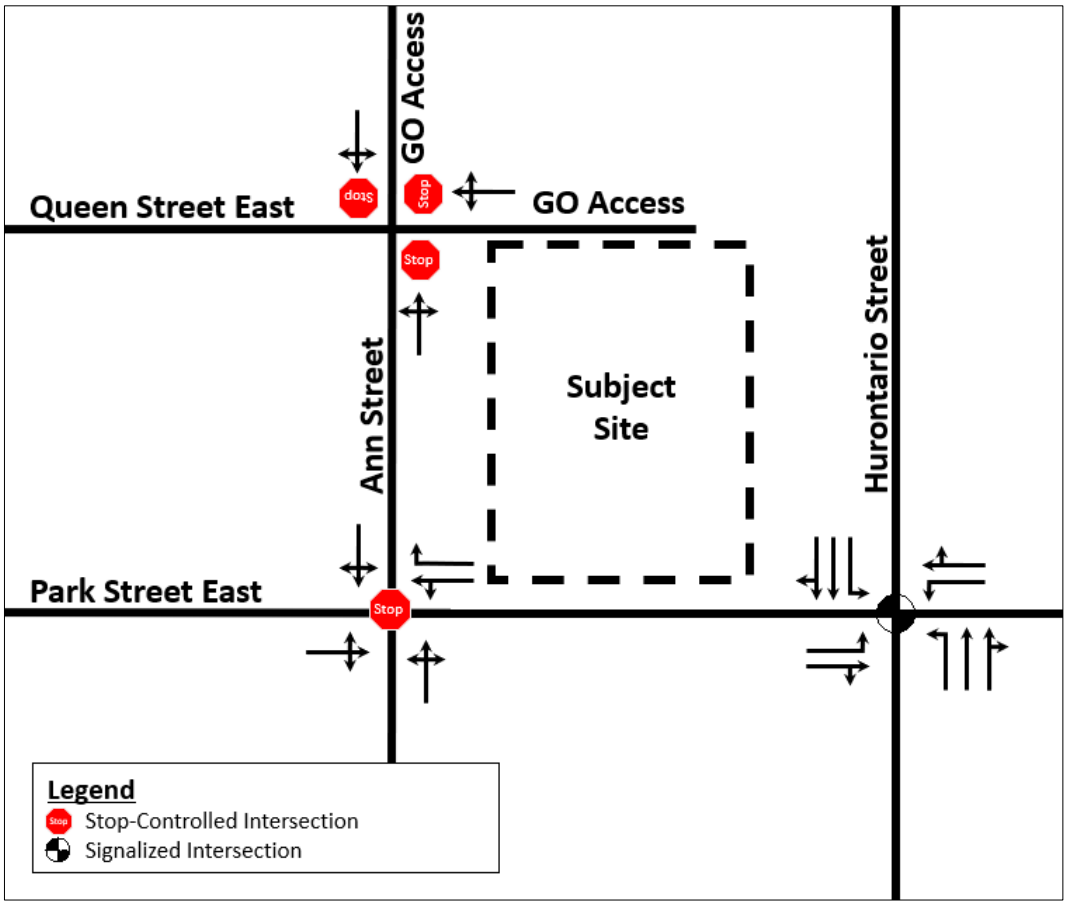

Figure 3 Existing Lane Configurations and Traffic Control Devices

3.2 Pedestrian and Bicycle Routes

Pedestrian sidewalks are available on both sides of all roads throughout the study area with the exception of the west side of Hurontario Street due to the ongoing Hurontario LRT construction.

There are no bicycle provisions on any of the roads within the study area. South of the study area, the Waterfront trail connects a series of park trails, signed bike routes and multi-use trails, and is part of the Great Lakes Waterfront Trail. This trail continues to the east into the City of Toronto, and to the west into the Town of Oakville. A signed bike route along Helene Street and Elizabeth Street North are part of the “Trail-to-GO” network, described as a route connecting the GO Train Lakeshore Line to the Waterfront Trail

The pedestrian and cycling routes adjacent to the subject site are identified on **Figure 4** below.

Figure 4 Pedestrian and Cycling Routes

3.3 Transit Services

Within the study area, GO Transit and MiWay Transit operate the following routes:

GO Transit's Port Credit Station operates trains along the **Lakeshore West Line**. During weekdays, the eastern terminus of the train line is Union Station and various western terminuses (Oakville, Aldershot and West Harbour). Trains operate with a 15-minute headway in both eastbound and westbound directions. The 15-minute headway in the westbound direction is shared amongst the trips towards the three terminal stations. Trains travelling towards Oakville GO Station have a 30-minute headway and trains travelling towards the West Harbour and Aldershot GO stations have an hour headway. GO Transit also offers one round-trip to Niagara Falls per day (1 outbound during the a.m. peak and 1 inbound during the p.m. peak) and four trips in a day on weekends. The Lakeshore West map is provided in **Figure 6**

Bus Route 2 (Hurontario) operates both ways along Hurontario Street between the Port Credit GO Station and City Centre Transit Terminal at Square One. The route runs on a 10-minute headway from 6 a.m. to 10 p.m. and a 20-minute or better headway outside of that period.

Bus Route 8 (Cawthra) operates generally along Cawthra Road between Port Credit GO Station and the City Centre Transit Terminal at Square One. The route runs with a 30-minute headway from 5 a.m. to 5 p.m.

Bus Route 14 (Lorne Park) operates generally in the east-west direction along Indian Road and Truscott Drive between Port Credit and Clarkson GO Stations. The route runs on a 45-minute headway from 5 a.m. to 4 p.m.

Bus Route 14A (Lorne Park - Industrial) operates during the Rush Hour period only and follows the same route as Route 14. However, it continues south from the Clarkson GO Station along Southdown Road and continues along Lakeshore Road West, Winston Churchill Boulevard and Royal Windsor Drive before arriving at Clarkson GO Station again.

Bus Route 23 (Lakeshore) operates in both directions along Lakeshore Road West between Clarkson and Long Branch GO Stations. The route runs on a 20-minute or better headway from 4 a.m. to 9 p.m.

The GO Transit Port Credit Station and the MiWay bus stops are located within walking distance of the proposed development, approximately 150 metres (2 minute walk) and 200 metres (3 minute walk) respectively from the proposed site driveway. The transit map with the bus routes operating within the study area is provided in **Figure 5**.

Figure 5 MiWay Transit Map within the Study and Surrounding Areas (MiWay)

Figure 6 Lakeshore West Train Map (GO Transit)

3.4 Existing Traffic Data

Historic turning movement counts were provided to GHD from previous traffic impact studies completed within the surrounding area. Turning movement counts for the intersection of Hurontario Street and Park Street East, conducted in December 2019, were extracted from the Transportation Impact Study prepared for the proposed residential development at 42-46 Park Street East & 23 Elizabeth Street North by LEA Consulting Ltd. dated May 2020. Turning movement counts for the intersection of Ann Street at Park Street East were conducted in November 2018 and were extracted from the report for the proposed residential development at 22-28 Ann Street & 78 Park Street East completed by LEA Consulting Ltd in April 2019. Traffic volumes along Hurontario Street were grown by the growth rates provided by the City, and further discussed in **Section 5.2.**

Updated turning movement counts were conducted by Spectrum Traffic Data Inc. at the intersection of Ann Street and Queen Street East in February 2023.

The projected baseline 2023 traffic volumes for the a.m. and p.m. peak hours are summarized in **Figure 7,** with the most recent turning movement count data from LEA Consulting Ltd. And the updated turning movement counts conducted by Spectrum Traffic Data Inc. provided in **Appendix A**. The signal timing plan was also extracted from the Transportation Impact Study completed in May 2020 and provided in **Appendix A.**

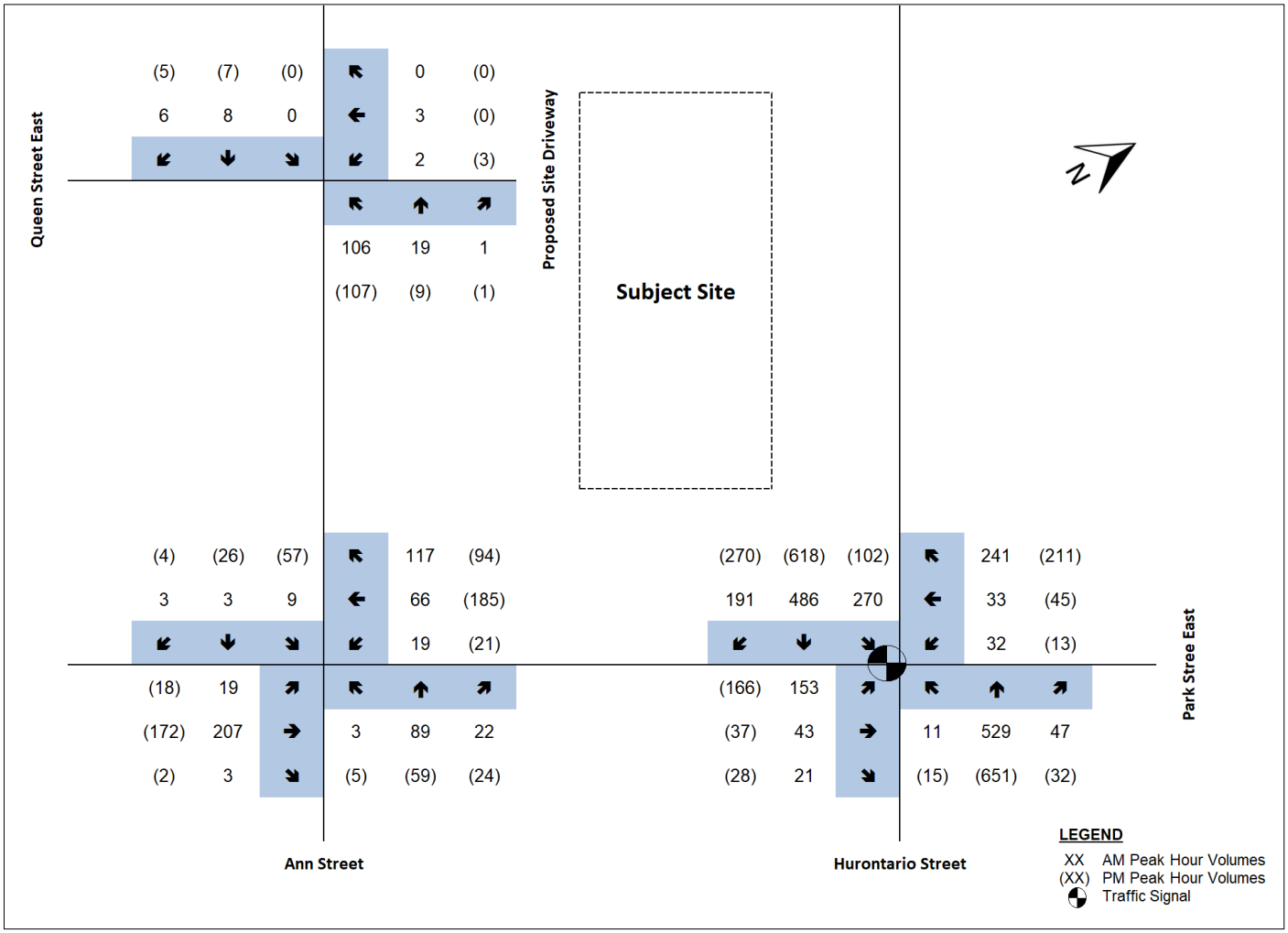

Figure 7 Projected 2023 Traffic Volumes

4. Network Improvements

4.1 Future Hurontario LRT Line

The future Hurontario LRT, with an expected completion of Fall 2024, will have its southern terminus at Port Credit Station located in the northwest corner of Hurontario Street and Park Street East (as seen in **Figure 9** below). The Hurontario LRT will include 19 stations (four major transit hubs) and run 18 kilometers from the Port Credit Station to the Brampton Gateway Terminal at Hurontario Street and Steeles Avenue. The future LRT map is provided in **Figure 8.**

Figure 8 Future Hurontario LRT Map (Metrolinx)

4.2 Pedestrian and Cycling Network

According to AECOM's Road Plan map, dated February 2017, and provided in **Figure 9**, the sidewalk that was located on the west side of Hurontario Street will be relocated to the west side of the proposed LRT tracks and Port Credit LRT Station.

In addition to the relocation of the sidewalk, a multi-use trail will be provided on the east side of Hurontario Street. The City of Mississauga Cycling Master Plan includes this road segment as a proposed multi-use trail as well, connecting it to the existing multi-use trail that runs along Hurontario Street from Inglewood Drive to North Service Road. The City's Cycling Master Plan proposes extending the multi-use trail north to the Queensway and transition into a Cycle Track/Separated Bike Lane all the way to the northern limit of Hurontario Street within the City of Mississauga. The extension of the cycling network along Hurontario will allow for greater and safer access to the rest of the City of Mississauga's existing and proposed cycling facilities.

Within the study area, Park Street East is proposed to be a Shared Route and will provide connection to the Waterfront Trail via other local roads classified as Shared Routes. Lakeshore Road is also proposed to be a Cycle Track/Separated Bike Lane along the entirety of the road within the City of Mississauga and can serve as an alternative to the existing Waterfront Trail.

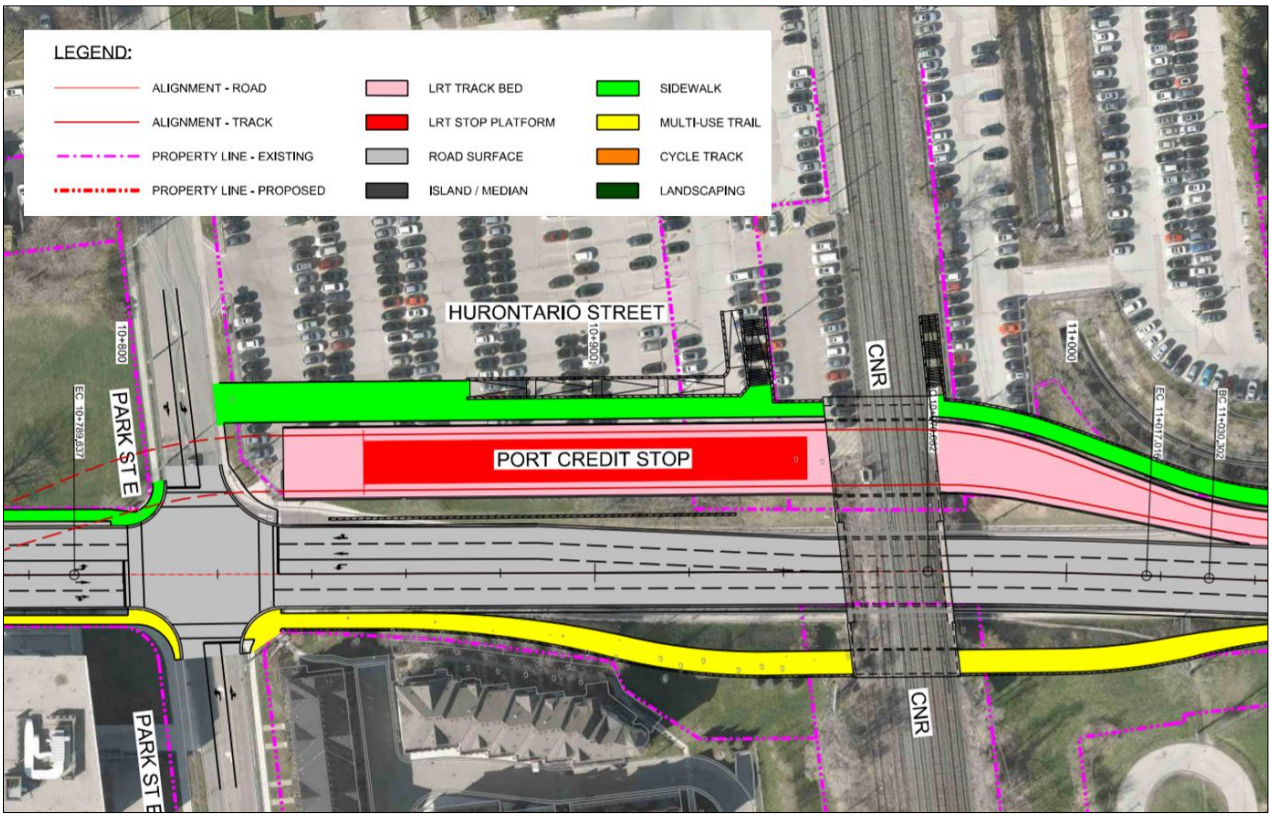

Figure 9 Hurontario LRT – Road Plan (AECOM, February 2017)

5. Future Background Traffic

5.1 Study Horizon Year

A future horizon year of 2028 was selected for the analysis of future traffic conditions, corresponding with the City's Traffic Impact Study Guidelines of a five-year period from the date of the Traffic Impact Study Report.

5.2 Corridor Growth

GHD applied the following growth rates to the study area roads depending on the peak period and direction of travel, consistent with traffic impact studies previously completed in the surrounding area. During the a.m. peak hour, no growth rate was applied to northbound volumes on Hurontario Street and a 1.5% compounded annually growth rate was applied to southbound movements. During the p.m. peak hour, a 0.5% growth rate was applied to northbound movements and a 1% growth rate was applied for southbound movements, compounded annually.

Table 1 City of Mississauga Growth Rates

Road	Peak Hour	Northbound	Southbound
Hurontario Street (NB/SB)	A.M.	1.5%	1.5%
	P.M.	1.0%	1.5%

5.3 Background Development Traffic

GHD reviewed the city's development application web portal to determine which planned or approved background developments located near the subject site would contribute to traffic volumes at the study intersections. GHD and City staff located five sites including:

- 42-46 Park Street East & 23 Elizabeth Street North
- 22-28 Ann Street & 78 Park Street East
- 6, 8, 10 Ann Street
- 128 Lakeshore Rd
- 17 & 19 Ann St and 84 & 90 High St E and 91 Park St E

The location of the background developments are identified on the figure below.

Figure 10 Background Development Locations

The proposed trip generation from each background development is summarized in the table below, with the trip distribution for each site provided in **Appendix F**. The Traffic Impact Study prepared for 128 Lakeshore Road assumed the low number of trips generated by the development would have a negligible impact on the surrounding intersections and did not assign any of their site traffic to the road network. As a result, the site generated traffic by that background development was not included as background traffic. The total site trips from each of the background developments are provided in **Figure 11.**

Table 2 Background Development Traffic

Background Development	GFA	Year	Peak Hour Trips					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
42-46 Park Street East & 23 Elizabeth Street North (LEA Consulting)	274 Residential Units	2020	13	50	63	45	28	73
22-28 Ann Street & 78 Park Street East (LEA Consulting)	316 Residential Units	2019	18	59	77	52	26	78
6, 8, 10 Ann Street (GHD)	69 Residential Units	2014	5	24	29	22	11	33
128 Lakeshore Rd	45 Residential Units	2021	1	8	9	8	4	12
17 & 19 Ann St and 84 & 90 High St E and 91 Park St E	359 High-Rise Residential Units	2021	25	55	80	55	45	100

Figure 11 Total Background Development Site Traffic

5.4 Future Background Traffic Volumes

The background traffic volumes for the 2028 horizon year were derived by applying the respective growth rates to Hurontario Street and adding the total background development site traffic from **Figure 11**. The resulting 2028 future background traffic volumes are summarized in **Figure 12.**

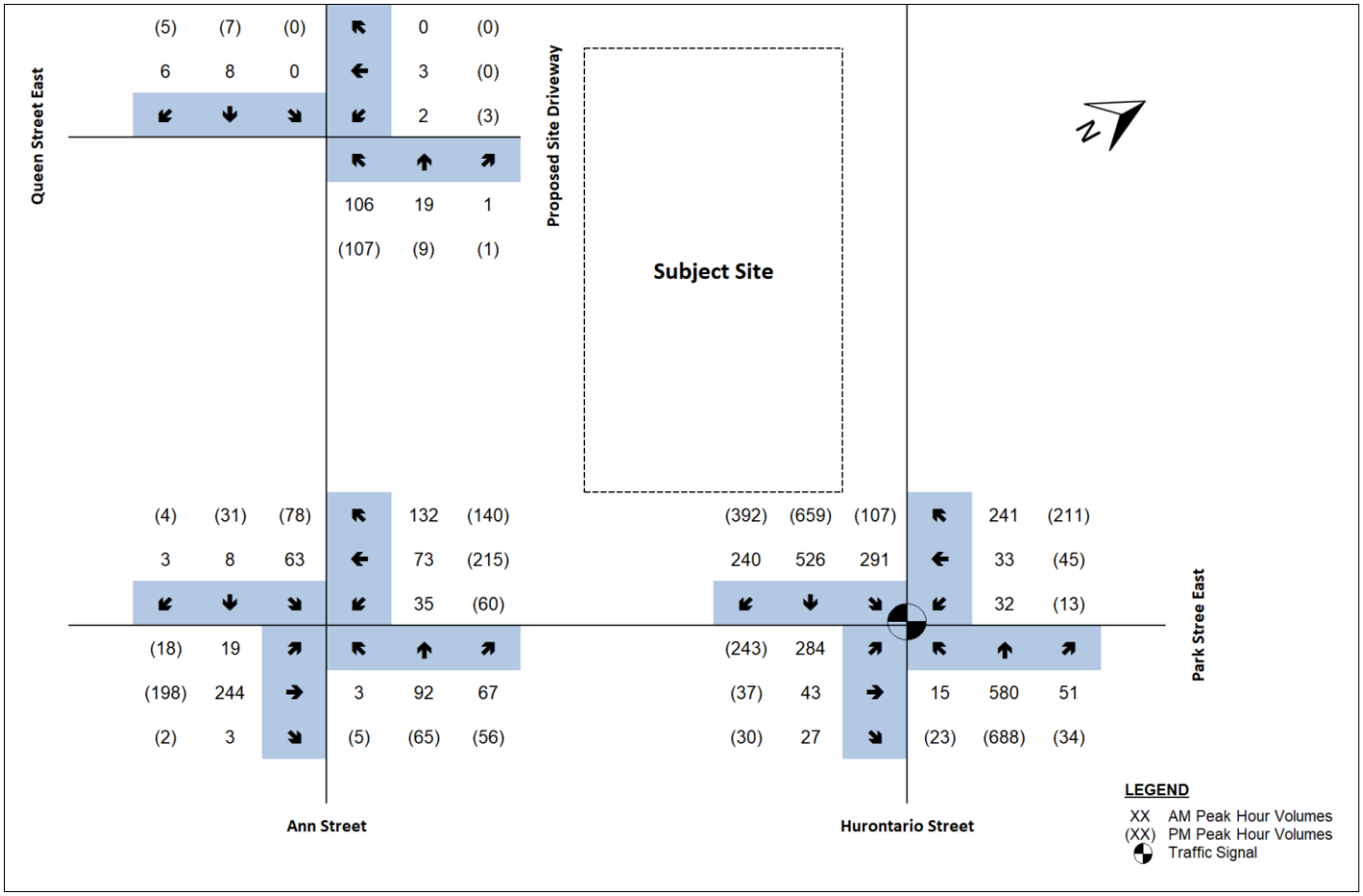

Figure 12 2028 Future Background Traffic Volumes

6. Site Generated Traffic

6.1 Site Traffic Generation

The subject site consists of two mixed-use buildings. The breakdown for the two buildings is as follows:

- North Tower: 712 units, 380 m^2 of commercial GFA, 2,017 m^2 of office GFA, and 907 m^2 of daycare GFA
- South Tower: 616 units and 1,300 m^2 of commercial GFA

The trip generation for the residential uses was calculated using rates provided in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition using Land Use Code (LUC) 222 (Multifamily Housing – High-Rise) for the residential portion of the proposed development, LUC 822 Strip Retail Plaza for the commercial portion, LUC 710 General Office Building for the office portion, and LUC 565 Day Care Center for the daycare component.

The selection of either the average rate or fitted curve equation for the trip generation was based on Section 4.4 of the ITE Trip Generation Handbook, 3rd Edition. The fitted curve equation was used to determine the trip generation for the residential and office components. the retail component generated the same number of trips using both the average rate and the fitted curve equation, and the daycare component only had an average rate and no fitted curve equation.

A transit modal split was applied only to site trips generated by the residential portion and the office component of the development. With the Hurontario LRT having expected completion in Fall 2024, the transit modal split was applied to the estimated residential and office site trips using data from both the 2016 Transportation Tomorrow Survey (TTS) (**Table 3** and **Table 4**) and the 2015 and 2031 Modal Split/Non-Auto Trip Reduction provided in the Port Credit GO Station Southeast Area Master Plan Study dated October 2015 (**Table 5**)

A base transit modal split was set for 2016 using the data extracted from the Transportation Tomorrow Survey and included data only from apartment buildings within the planning district of the proposed development (3877), along with two neighbouring planning districts (3642 and 3878). The data was also generated using only trips starting during the a.m. (7:00-9:00) and p.m. (16:00-19:00) peak periods.

A linear interpolation was derived from the 2015 and 2031 Modal Split provided in the area's Transportation Master Plan, provided in **Table 5**, to determine the projected modal split in 2028. With the splits provided in the Master Plan, it was determined that non-auto trips would increase by 0.94% a year during the a.m. peak hour and 1.25% during the p.m. peak hour for the 2028 Horizon period. The projected 2028 modal split is provided in **Table 6.**

No modal split reductions were applied to the commercial and daycare components with the assumption that only local trips will be generated by this portion of the proposed development.

Table 3 2016 TTS Modal Split Data for Residential Trips

Transportation Mode	Percentage Split			
	AM		PM	
	in	out	in	out
Transit	2%	21%	16%	2%
Auto driver	67%	62%	67%	71%
Auto passenger	22%	13%	9%	9%
Walk	9%	4%	7%	18%
TOTAL	100%	100%	100%	100%

Table 4 2016 TTS Modal Split Data for Planning Office Trips

Transportation Mode	Percentage Split			
	AM		PM	
	in	out	in	out
Transit	5%	N/A	N/A	0%
Auto driver	83%	N/A	N/A	80%
Auto passenger	3%	N/A	N/A	1%
Walk	8%	N/A	N/A	19%
TOTAL	**100%**	N/A	N/A	**100%**

Table 5 2015 and 2031 Modal Split/Non-Auto Trip Reduction (Port Credit Go Station TMP)

Peak Period	Primary Mode of Travel in 2015		Primary Mode of Travel in 2031	
	Auto Driver	Non-Auto Trip	Auto Driver	Non-Auto Trip
AM Peak	65%	35%	50%	50%
PM Peak	75%	25%	55%	45%

Table 6 Projected 2028 Modal Split (Residential)

Transportation Mode	Percentage Split			
	AM		PM	
	in	out	in	out
Transit	13%	32%	33%	19%
Auto driver	55%	51%	52%	57%
Auto passenger	22%	13%	9%	10%
Walk	9%	4%	7%	14%
TOTAL	100%	100%	100%	100%
Non-Auto Split	22%	36%	40%	33%
Modal Reduction (-5%)	**17%**	**31%**	**35%**	**28%**

Table 7 Projected 2028 Modal Split (Office)

Transportation Mode	Percentage Split			
	AM		PM	
	in	out	in	out
Transit	16%	N/A	N/A	15%
Auto driver	72%	N/A	N/A	65%
Auto passenger	3%	N/A	N/A	1%
Walk	8%	N/A	N/A	19%
TOTAL	100%	N/A	N/A	100%
Non-Auto Split	24%	N/A	N/A	34%
Modal Reduction (-5%)	**19%**	N/A	N/A	**29%**

Table 8 below summarizes the estimated trip generation for the proposed development.

Table 8 Estimated Site Trips

Land Uses	GFA (Dwelling Units)	Parameters	Peak Hour					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Multifamily Housing (High-Rise) (LUC 222)	1,328 units	Trip Rate (per unit)	0.06	0.17	0.23	0.17	0.11	0.28
		Gross Trips	81	230	311	228	140	368
		Modal Split	17%	31%	-	35%	28%	-
		Modal Split Reduction	-14	-72	-86	-77	-40	-117
		Total New Trips	**67**	**158**	**225**	**151**	**100**	**251**
Strip Retail Plaza (<40k) (LUC 822)	18,083.37 ft^2	Trip Rate (per 1,000 ft^2 of GFA)	1.38	0.99	2.37	3.32	3.27	6.59
		Total New Trips	**25**	**18**	**43**	**60**	**59**	**119**
General Office Building (LUC 710)	21,710.81 ft^2	Trip Rate (per 1,000 ft^2 of GFA)	1.79	0.28	2.07	0.38	1.79	2.17
		Gross Trips	39	6	45	8	39	47
		Modal Split	20%	N/A	-	N/A	29%	-
		Modal Split Reduction	-8	0	-8	0	-11	-111
		Total New Trips	**31**	**6**	**37**	**8**	**28**	**36**
Daycare Center (LUC 565)	9,762.87 ft^2	Trip Rate (per 1,000 ft^2 of GFA)	5.75	5.26	11.01	5.26	5.85	11.11
		Total New Trips	**56**	**51**	**107**	**51**	**58**	**109**
Total Primary Trips			***179***	***233***	***412***	***270***	***245***	***515***

The mixed-used development is expected to generate a total of 412 new two-way trips consisting of 179 inbound and 233 outbound trips during weekday a.m. peak hour and 515 new two-way trips consisting of 270 inbound and 245 outbound trips during the weekday p.m. peak hour.

6.2 Site Traffic Distribution and Assignment

The site generated traffic for the residential development was primarily distributed based on a review of the 2016 Transportation Tomorrow Survey (TTS) and the existing traffic patterns. Trips were assigned to the study area intersections based on reasonable routes for vehicles to minimize the travel time and distance under the existing road network.

The site generated traffic for the commercial and daycare components within the subject site was assumed to have a more local trip distribution, with trips assigned more evenly throughout the study area roads.

The directional split based on the 2016 Transportation Tomorrow Survey date for the residential site traffic distribution is provided in **Table 9** with the full calculation sheets provided in **Appendix B**. The site traffic distribution percentages for passenger vehicles for each individual land use within the subject site are provided in **Figure 13, Figure 14, Figure 15,** and **Figure 16** with the site generated traffic assignment to the study area road network for the weekday a.m. and p.m. peak hours provided in **Figure 17, Figure 18, Figure 19,** and **Figure 20**. The total site traffic for the subject site is summarized in **Figure 21**.

Table 9 2016 TTS Data Directional Split

Peak Period	Direction	North	South	East	West
AM	Inbound	61%	0%	19%	20%
	Outbound	70%	0%	15%	15%
PM	Inbound	68%	0%	16%	16%
	Outbound	62%	0%	18%	20%

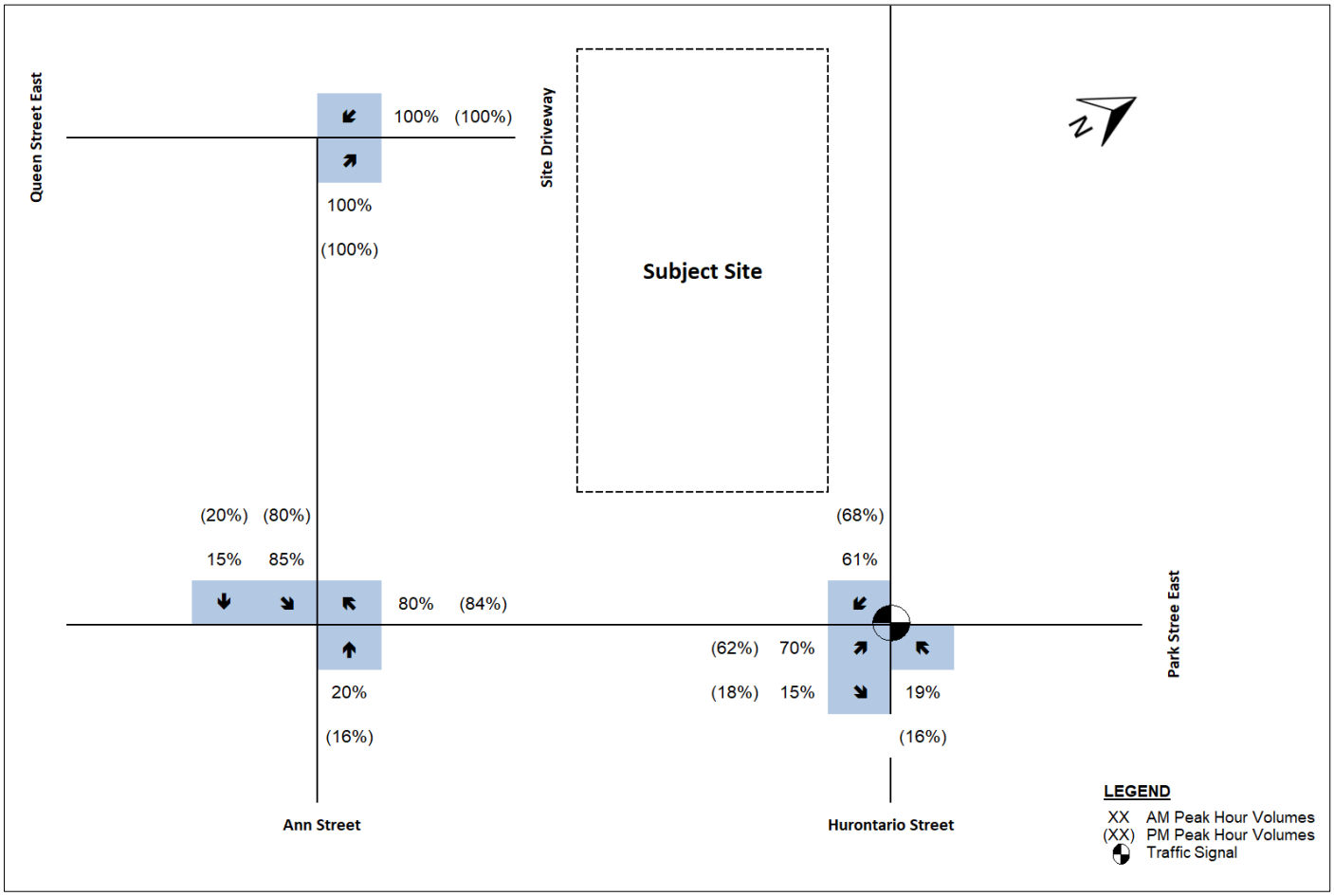

Figure 13 Trip Distribution - Residential

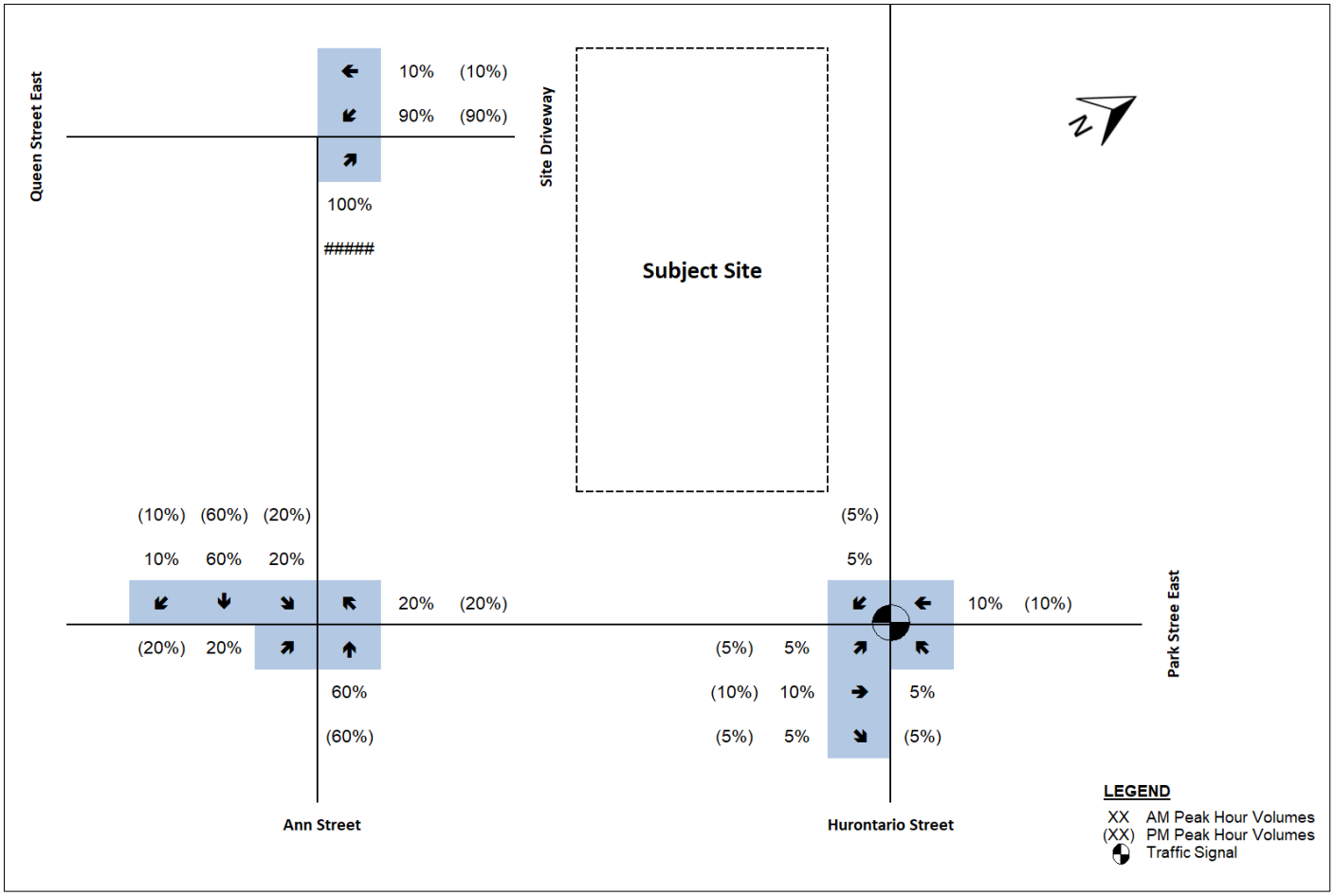

Figure 14 Trip Distribution – Commercial

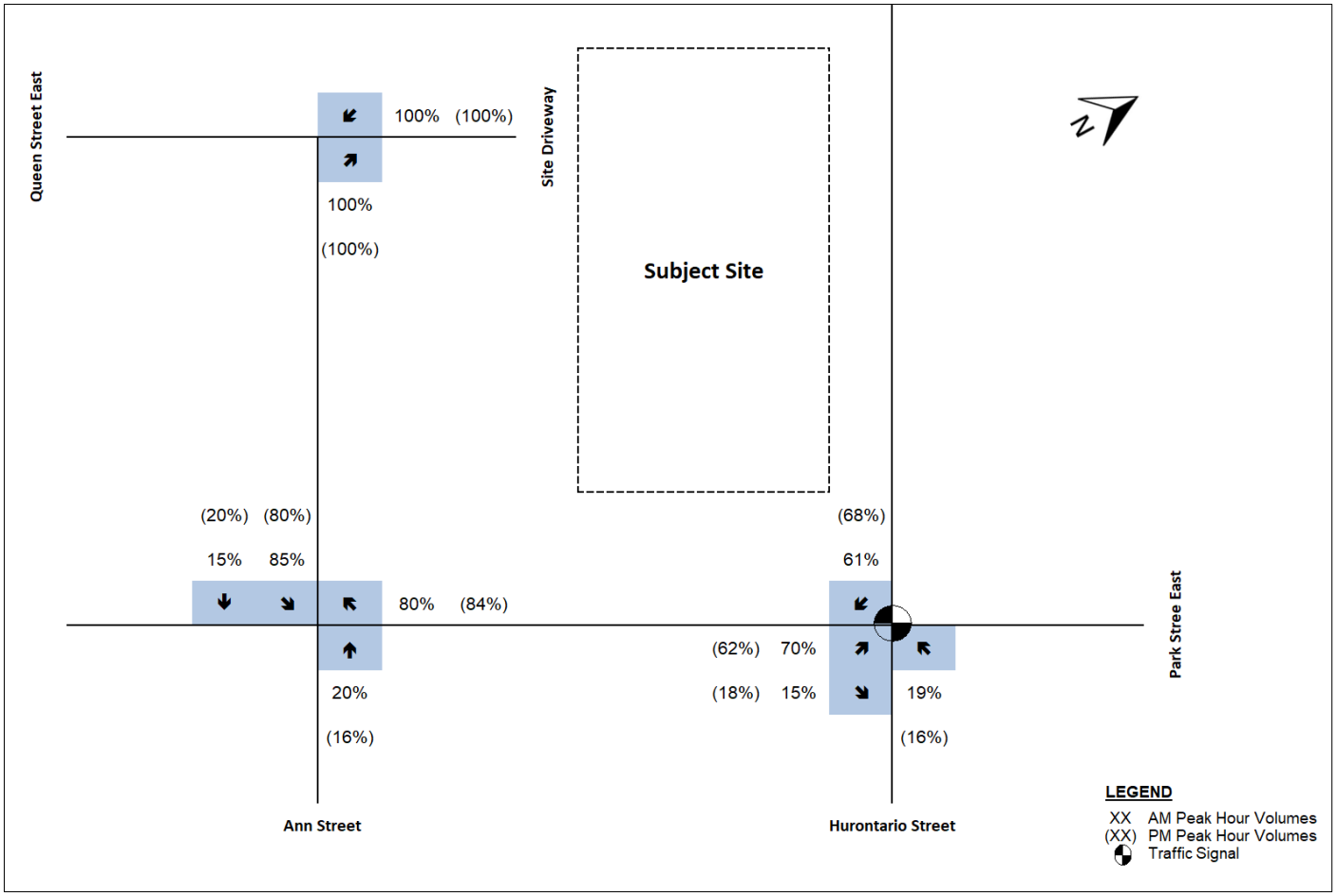

Figure 15 Trip Distribution - Office

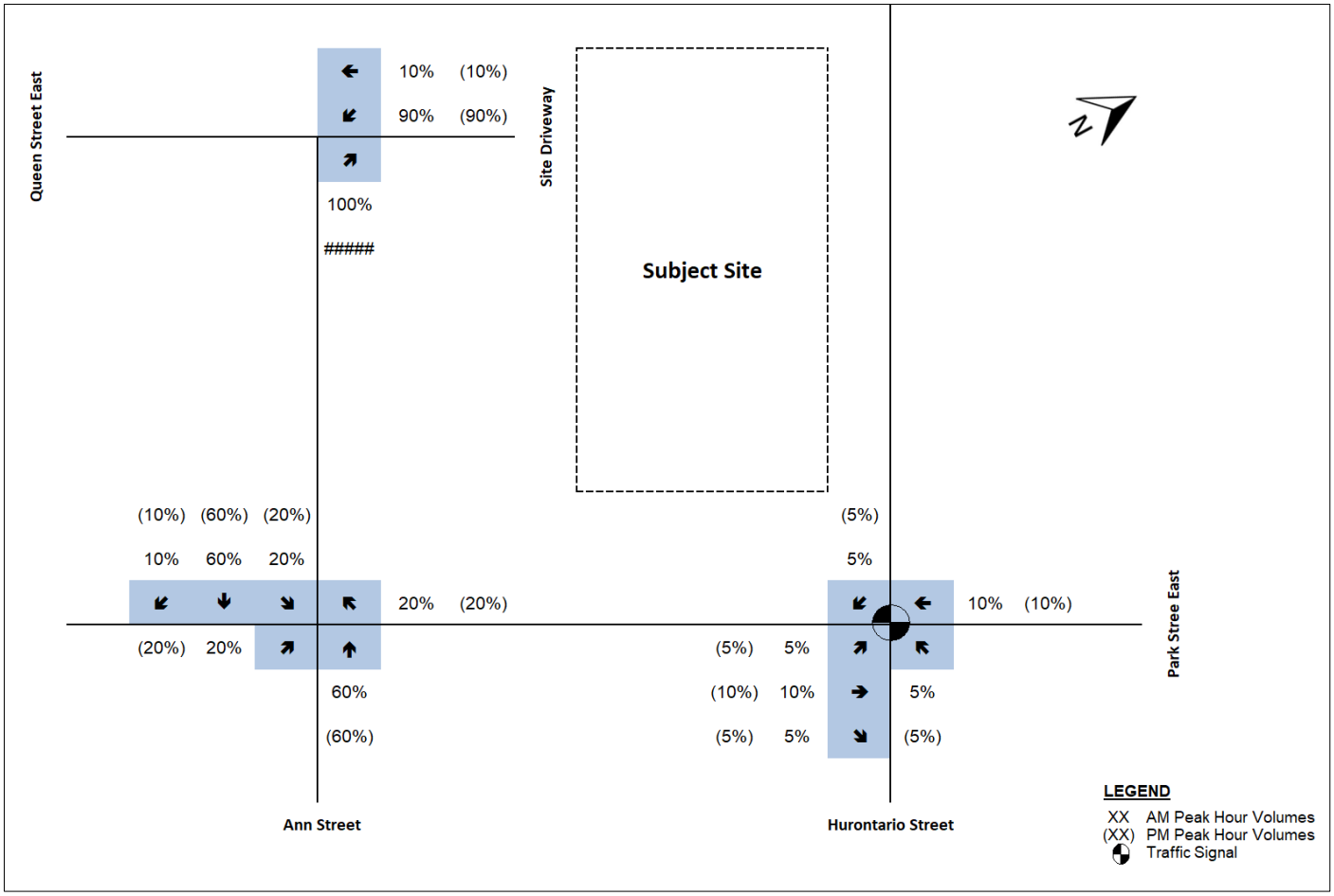

Figure 16 Trip Distribution – Daycare

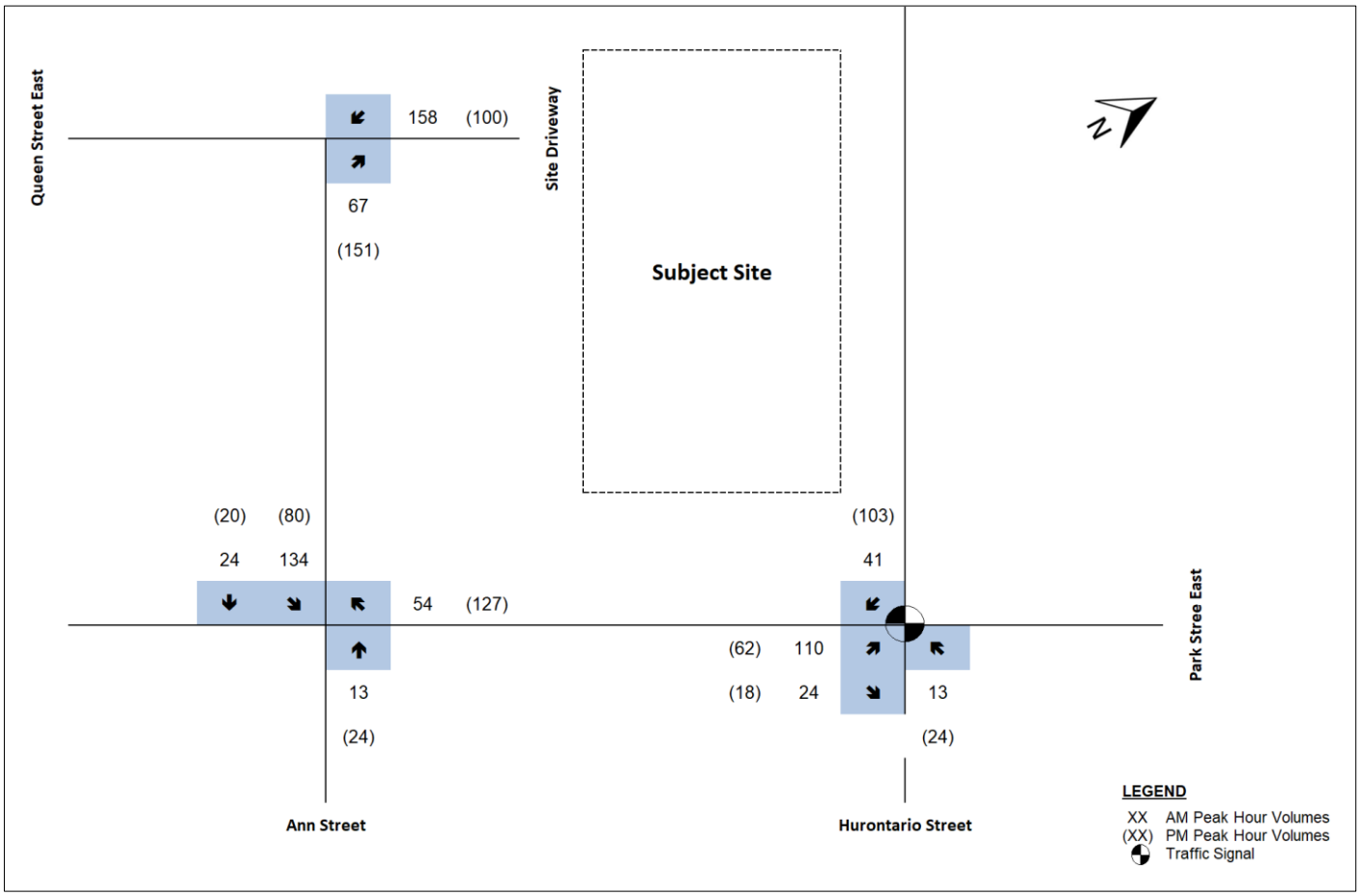

Figure 17 Site Trips – Residential

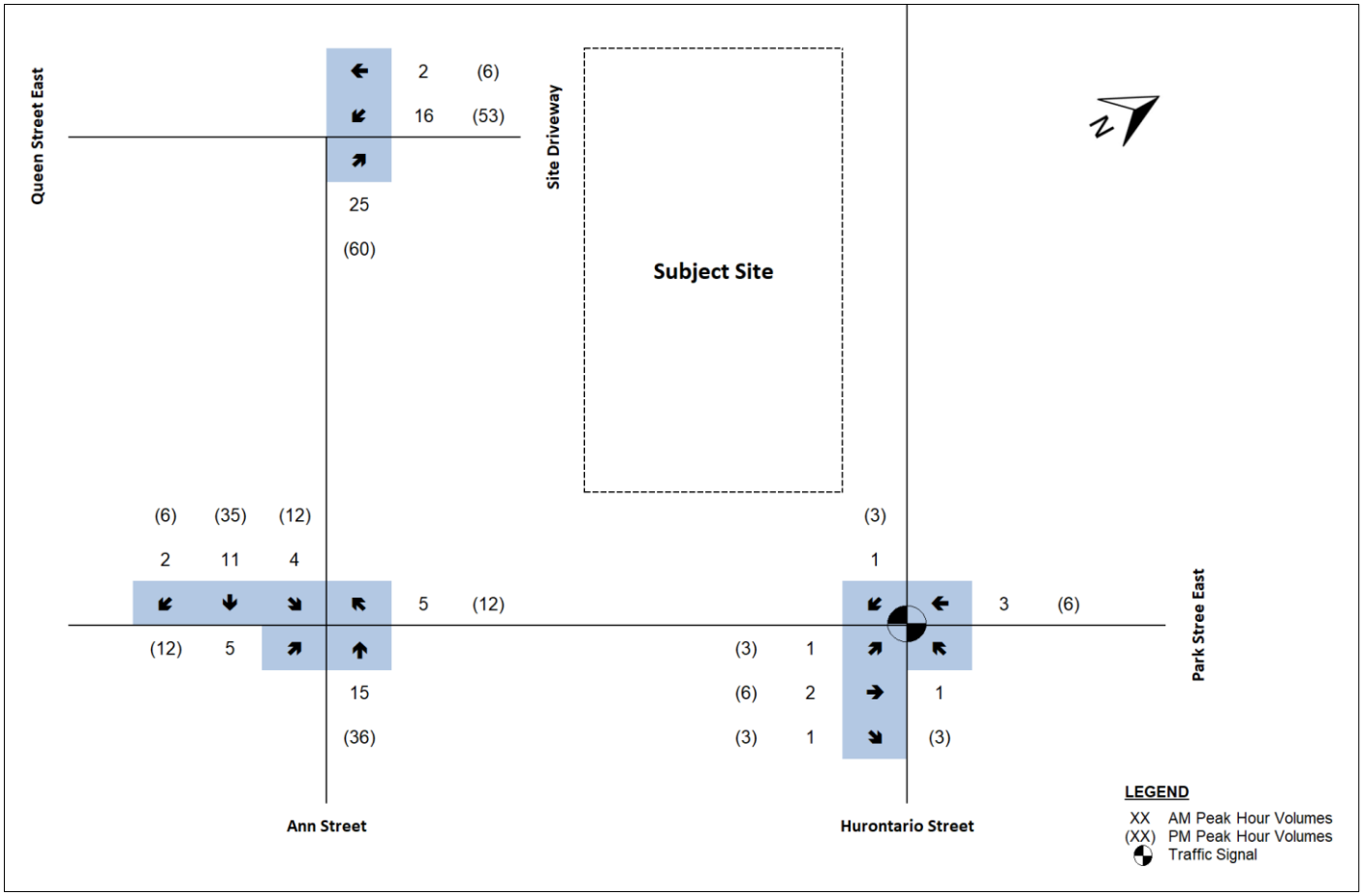

Figure 18 Site Trips – Commercial

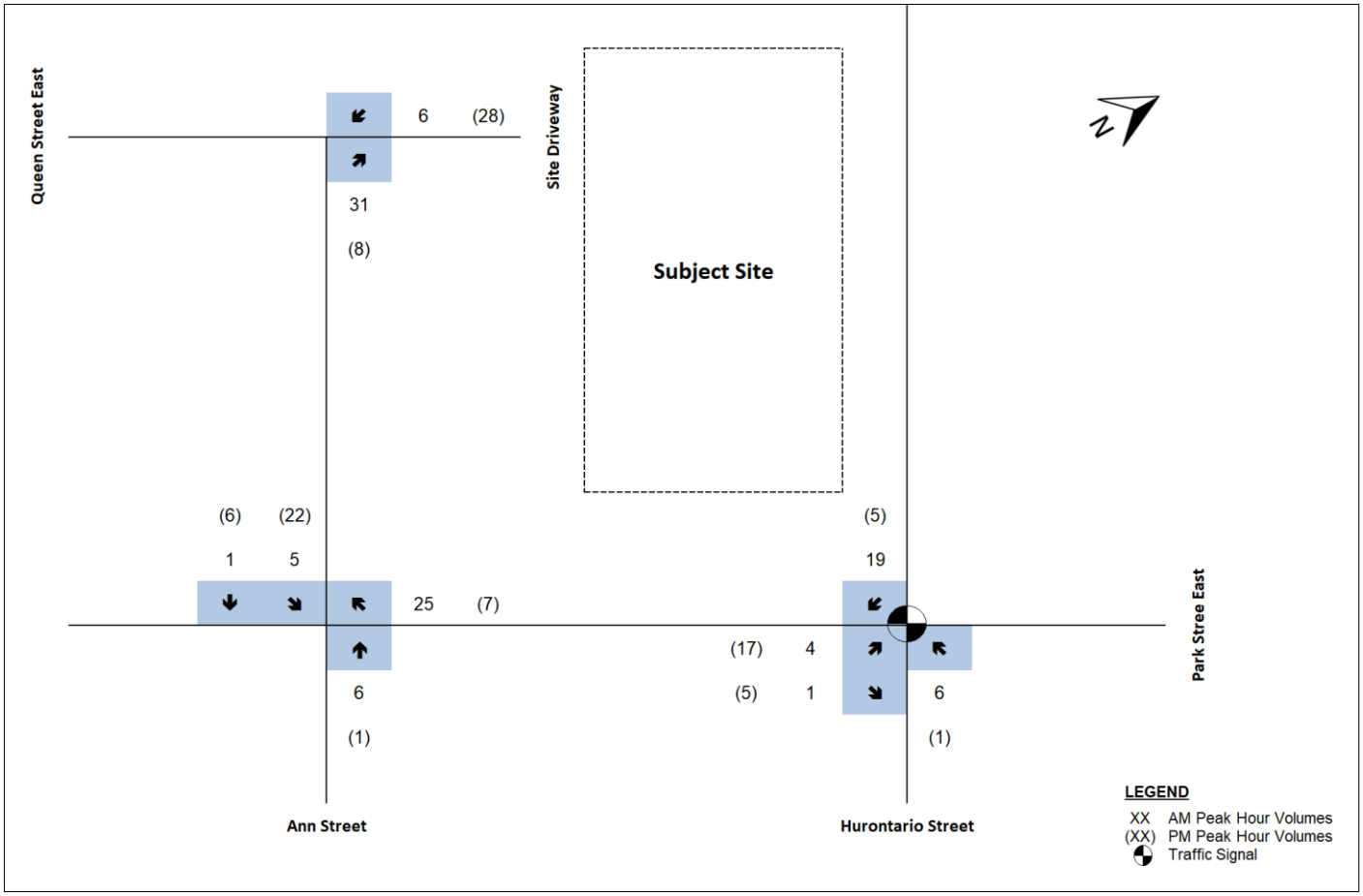

Figure 19 Site Trips – Office

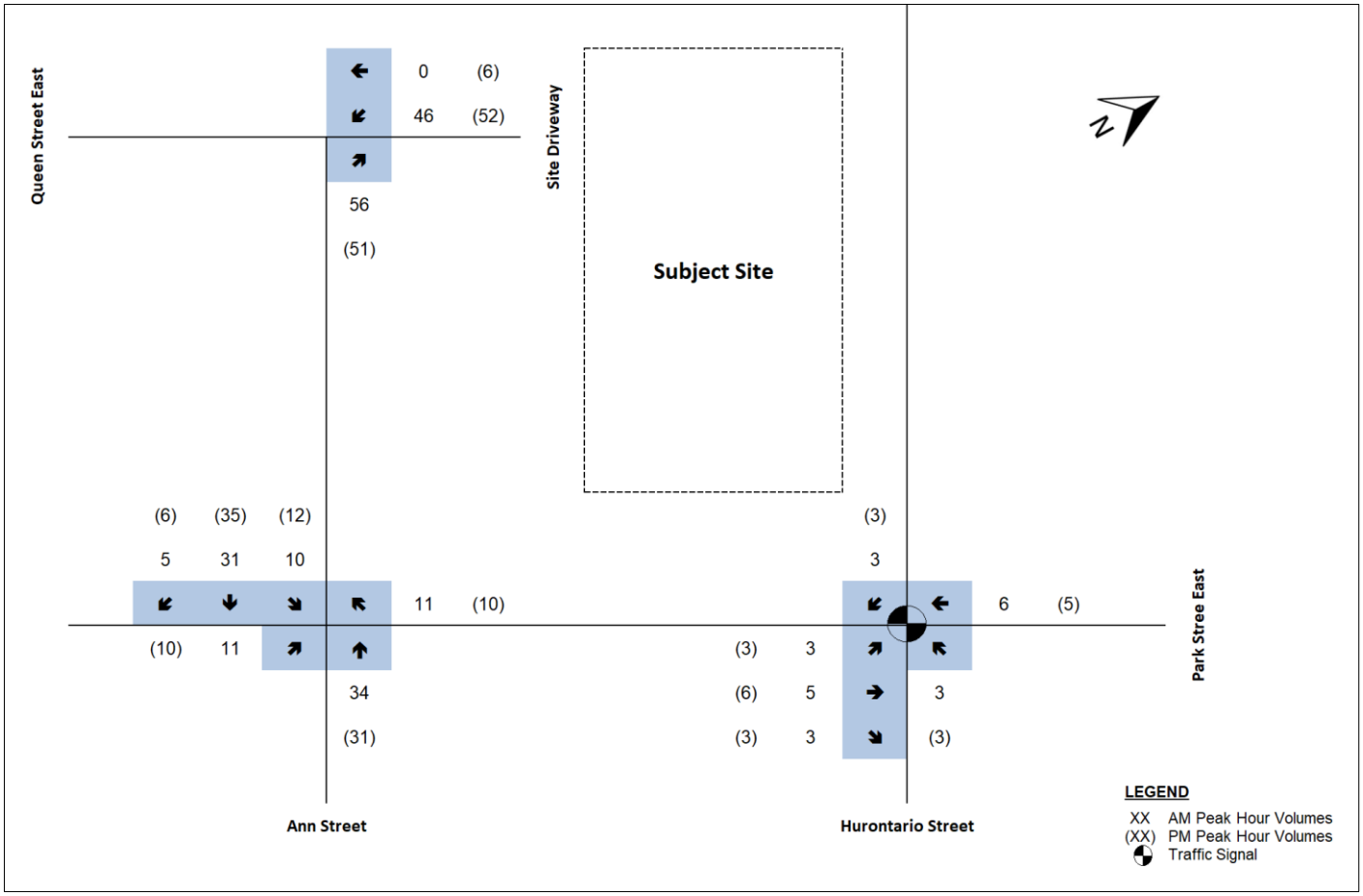

Figure 20 Site Trips – Daycare

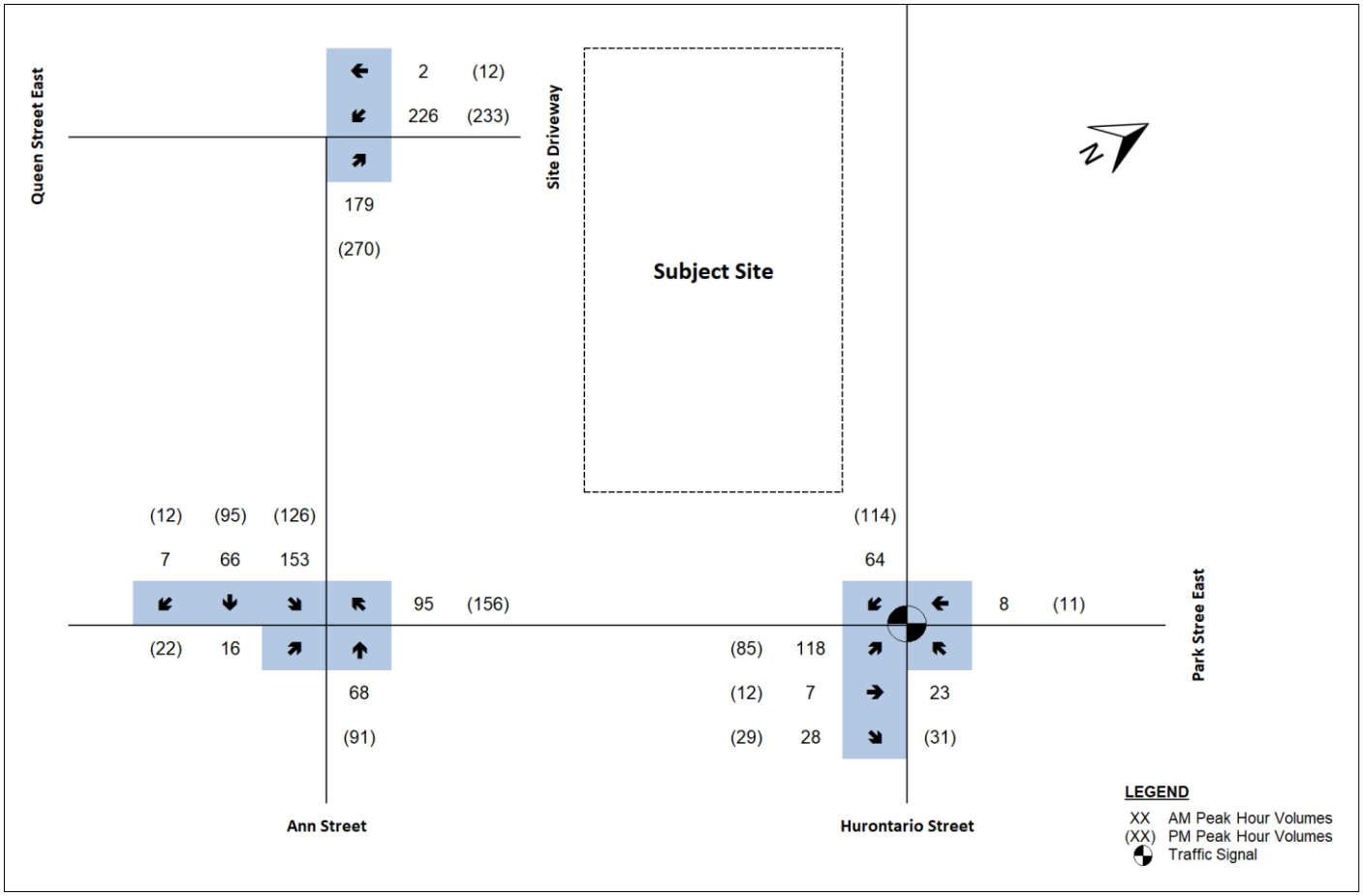

Figure 21 Total Overall Site Trips

7. Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak hours for the 2028 planning horizon was derived by combining the projected future background traffic with the corresponding estimated site generated traffic. The resulting traffic volumes are presented in **Figure 22**

Figure 22 2028 Future Total Traffic Volumes

8. Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 10 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement. Both pedestrian crossing volumes and heavy vehicle proportions are included in the analyses. The peak hour factors from the historic counts were used to analyze existing and future traffic conditions.

The analysis includes identification and required modifications and improvements (if any) at intersections where the addition of background growth or background growth plus site-generated traffic volumes causes the following:

'Critical' intersections and movements for a signalized intersection include:

- V/C ratios for overall intersections operations, through movements, or shared through/turning movements increase to 0.85 or above;
- V/C ratios for exclusive movements increase to 0.90 or above; or
- 95th percentile queue length for individual movements that are projected to, or exceed, the storage length.

'Critical' intersections and movements for an unsignalized intersection include:

- Level of Services (LOS), based on average delay per vehicle, on individual movements is LOS "E" or greater; or
- Queue length for individual movements that exceeds the lesser of 5 vehicles or the available queue storage.

The following tables summarize the HCM capacity results for the study intersections during the weekday a.m. and p.m. peak hours under existing (2023), future background (2028) and future total (2028) traffic conditions. The detailed calculation sheets are provided in **Appendix C**.

8.1 Hurontario Street and Park Street East

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 10 Capacity analysis of Hurontario Street and Park Street East

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2023	Overall: 0.78 (C) 30 EBL = **1.00** (F) 116 EBTR = 0.12 (D) 37 WBL = 0.1 (D) 37 WBTR = 0.33 (D) 40 NBL = 0.05 (C) 20 NBTR = 0.43 (C) 25 SBL = 0.66 (B) 17 SBTR = 0.41 (B) 14	 EBL = 90 m EBTR = 25 m WBL = 15 m WBTR = 30 m NBL = 10 m NBTR = 80 m SBL = 50 m SBTR = 60 m	Overall: 0.60 (B) 20 EBL = **0.95** (F) 87 EBTR = 0.11 (C) 29 WBL = 0.04 (C) 29 WBTR = 0.45 (C) 33 NBL = 0.05 (A) 8 NBTR = 0.35 (A) 10 SBL = 0.29 (B) 11 SBTR = 0.46 (B) 11	 EBL = 60 m EBTR = 15 m WBL = 10 m WBTR = 45 m NBL = 5 m NBTR = 60 m SBL = 25 m SBTR = 80 m
Future Background 2028	Overall: 0.78 (D) 38 EBL = 0.75 (D) 43 EBTR = 0.1 (C) 29 WBL = 0.25 (E) 57 WBTR = 0.67 (E) 68 NBL = 0.12 (D) 36 NBTR = 0.72 (D) 47 SBL = 0.75 (C) 30 SBTR = 0.53 (C) 22	 EBL = 75 m EBTR = 15 m WBL = 20 m WBTR = 45 m NBL = 10 m NBTR = 135 m SBL = 100 m SBTR = 110 m	Overall: 0.72 (C) 22 EBL = **0.91** (E) 61 EBTR = 0.09 (C) 24 WBL = 0.03 (C) 23 WBTR = 0.42 (C) 27 NBL = 0.14 (B) 13 NBTR = 0.42 (B) 15 SBL = 0.39 (B) 17 SBTR = 0.61 (B) 18	 EBL = 75 m EBTR = 15 m WBL = 5 m WBTR = 45 m NBL = 10 m NBTR = 75 m SBL = 35 m SBTR = 110 m
Future Total 2028	Overall: **0.93** (D) 50 EBL = **0.96** (E) 69 EBTR = 0.13 (C) 25 WBL = 0.21 (D) 53 WBTR = 0.79 (E) 75 NBL = 0.38 (D) 50 NBTR = 0.84 (E) 58 SBL = 0.84 (D) 48 SBTR = 0.64 (C) 29	 EBL = 140 m EBTR = 20 m WBL = 20 m WBTR = 60 m NBL = 25 m NBTR = 135 m SBL = 120 m SBTR = 125 m	Overall: **0.85** (C) 28 EBL = **0.96** (E) 65 EBTR = 0.12 (B) 19 WBL = 0.03 (B) 19 WBTR = 0.37 (C) 22 NBL = 0.66 (D) 52 NBTR = 0.48 (B) 19 SBL = 0.49 (C) 25 SBTR = 0.76 (C) 26	 EBL = 120 m EBTR = 20 m WBL = 5 m WBTR = 50 m NBL = 35 m NBTR = 75 m SBL = 35 m SBTR = 120 m

Under existing traffic conditions, the overall intersection has a reported v/c ratio of 0.78 LOS C during the a.m. peak hour and 0.60 LOS C during the p.m. peak hour. The intersection is operating with acceptable levels of delay for all individual movements with the exception of a critical movement in the eastbound left-turn approach during both peak periods. The approach is reporting a v/c ratio of 1.00 LOS F (116 seconds of delay) during the a.m. peak hour and 0.95 LOS F (87 seconds of delay) during the p.m. peak hour.

With the addition of corridor growth along Hurontario Street, the background development traffic, and signal improvements including signal optimization and the addition of an eastbound left-turn phase during the a.m. peak hour only under the 2028 future background horizon period, the overall reported v/c of the intersection is expected to decrease to 0.59 LOS C during the a.m. peak hour and increase to 0.63 LOS B during the p.m. peak hour. The eastbound left-turn approach remains a critical movement only during the p.m. peak hour (0.91 LOS E).

Under the 2028 future total traffic condition, with the addition of site traffic, the intersection continues to operate at satisfactory levels with the overall v/c ratio of the intersection increasing to 0.68 LOS C and 0.71 LOS C during the a.m. and p.m. peak hour respectively. The eastbound left-turn is once again critical during both peak periods, reporting a v/c ratio of 0.91 LOS E during the a.m. peak hour and 0.94 LOS E during the p.m. peak hour. With further signal timing improvements, there are only improvements to the overall v/c ratio in the a.m. peak (0.68 to 0.67 LOS C) with the eastbound left-turn approach reported to be below critical levels. During the a.m. peak hour, the v/c ratio is reduced from 0.91 LOS E to 0.88 LOS E and reduced from 0.92 LOS E to 0.87 LOS D during the p.m. peak hour.

No geometric improvements were identified at this intersection to accommodate the proposed development, with only signal timing improvements recommended including the addition of an eastbound left-turn phase during the a.m. peak hour. It should be noted that a decrease in traffic will occur with the closure of the existing GO Station Parking lot, however no reduction was applied in the analysis of the future conditions to provide a conservative analysis of future conditions.

8.2 Ann Street and Park Street East

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 11 Capacity analysis of Ann Street and Park Street East

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2023	EBTLR = 0.35 (B) 10 WBTL = 0.15 (A) 8 WBR = 0.17 (A) 7 NBTLR = 0.19 (A) 10 SBTLR = 0.02 (A) 8	EBTLR = 0 m WBTL = 0 m WBR = 0 m NBTLR = 0 m SBTLR = 0 m	EBTLR = 0.29 (A) 10 WBTL = 0.34 (A) 10 WBR = 0.13 (A) 7 NBTLR = 0.15 (A) 10 SBTLR = 0.15 (A) 9	EBTLR = 0 m WBTL = 0 m WBR = 0 m NBTLR = 0 m SBTLR = 0 m
Future Background 2028	EBTLR = 0.44 (B) 12 WBTL = 0.2 (A) 9 WBR = 0.21 (A) 8 NBTLR = 0.29 (B) 11 SBTLR = 0.14 (A) 10	EBTLR = 0 m WBTL = 0 m WBR = 0 m NBTLR = 0 m SBTLR = 0 m	EBTLR = 0.36 (B) 12 WBTL = 0.48 (B) 13 WBR = 0.21 (A) 8 NBTLR = 0.23 (B) 11 SBTLR = 0.21 (B) 11	EBTLR = 0 m WBTL = 5 m WBR = 0 m NBTLR = 0 m SBTLR = 0 m
Future Total 2028	EBTLR = 0.65 (C) 23 WBTL = 0.27 (B) 13 WBR = 0.50 (A) 16 NBTLR = 0.54 (C) 19 SBTLR = 0.68 (C) 25	EBTLR = 5 m WBTL = 0 m WBR = 5 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.58 (C) 22 WBTL = 0.66 (C) 24 WBR = 0.63 (A) 20 NBTLR = 0.54 (C) 21 SBTLR = 0.79 (D) 33	EBTLR = 5 m WBTL = 5 m WBR = 5 m NBTLR = 5 m SBTLR = 5 m

Under the existing condition, the intersection of Park Street East and Ann Street operates at satisfactory levels with a delay of 10 seconds or less for each approach during the a.m. peak and 11 seconds or less during the p.m. peak hour.

With the addition of background traffic during the 2028 future background traffic condition there are marginal increases to the delays for each movement, with the largest increase occurring in the westbound through/left movement during the p.m. peak hour with a 3 second increase.

With the addition of site traffic under the 2028 future total traffic condition, the v/c ratio for all approaches continue to increase but remain well below critical levels. The greatest delay is observed in the southbound movement, which reports a 25 second delay during the a.m. peak hour and 33 second delay during the p.m. peak hour.

No improvements are recommended at this intersection as a result of the proposed development. It should be noted that a decrease in traffic will occur at this intersection with the closure of the GO Station Parking lot, however no reduction was applied in the analysis of the future conditions to provide a conservative analysis of future conditions.

8.3 Ann Street and Queen Street East/Proposed Site Access

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 12 Capacity analysis of Ann Street and Queen Street East/Proposed Site Access

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2023	WBTLR = 0.01 (A) 8 NBTLR = 0.18 (A) 8 SBTLR = 0.02 (A) 7	WBTLR = 0 m NBTLR = 0 m SBTLR = 0 m	WBTLR = 0 (A) 8 NBTLR = 0.18 (A) 8 SBTLR = 0.02 (A) 7	WBTLR = 0 m NBTLR = 0 m SBTLR = 0 m
Future Background 2028	WBTLR = 0.01 (A) 7 NBTLR = 0.18 (A) 8 SBTLR = 0.02 (A) 7	WBTLR = 0 m NBTLR = 0 m SBTLR = 0 m	WBTLR = 0 (A) 8 NBTLR = 0.15 (A) 8 SBTLR = 0.01 (A) 7	WBTLR = 0 m NBTLR = 0 m SBTLR = 0 m
Future Total 2028	WBTLR = 0.37 (B) 11 NBTLR = 0.44 (B) 11 SBTLR = 0.02 (A) 8	WBTLR = 0 m NBTLR = 0 m SBTLR = 0 m	WBTLR = 0.39 (B) 11 NBTLR = 0.51 (B) 12 SBTLR = 0.02 (A) 8	WBTLR = 0 m NBTLR = 0 m SBTLR = 0 m

Under all future traffic conditions, this intersection is expected to continue to operate satisfactorily with LOS A on Ann Street and only a 12 second delay for vehicles exiting the site driveway. No improvements are recommended at this intersection as a result of the proposed development.

9. Parking Review

9.1 Existing City of Mississauga Zoning By-Law

9.1.1 Vehicular Parking Requirement

The subject site is governed by the City of Mississauga's Zoning By-Law 0225-2007, as amended, and is located within Precinct 1. The minimum parking requirements are found in Section 3.1.2.1 for residential uses and 3.1.2.2 for the non-residential land use. The minimum By-law requirement for each land use is as follows:

- Condominium, Apartment
    - 0.80 spaces per unit, for residents
    - 0.20 spaces per unit, for visitors
- Retail Store
    - 3.0 spaces per 100 m^2 GFA

- Office
    - 2.0 spaces per 100 m^2 GFA
- Daycare
    - 2.5 spaces per 100 m^2 GFA

As per Section 3.1.2.1.3 of the City of Mississauga's Zoning By-Law, the residential visitor and non-residential parking may be shared between the two components. The visitor/non-residential parking requirement is the greater of

- Visitor spaces per unit in accordance with applicable regulations contained in Table 3.1.2.1 (Section 3.1.2.2) of the City's By-law; or
- Parking required for all non-residential uses, located in the same building or on the same lot as the residential use,

The minimum parking required for the proposed development is as follows:

- 1,328 units x (0.8 spaces/unit) = 1,062 spaces, for residents

And the greater of:

- 1,328 units x (0.2 spaces/unit) = 266 spaces, for visitors

or

- 1,680 m^2 x (3 spaces per 100 m^2 GFA) = 50 spaces (retail), plus
- 2,017 m^2 x (2 spaces per 100 m^2 GFA) = 40 spaces (office), plus
- 907 m^2 x (2.5 spaces per 100 m^2 GFA) = 23 spaces (daycare)

In total, 1,328 spaces are required under the City's By-Law 0225-2007.

9.1.2 Accessible Parking

The minimum requirement for accessible parking spaces can also be found in the City of Mississauga's Zoning By-Law 0225-2007, with the minimum accessible parking requirement found in Section 3.1.3, Table 3.1.3.1. The minimum By-law requirement for accessible parking for residential land uses depends only on the number of required visitor parking spaces.

- Total number of required visitor spaces:
    - 201-1,000 spaces: 2.0 spaces plus 2% of the total

The minimum number of accessible parking spaces required for the proposed development is as follows:

    - 2% of 266 spaces + 2.0 spaces = 8 spaces

In total, 8 accessible parking spaces are required under the City's By-Law.

9.1.3 Bicycle Parking

The minimum requirement for bicycle parking spaces is also found in the City of Mississauga's Zoning By-Law 0225-2007, with the minimum bicycle parking requirement found in Section 5.4.1, Table 5.4.1. The minimum By-law requirement for bicycle parking for the subject site is as follows:

- Apartment without exclusive garages:
    - 0.60 spaces per unit, Class A
    - The greater of 0.05 spaces per unit or 6.0 spaces, Class B

- Retail
    - 0.15 space per 100 m^2 of non-residential GFA, Class A
    - 0.20 space per 100 m^2 of non-residential GFA, Class B
- Office
    - 0.10 space per 100 m^2 of non-residential GFA, Class A
    - 0.10 space per 100 m^2 of non-residential GFA, Class B
- All other non-residential uses
    - 0.05 space per 100 m^2 of non-residential GFA, Class A
    - 0.10 space per 100 m^2 of non-residential GFA, Class B

The minimum parking required for the proposed development is as follows:

- Apartment without exclusive garages:
    - 0.60 parking space per unit x 1,328 units = 797 spaces Class A spaces.
    - 0.05 parking space per unit x 1,328 units = 66 spaces Class B spaces.
- Retail
    - 0.15 space per 100 m^2 of non-residential GFA x 1,680 m^2 = 3 spaces, Class A
    - 0.20 space per 100 m^2 of non-residential GFA x 1,680 m^2 = 3 spaces, Class B
- Office
    - 0.10 space per 100 m^2 of non-residential GFA x 2,017 m^2 = 2 spaces, Class A
    - 0.10 space per 100 m^2 of non-residential GFA x 2,017 m^2 = 2 spaces, Class B
- All other non-residential uses
    - 0.05 space per 100 m^2 of non-residential GFA x 907 m^2 = 1 space, Class A
    - 0.10 space per 100 m^2 of non-residential GFA x 907 m^2 = 1 space, Class B

In total, 875 bicycle parking spaces are required under the City's Zoning By-Law, consisting of 803 Class A and 72 Class B spaces.

9.1.4 Loading Spaces

The City of Mississauga's Zoning By-Law 0225-2007 requires apartment and/or retirement buildings that contain a minimum of 30 dwelling units to provide one loading space.

Retail and Daycare

- Less than or equal to 250 m^2: None required
- Greater than 250 m^2 but less than or equal to 2 350 m^2: 1.0 space
- Greater than 2 350 m^2 but less than or equal to 7 500 m^2: 2.0 spaces
- Greater than 7 500 m^2 but less than or equal to 14 000 m^2: 3.0 spaces
- Greater than 14 000 m^2: 3.0 spaces plus 1.0 additional space for each 9 300 m^2 GFA - non-residential or portion thereof

Office

- Less than or equal to 2 350 m^2: None Required
- Greater than 2 350 m^2 but less than or equal to 11 600 m^2: 1.0 space
- Greater than 11 600 m^2: 1.0 space plus 1.0 additional space for each 9 300 m^2 gross floor area - non-residential or portion thereof

All loading spaces shall have an unobstructed rectangular area with a minimum width of 3.5 metres and minimum length of 9.0 metres.

Under the City of Mississauga's Zoning By-Law, the subject site is required to provide a minimum of 3 loading spaces.

9.2 Proposed Site Parking

The following table summarizes the parking and loading requirement and provision for the subject site.

Table 13 Parking Requirements and Provisions

<table>
<tr><th>Type</th><th>Unit Count/GFA</th><th>By-Law Requirement</th><th colspan="2">Required</th><th>Provided</th></tr>
<tr><td>Vehicle Parking – Residential (Residents)</td><td rowspan="6">1,328 dwelling units,
1,680 m^2 retail GFA,
2,017 m^2 office GFA, and 907 m^2 daycare GFA</td><td>Minimum 0.80 parking space per unit</td><td colspan="2">Minimum of 1,062 spaces</td><td rowspan="5">583 vehicle parking spaces (474 for residents at 0.36 spaces per unit
and 109 spaces for visitors/non-residential uses at 0.08 spaces per unit)</td></tr>
<tr><td>Vehicle Parking – Residential (Visitors)</td><td>Minimum 0.20 parking space per unit</td><td>Minimum of 266 spaces</td><td rowspan="4">*Minimum of 266 parking spaces</td></tr>
<tr><td>Vehicle Parking - Retail</td><td>Minimum 3 parking spaces per 100 m^2 of non-residential GFA</td><td>Minimum of 50 spaces</td></tr>
<tr><td>Vehicle Parking - Office</td><td>Minimum 2 parking spaces per 100 m^2 of non-residential GFA</td><td>Minimum of 40 spaces</td></tr>
<tr><td>Vehicle Parking - Daycare</td><td>Minimum 2.5 parking spaces per 100 m^2 of non-residential GFA</td><td>Minimum of 23 spaces</td></tr>
<tr><td>Barrier Free Parking – Non-Residential</td><td>2.0 spaces + 2% of total visit</td><td colspan="2">Minimum of 8 spaces</td><td></td></tr>
</table>

Bicycle Parking (Class A)		0.6 spaces per unit (residential) 0.1 space per 100 m^2 GFA (office) 0.05 spaces per 100 m^2 GFA – non-residential (retail + daycare)	Minimum of 797 for residential, 3 spaces for retail, 2 spaces for office, and 1 space for all other uses	804 spaces
Bicycle Parking (Class B)		The greater of 0.05 spaces per unit or 6.0 spaces (residential) 0.1 space per 100 m^2 GFA – non-residential spaces (retail + office + daycare)	Minimum of 66 spaces for residential, 3 spaces for retail, 2 spaces for office, and 1 space for all other uses	72 spaces
Loading Space		1 loading space per apartment building with a minimum of 30 dwelling units. 1 loading space when the non-residential land use has a GFA greater than 250 m^2 but less than or equal to 2 350 m^2 2 loading spaces when the non-residential land use has a GFA greater than 2 350 m^2 but less than or equal to 7 500 m^2	3 loading spaces (1 for residential and 2 for the retail/daycare component)	4 loading spaces

*Shared arrangement for residential visitor and non-residential parking components.

The parking provision of 474 resident parking spaces represents a deficit of 588 spaces from the Zoning By-law requirement of 1,062 resident spaces. The provision of 109 visitor/non-resident visitor parking spaces represents a deficit of 157 parking space from the minimum 266 visitor spaces required for the residential visitor, retail, office and daycare uses. However, the site is well suited to intensification from an urban transportation perspective and current travel characteristics confirm that the surrounding area provides significant opportunity for urban living in a mixed-used environment. The site will promote reduced automobile usage with opportunities to incorporate car share facilities, good pedestrian and cycling infrastructure and connectivity to transit including the existing nearby GO Station and future light rail transit along Hurontario Street.

9.3 Parking Assessment

9.3.1 Ontario's Five Year Climate Change Action Plan

The purpose of Ontario's Climate Change Action Plan, announced in 2016, is to address climate change through transportation and land-use measures. The plan aims to reduce emissions, create more livable, mixed-use communities, and prioritize addressing climate change at the municipal level.

In terms of development, the plan outlines key actions such as supporting cycling and walking, reducing single-passenger vehicle trips, and eliminating minimum parking requirements. These actions are aimed at promoting alternative modes of transportation and creating complete, compact, and mixed-use communities. The elimination of minimum parking requirements is also a change in perspective toward auto-ownership and travel and is becoming more common in urban areas as population increases, transit expands, and auto-ownership declines.

The concept of eliminating the minimum parking requirements for high density buildings in areas with access to public transportation is not a new concept in North America. Examples of such developments can be found in a variety of cities including Toronto, Brampton, Oakville, Ottawa, Calgary and Vancouver.

As the population of Mississauga continues to grow, transit infrastructure expands across the city, and personal vehicle ownership declines, more residential buildings with reduced parking standards relative to the Zoning By-law requirements is becoming more commonplace. Although the applicant is not requesting that the proposed development provide no parking spaces, this trend away from providing excess residential parking reflects a noticeable shift in perspective with regard to personal vehicle ownership, transportation, and the need for more affordable housing.

9.3.2 Approved Parking Rates Near High Order Transit

City of Ottawa

The City of Ottawa in December of 2019 officially opened the Confederation Line which runs through the downtown area. The City's Zoning By-Law parking requirements were revised to eliminate minimum parking requirements for developments within 600 metres of an LRT station and instead adopt a maximum parking allowance. As a result, residential developments near LRT stations are not required to provide any resident parking and are required to only provide visitor parking at a rate of 0.10 spaces per unit.

City of Brampton

In April of 2021 the City of Brampton passed By-Law 45-2021 for Parking Requirements in the Downtown, Central Area and a portion of the Hurontario-Main Corridor to amend the parking requirements and eliminate minimum parking requirements for specific uses. In recognition of Queen Street being the busiest transit corridor in Brampton and population and employment anticipated to grow by 40 to 50 percent over the next 25 years, the city is planning for rapid transit on Queen Street which aligns with their overall regional transportation plan. The passing of this By-Law is the first step in supporting the future rapid transit system and transit mode targets by allowing developers to provide parking based on market research and to market units to prospective residents who are looking to live in a walkable transit-oriented community where vehicle ownership is not required.

City of Toronto

In December of 2021 the City of Toronto adopted a new Zoning Bylaw Amendment that will remove most minimum parking requirements for new developments, including mixed-use buildings, and instead replaced it with a maximum parking space requirement. These changes are in alignment with the City's climate action strategy that will encourage residents to use alternative travel modes to the car, such as walking, cycling and public transit. The maximum parking rates in the draft Zoning By-Law for areas in Parking Zone A, which include areas near public transit, are as follows:

- 0.3 spaces per bachelor unit up to 45 m^2,
- 1.0 per bachelor unit greater than 45 m^2,
- 0.5 per one-bedroom unit
- 0.8 per two-bedroom units
- 1.0 per three or more bedroom units

North Oakville (Town of Oakville)

The Town of Oakville passed Zoning By-Law 2009-189, which provides parking requirements for the area of North Oakville. Included in this By-Law is a maximum requirement rate for parking spaces in certain residential land uses, such as apartment buildings with more than 4 storeys (up to 1.25 spaces per dwelling unit for residents, 0.2 for visitors). This By-Law is in line with the North Oakville Parking Strategy study, prepared in November 2009, which provided the Town with a strategy to create a pedestrian friendly and a more transit oriented suburb by encouraging a more efficient use of private and public parking resources and provide a reduced parking requirement to reflect transit planning goals.

City of London

The City of London's Zoning By-Law Z.-1, Section 4.19 provides parking requirements for the City. The By-law includes an exception to the minimum parking requirement for for developments located in the Downtown, Transit Village, Rapid Transit Corridor, and Main Street Place Types in the London Plan as shown in Section 4.19. 9) of the By-law. This By-Law is in line with the City's Official Plan Direction #6, which seeks to improve the attractiveness of mobility choices such as walking, cycling and transit use and while provided more mixed-use developments in areas that support and be served by rapid transit and active transportation modes such as walking and cycling.

9.4 Parking Justification

Providing off-street residential parking influences a commuter choice on whether to drive or choose alternate forms of transportation. Providing more parking in general leads to a higher percentage of auto ownership and auto usage as well. Changing travel behaviour is best done when a prospective buyer is looking to purchase a unit and providing the opportunity for a prospective buyer to easily purchase a parking space either through making it affordable, at no additional cost, or having an excess in number of spaces available to purchase can introduce travel behaviour into an area that once established is hard to change.

As demonstrated in sections above, municipalities including Mississauga have begun to assist developers in helping to change travel behaviour by reducing or eliminating minimum parking requirements altogether for areas adjacent to high order transit stations. This approach is supportive of City of Mississauga policies to provide less parking than required given future envisioned built form and anticipating that those who choose to live in the Port Credit area will use GO Transit, MiWay and the future Hurontario LRT services instead of a personal vehicle.

The proposed development will be heavily marketed to prospective purchasers who are looking to live in a walkable transit-oriented community where a vehicle is not required for commuting or discretionary trips and the limited number of parking spaces will be explicitly noted in any promotional material. Consequently, the subject site provides an excellent opportunity to introduce a significant population to the Port Credit area that is transit-oriented and supportive of the expected non-auto mode share of 50% for the a.m. peak hour and 45% for the p.m. peak hour in 2031 identified in the Port Credit GO Station Southeast Area Master Plan Study.

The development is proposing Travel Demand Management (TDM), as outlined in Section 12 of the report including planning and design, walking and cycling, transit, parking, carshare/bikeshare, wayfinding and trip planning, education and promotion that can be adopted to make alternatives more competitive to driving, reducing the dependency on auto trips, and the need to provide an excessive supply of parking.

10. Vehicle Swept Path Analysis

GHD undertook a Vehicle Swept Path Analysis to assess the proposed site plan's ability to accommodate the required turning movements of a Medium Sized Unit (MSU) Loading Vehicle, TAC Passenger Vehicle, Waste Collection Truck, and Emergency Vehicle. The results of the analysis, which are provided in **Appendix E,** illustrate that the site can sufficiently accommodate the aforementioned design vehicles.

A Peel Region waste collection vehicle was assessed entering the site and accessing the waste collection area via the site access along Ann Street in drawing AT-101 and reversing from their stopped position and exiting the site in drawing AT-102. No conflicts were found with the maneuvers.

An MSU truck was assessed entering the site and accessing the loading spaces in drawings AT-103 and AT-105 and exiting from their respective stop positions in drawings AT-104 and AT-106. No conflicts were found with the maneuvers.

Passenger vehicles was assessed accessing the on-street and 15-minute parking spaces and exiting from their respective parking spaces in drawings AT-107-AT-110. No conflicts were found with the maneuvers.

The Emergency Vehicle was assessed accessing the site along the fire route located within the 15-minute parking lot in drawing AT-111 and reversing from their stopped position and exiting the parking lot in drawing AT-112. No conflicts were found with the maneuvers.

A delivery vehicle was assessed entering and exiting the site and parking garage ramp in drawing AT-113 and maneuvering the underground parking floor and loading space in drawing AT-114. No conflicts were found with the maneuvers.

A passenger vehicle was assessed entering and exiting the site and parking garage ramp in drawing AT-115. No conflicts were found with the maneuvers.

11. Site Access Review

11.1 Access Width and Radius

Site access design standards are found in the TAC manual, Section 8.9.5, Table 8.9.1. The TAC design standards require residential land uses to have entrance widths ranging between 2.0 and 7.3 metres for two-way accesses and a radius ranging from 3.0 to 4.5 metres.

The proposed site access providing access to the loading spaces and underground garage has been designed with a width of 7.0 metres and an inbound curb radius of 3.0 metres, meeting the TAC requirements.

The proposed site access providing access to the four 15-minute parking spaces has been designed with a width of 6.0 metres and inbound and outbound curb radii of 4.5 metres. meeting the TAC requirements.

11.2 Corner Clearance

The suggested minimum corner clearance can also be found in the 2017 TAC manual under Section 8.8.1, Table 8.8.2. When an access is located near an intersection with stop control at the crossroad, a minimum of 20 metres are required between the access and the stop-controlled intersection along a collector road. The proposed access (leading towards the 15-minute parking spaces) is located a minimum of 60 metres from the stop-controlled intersection, satisfying the TAC guideline.

11.3 Throat Length

The suggested minimum clear throat lengths for major driveways can be found in Section 8.9.10, Table 8.9.3 of the 2017 TAC manual. Apartments with over 200 units and located along a collector road are required to provide a total of 25 metres of clear throat length. A clear throat length of approximately 26.4 metres between the property line and the first point of conflict is provided and satisfies the TAC suggested clear throat length

12. Travel Demand Management

12.1 Travel Demand Management

Travel Demand Management (TDM) refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. TDM strategies have multiple benefits including the following:

- Reduced auto-related emissions to improve air quality;
- Decreased traffic congestion to reduce travel time;
- Increased travel options for businesses and commuters;
- Reduced personal transportation costs and energy consumptions; and
- Support Provincial smart growth objectives.

The combined benefits listed above will assist in creating a more active and livable community through improvements to overall active transportation standards for the local businesses and surrounding community.

12.2 Existing TDM Opportunities

12.2.1 Walking

Sidewalks are currently provided throughout the study area and the surrounding neighbourhood. Signalized pedestrian crosswalks are currently provided on all approaches along Hurontario Street at Park Street East, High Street East and Lakeshore Road East. These pedestrian crosswalks allow for a safer crossing for pedestrians to access the various amenities east of Hurontario Street (institutional and recreational). Pedestrian crossings are also provided along Lakeshore Road East at Hurontario Street and Elizabeth Street giving access to the many day to day amenities, shops, restaurants and parks located along Lakeshore and to the waterfront.

MiWay Transit bus stops and the Port Credit GO Station are all within walking distance to the proposed development, reducing the need for a car to drive to the nearest public transit.

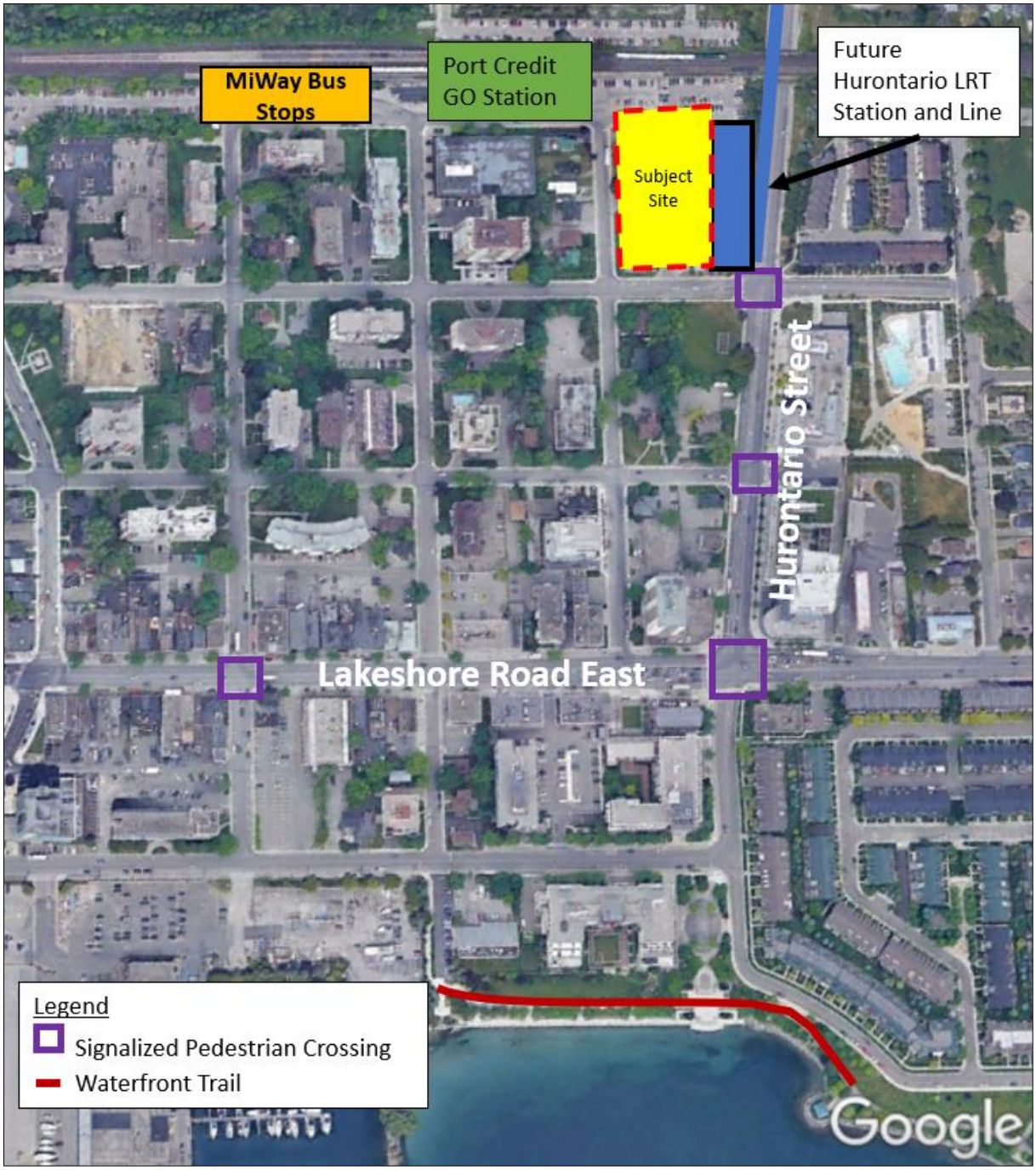

Figure 23 Transit Stops and Pedestrian Routes

12.2.2 Transit

GO Transit offers train service eastbound towards Union Station with a 15-minute headway from 5:00 a.m. until 7:30 p.m. A 15-minute headway train service is also offered in the westbound direction, with various terminal stations (Oakville GO, Aldershot GO and West Harbour GO).

MiWay Transit also offers bus service along various roads near the study area, with all buses servicing the stop at the Port Credit GO station. These routes include bus route 2 (to the north along Hurontario Street), 8 (to the north along

Cawthra Road), 14 (to the west towards Clarkson GO Station along various collector roads) and 23 (east towards Clarkson GO and West towards Long Branch Go Station along Lakeshore Road East).

12.3 Future TDM Opportunities

12.3.1 Cycling Strategy

A minimum of 0.6 long-term bicycle parking spaces and 0.05 short-term bicycle parking spaces (with a minimum of 6 spaces being provided) per unit are required for the subject site. An additional 0.1 long-term and 0.2 short term parking spaces are required for every 100 m^2 of retail space are proposed for the subject site. The proposed development is providing 683 long-term and 57 short-term bicycle parking spaces for the residential development and 3 long-term and 4 short-term parking spaces for the retail portion of the development.

The City of Mississauga has outlined in their TDM Strategy and Implementation Plan a recommended minimum bike parking requirement based on land use. They state that many municipalities have established bicycle parking (both short-term and long-term parking) requirements to ensure that site user's have access to bike parking. The TDM Plan recommends a bike parking rate of 0.8 long-term parking spaces per unit and a minimum of 6 spaces for visitors (short-term) for residential uses and 0.5 a space and 1 space per 500 m^2 for long-term and short-term respectively for retail land uses. It also mentions that the City may wish to consider offering incentives to developers who wish to offer bicycle parking above and beyond this rate in lieu of conventional vehicle parking.

Bicycle repair stations can also be provided in a secure area and can provide residents the necessary bicycle maintenance tools and supplies (i.e., bicycle pumps, wrenches, lubricant, wrenches, screwdrivers, etc.).

As identified in the City of Mississauga's Parking Regulations Study as well as the city's Cycling Master Plan, Port Credit has been recommended as an area for Mississauga's Bike Share program. The many benefits of bike share programs include the access to a bicycle without having to worry about maintenance and theft, the flexibility of only using a bike for a portion of the trip and can help address the "first and last mile" challenges that public transit faces. As mentioned in the city's Cycling Master Plan, the success of a bike share program helps to build and promote a culture of cycling in the city.

The proposed development is located near many existing and proposed cycling routes within Mississauga. For example, the existing Waterfront Trail and the future Cycle Track/Separated Bike Lane proposed for Lakeshore Road will serve as a cycling arterial connecting Toronto and Burlington. A multi-use trail is also proposed on Hurontario Street that will connect the subject site to the existing and proposed cycling infrastructure that will run all along Hurontario Street from the waterfront to the northern limit of the city. The cycling infrastructure along Hurontario Street will provide a connection to the rest of the City of Mississauga's existing and proposed facilities provided in the city's Cycling Master Plan. The combination of more bicycle infrastructure along with a bike share program will only help to increase the cycling culture in the city and further promote a more active lifestyle.

12.3.2 Transit Strategy

The proposed development is immediately adjacent to the future Port Credit Hurontario LRT station, which has an expected completion for Fall 2024. The LRT will travel 18 kilometers from the Port Credit LRT Station to the Brampton Gateway Terminal at Hurontario Street and Steeles Avenue. The line will service 19 stations, including stops at Cooksville GO Station and Mississauga City Centre (near Square One Shopping Centre). The proposed development is also adjacent to the Port Credit GO Station and will provide a pedestrian connection to the GO Station. Service along

the Lakeshore West Line will allow residents to travel between the subject site and Downtown Toronto in approximately 30 minutes.

Transit screens can be placed in the building lobby to provide them information on the next bus/train at the nearby transit stops and would allow them to wait indoors until their preferred mode of public transit is nearby. This strategy will allow residents and visitors to stay in the lobby when the weather is not favourable (rain, snow, cold, windy, humid, etc.).

Transit maps and signage indicating where the local public transit stops are located can also be placed in the lobby to inform residents and visitors about the various public transit options available for shorter trips instead of using a car.

12.3.3 Parking Strategy

Unbundled parking can be used to separate the purchase of a property from a parking space to provide residents with the true cost of the parking space. Unbundled parking gives residents the choice between paying for a parking space or using another mode of transportation, with the latter encouraging other modes of transportation.

The applicant is also considering providing 10% of parking spaces as EV Charger Ready Spaces within the parking spaces provided.

12.3.4 Carshare/Bikeshare Strategy

Carshare programs allow members to have access to various vehicles provided by the company without the financial and maintenance responsibilities that comes with car-ownership. Carshare companies offer their services at various rates (i.e., hourly, daily, etc.). These programs are seen as an alternative to car ownership or the need to purchase a second car and can be a benefit to the residents of the building and for the surrounding community as well. The provision of car share spaces will be explored in the future.

Bikeshare programs provide a more sustainable mode of transportation to residents and the community for short distance trips by encouraging people to find an alternative to car-use for shorter trips. The participation in bikeshare programs will also be explored in the future.

12.3.5 Wayfinding and Travel Planning Strategy

Information packages can be given out to new residents, including the GO Transit and MiWay maps and schedules along with cycling maps and other active transportation opportunities in the surrounding area. A map of the future Hurontario LRT line can also be handed out to new residents as an opportunity to promote this new mode of transportation in the surrounding area.

13. Community Impacts

The proposed development is estimated to generate an acceptable volume of new site trips to the adjacent road network and study intersections as confirmed in Section 8.0 of this report. All study intersections are expected to continue to operate below capacity in both weekday peak periods under the future 2028 total traffic conditions with optimized signal timings and a proposed eastbound left-turn phase. There are no recommended geometric improvements to the study intersections required in response to development of the subject site.

As part of this application, there was a Councillor meeting held on May 24, 2022, and Public Meetings held on July 5, 2022, and March 6, 2023. The following two transportation comments or concerns were raised through written correspondence to the City and through verbal comments made at the meetings.

Comment #1 – Concerns were raised by residents regarding the number of parking spaces being proposed for the site and the shortfall in comparison the Zoning By-law requirement.

Response: The proposed development will be heavily marketed to prospective purchasers looking to live in a walkable and transit-oriented community where owning a car is not required for commuting or discretionary trips.

The subject site will be within walking distance to the existing Port Credit GO Station and MiWay transit stops and the future Port Credit transit stop on the Hurontario LRT line. Parking will be provided based on market research and promoting multimodal alternatives through the proposed TDM measures to increase transit, walking and biking in the city will encourage residents to choose transit as an alternative to owning a vehicle.

The subject site provides an excellent opportunity to introduce a significant population to the Port Credit area that is transit-oriented and supportive of the expected non-auto mode share of 50% for the a.m. peak hour and 45% for the p.m. peak hour in 2031 identified in the Port Credit GO Station Southeast Area Master Plan Study.

Comment #2 – Concerns were raised regarding the volume of traffic being generated by this site and the impact on the surrounding road network.

Response: The capacity analysis contained within Section 8.0 of this report confirm that the subject site will not have a detrimental traffic impact of the abutting streets and intersections. With signal optimization and the proposed addition of an eastbound left-turn phase during the a.m. peak hour at Hurontario Street and Park Street, the intersection will continue to operate below capacity.

14. Conclusion & Recommendation

The proposed site plan prepared by Core Architects, dated May 2023, consists of two separate mixed-use buildings with 1,328 residential units and 4,604 m^2 of commercial/office/daycare GFA. The breakdown between the various commercial uses have not been finalized and are subject to change. The breakdown of the units and non-residential GFA between the two towers are as follows:

- North Tower: 712 units, 380 m^2 of commercial GFA, 2,017 m^2 of office GFA, and 907 m^2 of daycare GFA
- South Tower: 616 units and 1,300 m^2 of commercial GFA

Access to the development is proposed via a full-move driveway located at the intersection of Ann Street and Queen Street East and will operate as the east leg of the intersection.

The subject site is expected to generate a total of 412 new two-way trips consisting of 179 inbound and 233 outbound trips during weekday a.m. peak hour and 515 new two-way trips consisting of 270 inbound and 245 outbound trips during the weekday p.m. peak hour.

The overall impact of the development generated traffic is negligible to the operation of the study area intersections and traffic flow along Hurontario Street, Park Street East and Ann Street with no geometric improvements required to accommodate the proposed development.

Under future traffic conditions (both future background and future total), the signal timings for the intersection of Hurontario Street and Park Street East were optimized as needed to reduce v/c ratios and delays. An eastbound left-turn phase was also added during a.m. peak hour to reduce v/c ratios and delays for that approach.

No geometric improvements are recommended for the surrounding road network to accommodate the proposed development's traffic. Improvements are only recommended to the signal timings at Hurontario Street and Park Street as noted above.

Application of the current City of Mississauga By-Law parking rates to the subject site results in a requirement of 1,328 parking spaces. The subject site provides a total of 583 spaces resulting in a deficit of 745 parking spaces.

However, the site is well suited to intensification from an urban transportation perspective and current travel characteristics confirm that the surrounding area provides significant opportunity for urban living in a mixed-used environment. The site will promote reduced automobile usage with opportunities to incorporate car share facilities, good pedestrian and cycling infrastructure and connectivity to transit including the existing nearby GO Station and future light rail transit along Hurontario Street.

The proposed site will be within walking distance to both the Port Credit GO station as well as the Port Credit transit stop on the future Hurontario LRT line, as such, providing parking based on market research and promoting multimodal alternatives through the proposed TDM measures to increase transit, walking and biking in the city will encourage residents to choose transit as an alternative to owning a vehicle.

Recognizing the growing trend within the GTA and within the Port Credit Area to reduce auto dependency as evidenced by the recommendations of the Mississauga Parking Regulations Study, reduced parking rates approved within the area and the intent to market these units to people place a high importance on transit and walking accessibility when choosing a place to live, it is our opinion that the reduced parking rates provided for the proposed site is adequate to meet the future resident demand of the site.

The site accesses designs were confirmed with the standards provided in the TAC manual and found that the access width, curb return radii, corner clearance and clear throat distance satisfy the requirements provided by TAC.

A Vehicle Swept Path Analysis was undertaken to assess the site's ability to accommodate the required turning movements of a waste collection truck, an MSU Truck and a Passenger vehicle as per TAC design guidelines and confirmed that the site can sufficiently accommodate the aforementioned design vehicles within the site including the site access, the loading spaces and the underground parking garage ramps.

A series of TDM measures are proposed and/or will be considered for the subject site to encourage residents to explore various modes of transportation in order to reduce their dependency on single occupancy vehicle trips. These measures include good pedestrian and cycling connectivity to the municipal networks, the provision of long-term and short-term bicycle parking, a reduced parking supply, shared parking between the various uses, wayfinding signage and real-time bus/train schedules on screens within the lobby.

Appendices

Appendix A

Traffic Data

LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

Project No.: 19244
Location: Ann St & Park St E
Weather: Light Rain / Snow
Surveyor(s): Natalie Law

File Name : Ann&Park-AM
Site Code : 19244016
Start Date : 11/21/2018
Page No : 1

Groups Printed- Cars - Trucks - Buses

	Ann Street Southbound					Park Street East Westbound					Ann Street Northbound					Park Street East Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	1	0	0	0	1	8	3	20	3	34	1	30	5	3	39	8	38	0	2	48	122
07:15	1	0	0	2	3	1	8	7	4	20	0	15	15	3	33	4	45	0	1	50	106
07:30	1	0	1	2	4	4	17	34	9	64	0	24	8	3	35	5	52	2	0	59	162
07:45	1	1	0	1	3	9	17	30	5	61	0	23	4	2	29	3	51	0	1	55	148
Total	4	1	1	5	11	22	45	91	21	179	1	92	32	11	136	20	186	2	4	212	538
08:00	2	1	0	6	9	3	23	31	9	66	2	29	6	1	38	8	53	0	3	64	177
08:15	5	1	2	0	8	3	9	22	7	41	1	13	4	4	22	3	51	1	0	55	126
08:30	0	0	0	3	3	1	25	21	3	50	3	14	8	1	26	4	27	3	2	36	115
08:45	4	0	1	4	9	2	32	17	3	54	1	11	4	12	28	2	39	0	1	42	133
Total	11	2	3	13	29	9	89	91	22	211	7	67	22	18	114	17	170	4	6	197	551
09:00	4	2	0	1	7	3	23	14	2	42	2	17	4	9	32	4	26	0	1	31	112
09:15	3	0	0	0	3	3	24	7	1	35	0	12	2	1	15	1	34	1	0	36	89
Grand Total	22	5	4	19	50	37	181	203	46	467	10	188	60	39	297	42	416	7	11	476	1290
Apprch %	44	10	8	38		7.9	38.8	43.5	9.9		3.4	63.3	20.2	13.1		8.8	87.4	1.5	2.3		
Total %	1.7	0.4	0.3	1.5	3.9	2.9	14	15.7	3.6	36.2	0.8	14.6	4.7	3	23	3.3	32.2	0.5	0.9	36.9	
Cars	22	5	4	19	50	37	175	200	45	457	10	124	60	39	233	42	403	7	9	461	1201
% Cars	100	100	100	100	100	100	96.7	98.5	97.8	97.9	100	66	100	100	78.5	100	96.9	100	81.8	96.8	93.1
Trucks	0	0	0	0	0	0	6	1	1	8	0	0	0	0	0	0	7	0	2	9	17
% Trucks	0	0	0	0	0	0	3.3	0.5	2.2	1.7	0	0	0	0	0	0	1.7	0	18.2	1.9	1.3
Buses	0	0	0	0	0	0	0	2	0	2	0	64	0	0	64	0	6	0	0	6	72
% Buses	0	0	0	0	0	0	0	1	0	0.4	0	34	0	0	21.5	0	1.4	0	0	1.3	5.6

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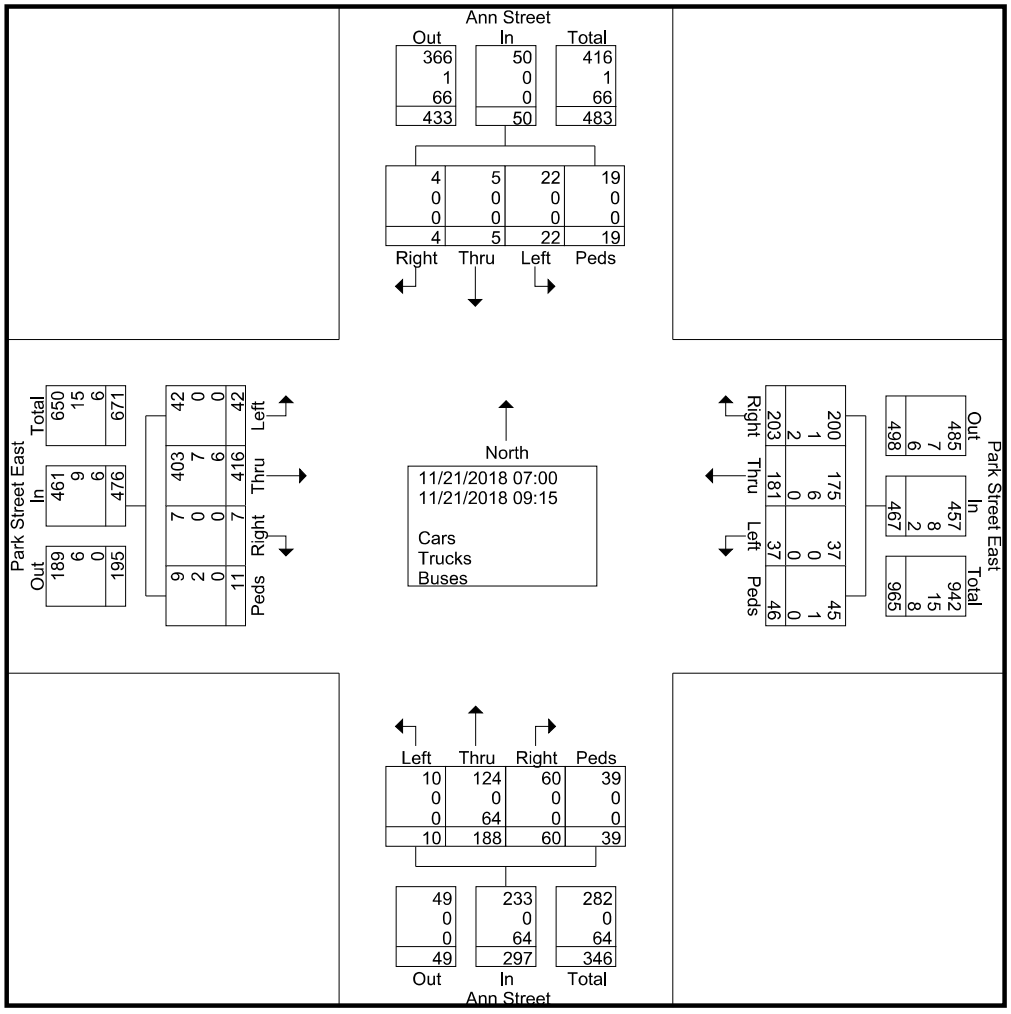
625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Ann&Park-AM
Site Code : 19244016
Start Date : 11/21/2018
Page No : 2



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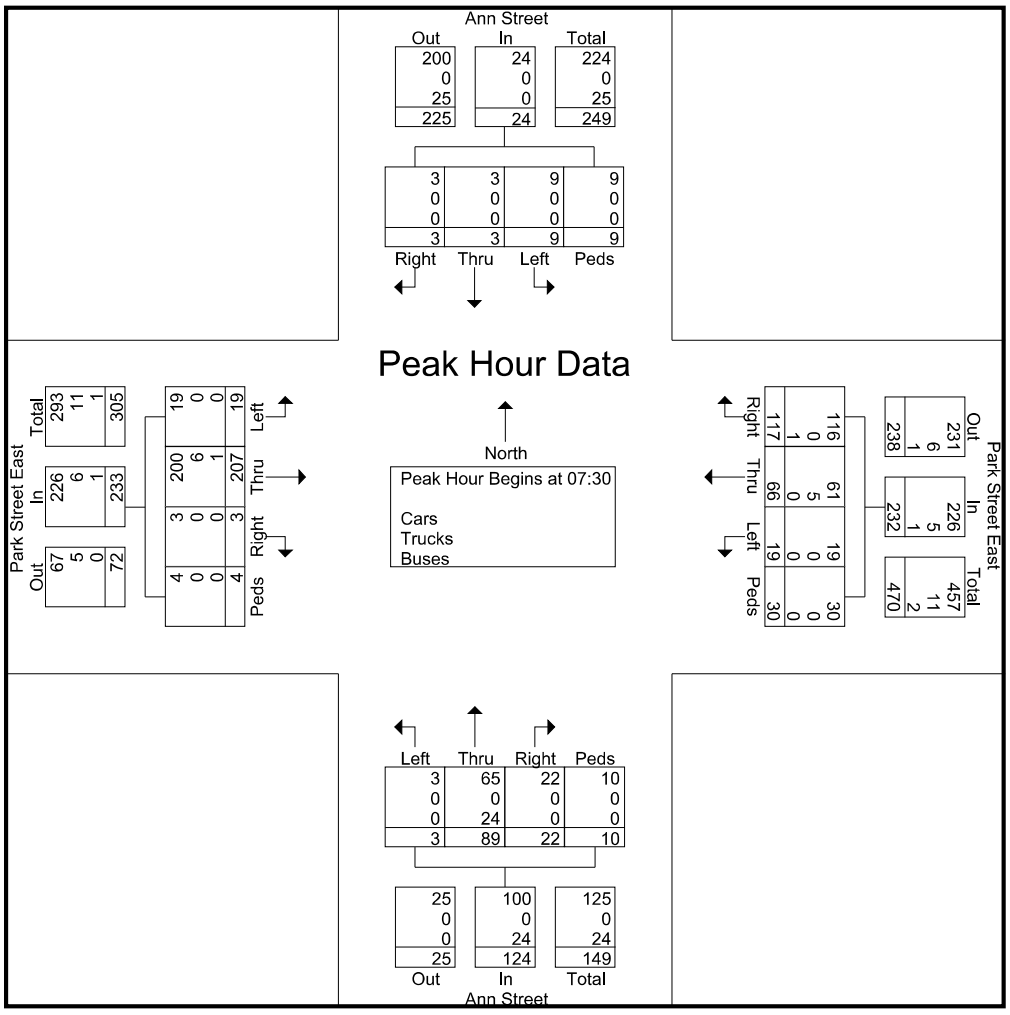
625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Ann&Park-AM
Site Code : 19244016
Start Date : 11/21/2018
Page No : 3

	Ann Street Southbound					Park Street East Westbound					Ann Street Northbound					Park Street East Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 09:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	1	0	1	2	4	4	17	**34**	**9**	64	0	24	**8**	3	35	5	52	**2**	0	59	162
07:45	1	**1**	0	1	3	**9**	17	30	5	61	0	23	4	2	29	3	51	0	1	55	148
08:00	2	1	0	**6**	**9**	3	**23**	31	9	**66**	**2**	**29**	6	1	**38**	**8**	**53**	0	**3**	**64**	**177**
08:15	**5**	1	**2**	0	8	3	9	22	7	41	1	13	4	**4**	22	3	51	1	0	55	126
Total Volume	9	3	3	9	24	19	66	117	30	232	3	89	22	10	124	19	207	3	4	233	613
% App. Total	37.5	12.5	12.5	37.5		8.2	28.4	50.4	12.9		2.4	71.8	17.7	8.1		8.2	88.8	1.3	1.7		
PHF	.450	.750	.375	.375	.667	.528	.717	.860	.833	.879	.375	.767	.688	.625	.816	.594	.976	.375	.333	.910	.866
Cars	9	3	3	9	24	19	61	116	30	226	3	65	22	10	100	19	200	3	4	226	576
% Cars	100	100	100	100	100	100	92.4	99.1	100	97.4	100	73.0	100	100	80.6	100	96.6	100	100	97.0	94.0
Trucks	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	6	0	0	6	11
% Trucks	0	0	0	0	0	0	7.6	0	0	2.2	0	0	0	0	0	0	2.9	0	0	2.6	1.8
Buses	0	0	0	0	0	0	0	1	0	1	0	24	0	0	24	0	1	0	0	1	26
% Buses	0	0	0	0	0	0	0	0.9	0	0.4	0	27.0	0	0	19.4	0	0.5	0	0	0.4	4.2



LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

Project No.: 19244
Location: Ann St & Park St E
Weather: Light Rain / Snow
Surveyor(s): Natalie Law

File Name : Ann&Park-PM
Site Code : 19244016
Start Date : 11/21/2018
Page No : 1

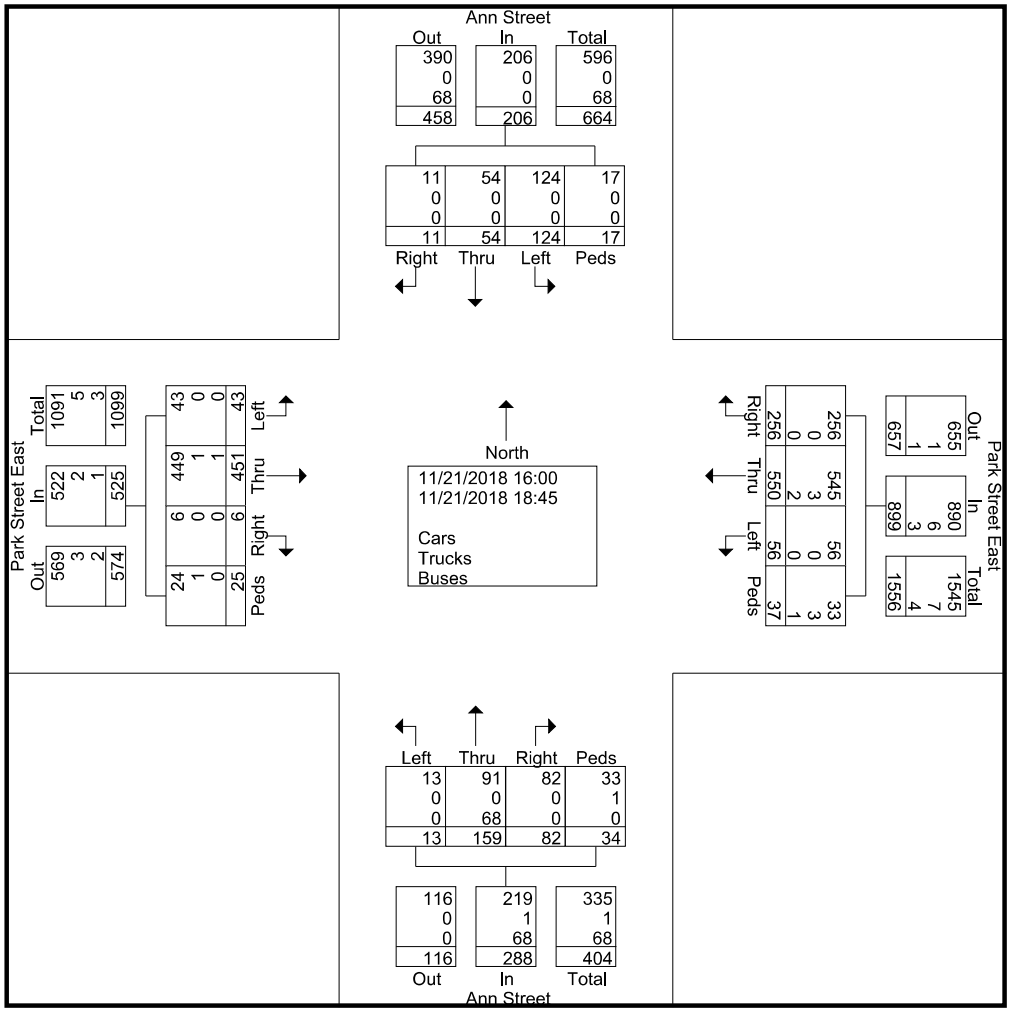
Groups Printed- Cars - Trucks - Buses

	Ann Street Southbound					Park Street East Westbound					Ann Street Northbound					Park Street East Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	5	6	1	2	14	7	41	14	3	65	0	12	5	3	20	6	40	0	1	47	146
16:15	7	1	1	1	10	3	38	19	2	62	0	11	10	3	24	2	28	1	1	32	128
16:30	4	0	0	0	4	2	35	19	4	60	1	10	19	1	31	0	45	1	0	46	141
16:45	14	3	3	3	23	7	50	17	1	75	0	13	5	0	18	4	29	0	0	33	149
Total	30	10	5	6	51	19	164	69	10	262	1	46	39	7	93	12	142	2	2	158	564
17:00	12	5	2	3	22	5	55	20	7	87	3	14	7	5	29	2	33	0	4	39	177
17:15	14	4	1	2	21	4	55	16	5	80	1	8	6	3	18	3	42	1	1	47	166
17:30	15	6	0	2	23	4	50	31	3	88	1	17	9	4	31	4	39	1	8	52	194
17:45	12	5	2	1	20	9	38	17	1	65	1	18	1	4	24	3	46	0	0	49	158
Total	53	20	5	8	86	22	198	84	16	320	6	57	23	16	102	12	160	2	13	187	695
18:00	16	11	1	3	31	4	42	30	6	82	2	16	8	1	27	8	45	0	4	57	197
18:15	6	4	0	0	10	4	47	18	3	72	2	13	4	5	24	3	34	0	2	39	145
18:30	1	2	0	0	3	5	63	29	1	98	1	18	3	3	25	2	23	0	3	28	154
18:45	18	7	0	0	25	2	36	26	1	65	1	9	5	2	17	6	47	2	1	56	163
Total	41	24	1	3	69	15	188	103	11	317	6	56	20	11	93	19	149	2	10	180	659
Grand Total	124	54	11	17	206	56	550	256	37	899	13	159	82	34	288	43	451	6	25	525	1918
Apprch %	60.2	26.2	5.3	8.3		6.2	61.2	28.5	4.1		4.5	55.2	28.5	11.8		8.2	85.9	1.1	4.8		
Total %	6.5	2.8	0.6	0.9	10.7	2.9	28.7	13.3	1.9	46.9	0.7	8.3	4.3	1.8	15	2.2	23.5	0.3	1.3	27.4	
Cars	124	54	11	17	206	56	545	256	33	890	13	91	82	33	219	43	449	6	24	522	1837
% Cars	100	100	100	100	100	100	99.1	100	89.2	99	100	57.2	100	97.1	76	100	99.6	100	96	99.4	95.8
Trucks	0	0	0	0	0	0	3	0	3	6	0	0	0	1	1	0	1	0	1	2	9
% Trucks	0	0	0	0	0	0	0.5	0	8.1	0.7	0	0	0	2.9	0.3	0	0.2	0	4	0.4	0.5
Buses	0	0	0	0	0	0	2	0	1	3	0	68	0	0	68	0	1	0	0	1	72
% Buses	0	0	0	0	0	0	0.4	0	2.7	0.3	0	42.8	0	0	23.6	0	0.2	0	0	0.2	3.8

LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Ann&Park-PM
Site Code : 19244016
Start Date : 11/21/2018
Page No : 2

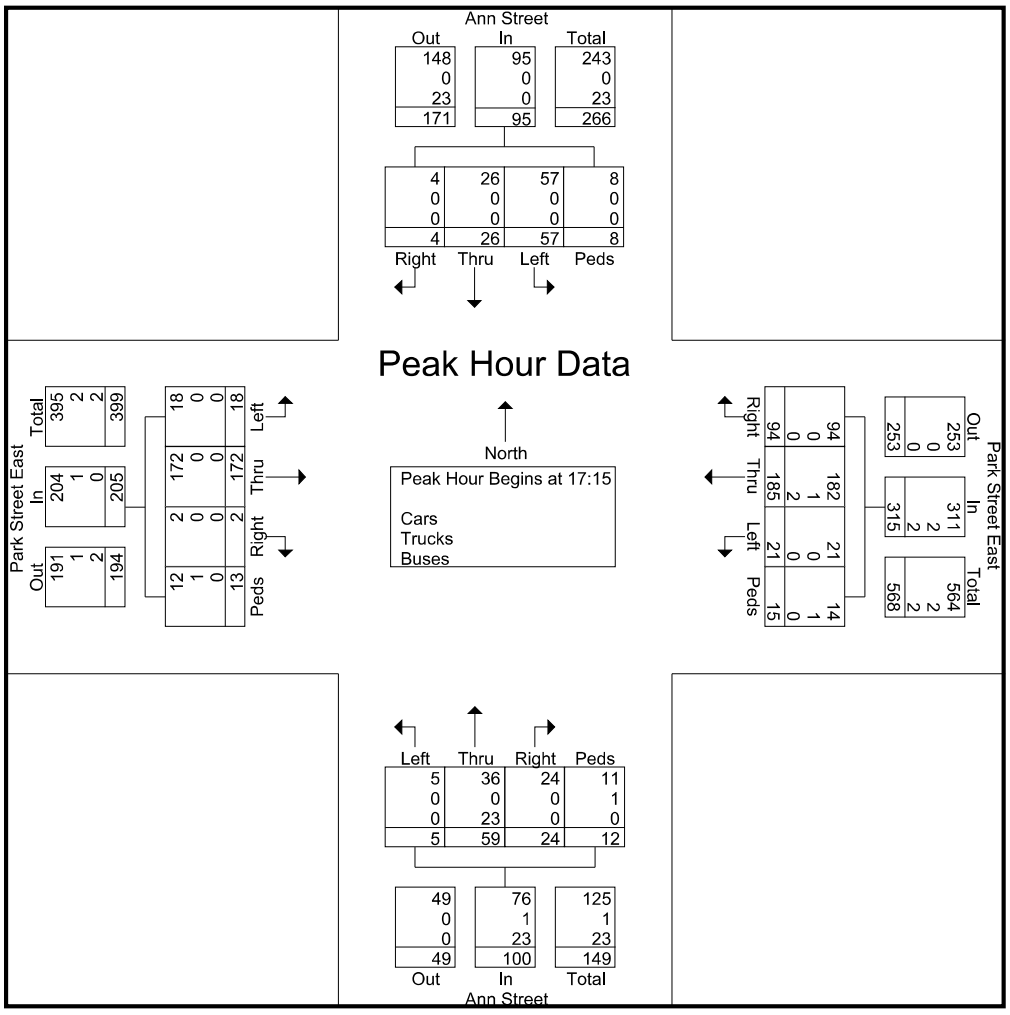


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Ann&Park-PM
Site Code : 19244016
Start Date : 11/21/2018
Page No : 3

	Ann Street Southbound					Park Street East Westbound					Ann Street Northbound					Park Street East Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:15																					
17:15	14	4	1	2	21	4	**55**	16	5	80	1	8	6	3	18	3	42	**1**	1	47	166
17:30	15	6	0	2	23	4	50	**31**	3	**88**	1	17	**9**	**4**	**31**	4	39	1	**8**	52	194
17:45	12	5	**2**	1	20	**9**	38	17	1	65	1	**18**	1	4	24	3	**46**	0	0	49	158
18:00	**16**	**11**	1	**3**	**31**	4	42	30	**6**	82	**2**	16	8	1	27	**8**	45	0	4	**57**	**197**
Total Volume	57	26	4	8	95	21	185	94	15	315	5	59	24	12	100	18	172	2	13	205	715
% App. Total	60	27.4	4.2	8.4		6.7	58.7	29.8	4.8		5	59	24	12		8.8	83.9	1	6.3		
PHF	.891	.591	.500	.667	.766	.583	.841	.758	.625	.895	.625	.819	.667	.750	.806	.563	.935	.500	.406	.899	.907
Cars	57	26	4	8	95	21	182	94	14	311	5	36	24	11	76	18	172	2	12	204	686
% Cars	100	100	100	100	100	100	98.4	100	93.3	98.7	100	61.0	100	91.7	76.0	100	100	100	92.3	99.5	95.9
Trucks	0	0	0	0	0	0	1	0	1	2	0	0	0	1	1	0	0	0	1	1	4
% Trucks	0	0	0	0	0	0	0.5	0	6.7	0.6	0	0	0	8.3	1.0	0	0	0	7.7	0.5	0.6
Buses	0	0	0	0	0	0	2	0	0	2	0	23	0	0	23	0	0	0	0	0	25
% Buses	0	0	0	0	0	0	1.1	0	0	0.6	0	39.0	0	0	23.0	0	0	0	0	0	3.5



LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 Klo@LEA.ca

Count Name: 20248_HurontarioSt&ParkStE-AM
Site Code: 20248
Start Date: 12/05/2019

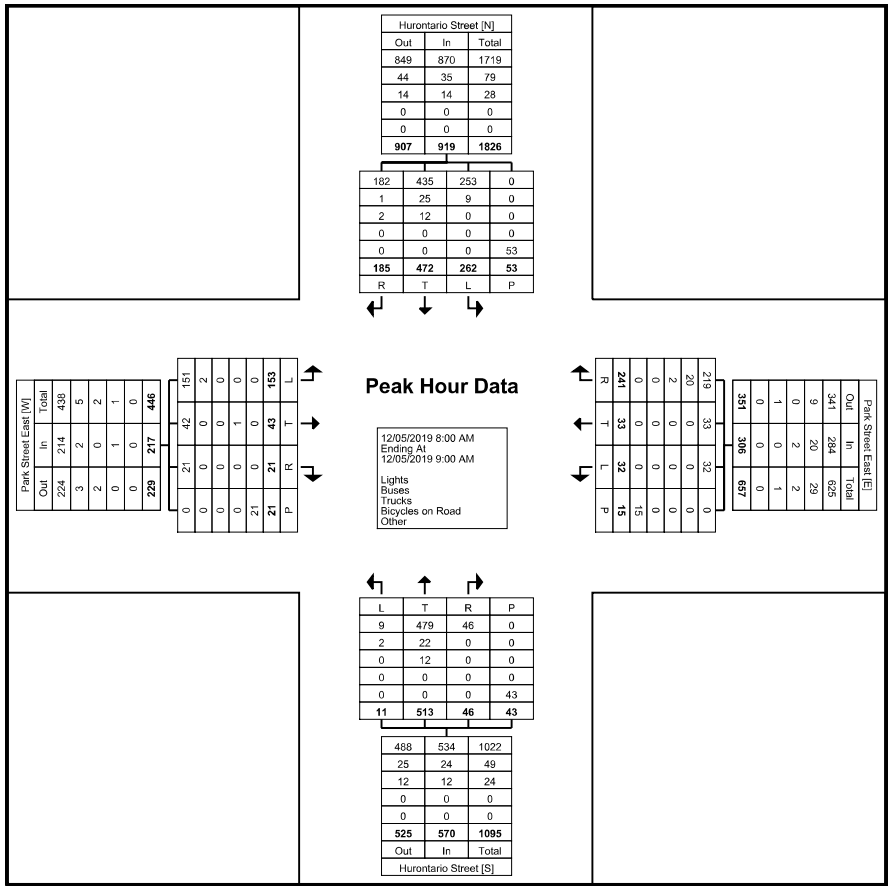
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Hurontario Street Southbound					Park Street East Westbound					Hurontario Street Northbound					Park Street East Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	44	95	44	16	183	0	9	31	5	40	3	141	6	8	150	36	13	5	10	54	427
8:15 AM	74	91	49	17	214	5	5	66	4	76	1	115	12	12	128	50	14	3	6	67	485
8:30 AM	109	147	52	9	308	13	7	87	2	107	4	114	23	6	141	32	10	7	3	49	605
8:45 AM	35	139	40	11	214	14	12	57	4	83	3	143	5	17	151	35	6	6	2	47	495
Total	262	472	185	53	919	32	33	241	15	306	11	513	46	43	570	153	43	21	21	217	2012
Approach %	28.5	51.4	20.1	-	-	10.5	10.8	78.8	-	-	1.9	90.0	8.1	-	-	70.5	19.8	9.7	-	-	-
Total %	13.0	23.5	9.2	-	45.7	1.6	1.6	12.0	-	15.2	0.5	25.5	2.3	-	28.3	7.6	2.1	1.0	-	10.8	-
PHF	0.601	0.803	0.889	-	0.746	0.571	0.688	0.693	-	0.715	0.688	0.897	0.500	-	0.944	0.765	0.768	0.750	-	0.810	0.831
Lights	253	435	182	-	870	32	33	219	-	284	9	479	46	-	534	151	42	21	-	214	1902
% Lights	96.6	92.2	98.4	-	94.7	100.0	100.0	90.9	-	92.8	81.8	93.4	100.0	-	93.7	98.7	97.7	100.0	-	98.6	94.5
Buses	9	25	1	-	35	0	0	20	-	20	2	22	0	-	24	2	0	0	-	2	81
% Buses	3.4	5.3	0.5	-	3.8	0.0	0.0	8.3	-	6.5	18.2	4.3	0.0	-	4.2	1.3	0.0	0.0	-	0.9	4.0
Trucks	0	12	2	-	14	0	0	2	-	2	0	12	0	-	12	0	0	0	-	0	28
% Trucks	0.0	2.5	1.1	-	1.5	0.0	0.0	0.8	-	0.7	0.0	2.3	0.0	-	2.1	0.0	0.0	0.0	-	0.0	1.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	2.3	0.0	-	0.5	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	53	-	-	-	-	15	-	-	-	-	43	-	-	-	-	21	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 Klo@LEA.ca

Count Name: 20248_HurontarioSt&ParkStE-AM
Site Code: 20248
Start Date: 12/05/2019



Turning Movement Peak Hour Data Plot (8:00 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 Klo@LEA.ca

Count Name: 20248_HurontarioSt&ParkStE-PM
Site Code: 20248
Start Date: 12/05/2019

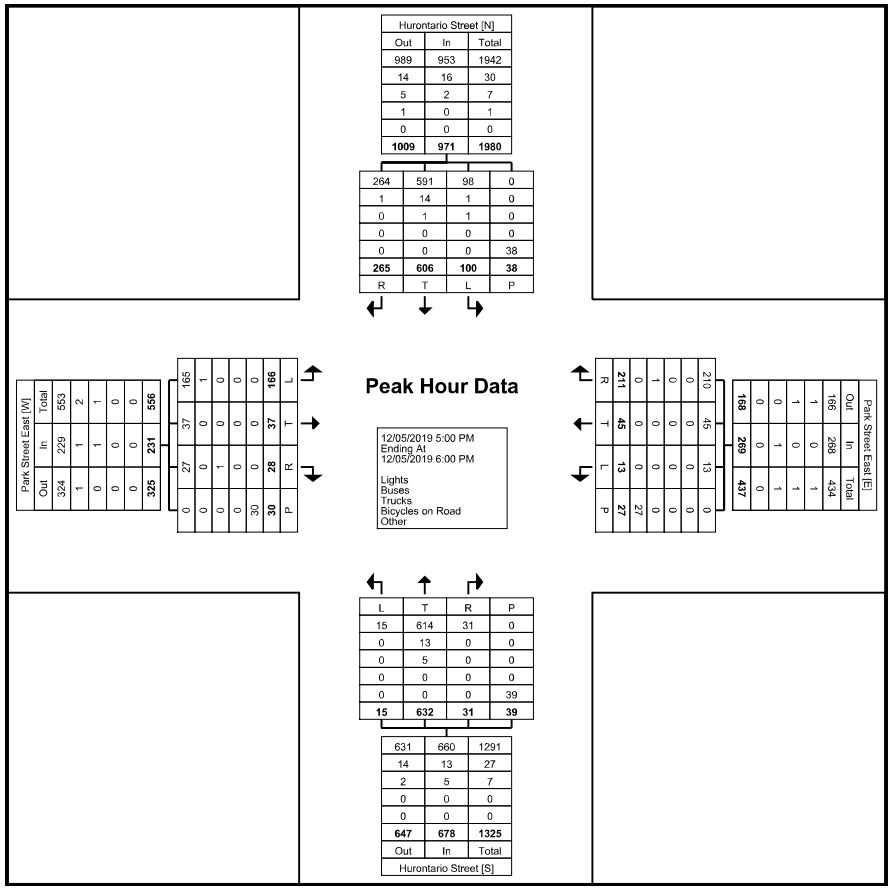
Turning Movement Peak Hour Data (5:00 PM)

Start Time	Hurontario Street Southbound					Park Street East Westbound					Hurontario Street Northbound					Park Street East Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
5:00 PM	24	152	58	9	234	4	10	66	3	80	3	158	9	9	170	31	5	4	9	40	524
5:15 PM	31	153	75	6	259	3	16	47	10	66	2	188	9	9	199	50	12	3	10	65	589
5:30 PM	23	162	64	6	249	4	10	46	7	60	3	134	5	7	142	20	4	2	2	26	477
5:45 PM	22	139	68	17	229	2	9	52	7	63	7	152	8	14	167	65	16	19	9	100	559
Total	100	606	265	38	971	13	45	211	27	269	15	632	31	39	678	166	37	28	30	231	2149
Approach %	10.3	62.4	27.3	-	-	4.8	16.7	78.4	-	-	2.2	93.2	4.6	-	-	71.9	16.0	12.1	-	-	-
Total %	4.7	28.2	12.3	-	45.2	0.6	2.1	9.8	-	12.5	0.7	29.4	1.4	-	31.5	7.7	1.7	1.3	-	10.7	-
PHF	0.806	0.935	0.883	-	0.937	0.813	0.703	0.799	-	0.841	0.536	0.840	0.861	-	0.852	0.638	0.578	0.368	-	0.578	0.912
Lights	98	591	264	-	953	13	45	210	-	268	15	614	31	-	660	165	37	27	-	229	2110
% Lights	98.0	97.5	99.6	-	98.1	100.0	100.0	99.5	-	99.6	100.0	97.2	100.0	-	97.3	99.4	100.0	96.4	-	99.1	98.2
Buses	1	14	1	-	16	0	0	0	-	0	0	13	0	-	13	1	0	0	-	1	30
% Buses	1.0	2.3	0.4	-	1.6	0.0	0.0	0.0	-	0.0	0.0	2.1	0.0	-	1.9	0.6	0.0	0.0	-	0.4	1.4
Trucks	1	1	0	-	2	0	0	0	-	0	0	5	0	-	5	0	0	1	-	1	8
% Trucks	1.0	0.2	0.0	-	0.2	0.0	0.0	0.0	-	0.0	0.0	0.8	0.0	-	0.7	0.0	0.0	3.6	-	0.4	0.4
Bicycles on Road	0	0	0	-	0	0	0	1	-	1	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.5	-	0.4	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	2	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	5.3	-	-	-	-	3.7	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	36	-	-	-	-	26	-	-	-	-	39	-	-	-	-	30	-	-
% Pedestrians	-	-	-	94.7	-	-	-	-	96.3	-	-	-	-	100.0	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 Klo@LEA.ca

Count Name: 20248_HurontarioSt&ParkStE-PM
Site Code: 20248
Start Date: 12/05/2019



Turning Movement Peak Hour Data Plot (5:00 PM)

Spectrum

Turning Movement Count
Location Name: QUEEN ST E & ANN ST
Date: Thu, Feb 16, 2023 Deployment Lead: Walter Fugaj

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Turning Movement Count (1 . QUEEN ST E & ANN ST)

Start Time	N Approach NORTH DRIVEWAY						E Approach QUEEN ST E						S Approach ANN ST						W Approach QUEEN ST E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	0	0	0	0	6	0	0	0	0	0	4	0	2	2	13	0	0	17	0	0	0	0	0	0	17	
07:15:00	3	1	0	0	10	4	0	0	0	0	7	0	0	5	31	0	1	36	0	0	0	0	1	0	40	
07:30:00	1	2	0	0	16	3	0	0	0	0	16	0	1	5	23	0	2	29	0	0	0	0	1	0	32	
07:45:00	0	2	0	0	8	2	0	0	1	0	9	1	0	6	21	0	2	27	1	1	0	0	1	2	32	121
08:00:00	2	3	0	0	20	5	0	3	1	0	22	4	0	3	31	1	3	35	0	1	0	0	0	1	45	149
08:15:00	1	3	0	0	14	4	0	1	1	0	10	2	2	3	22	0	3	27	0	0	0	0	2	0	33	142
08:30:00	0	1	1	0	6	2	0	0	0	0	7	0	1	1	23	0	6	25	1	0	0	0	1	1	28	138
08:45:00	1	0	0	0	7	1	4	1	0	0	1	5	0	4	26	0	6	30	1	0	0	0	2	1	37	143
BREAK																										
16:00:00	0	2	0	0	4	2	0	0	2	0	3	2	0	0	19	0	4	19	0	0	0	0	0	0	23	
16:15:00	0	1	1	0	3	2	0	0	0	0	4	0	0	1	18	0	4	19	1	0	0	0	1	1	22	
16:30:00	1	0	0	0	6	1	0	0	0	0	3	0	0	1	30	0	2	31	1	0	0	0	0	1	33	
16:45:00	0	2	0	0	13	2	0	0	1	0	14	1	0	1	27	0	7	28	0	0	0	0	0	0	31	109
17:00:00	0	3	0	0	6	3	0	0	2	0	7	2	0	2	19	0	4	21	0	0	0	0	2	0	26	112
17:15:00	0	0	0	0	3	0	0	0	0	0	9	0	1	3	31	0	5	35	0	0	0	0	0	0	35	125
17:30:00	4	2	0	0	3	6	0	0	0	0	3	0	0	2	22	0	5	24	0	0	0	0	0	0	30	122
17:45:00	1	2	0	0	21	3	0	0	1	0	18	1	0	2	34	1	15	37	1	0	0	0	0	1	42	133
Grand Total	14	24	2	0	146	40	4	5	9	0	137	18	7	41	390	2	69	440	6	2	0	0	11	8	**506**	-
Approach%	35%	60%	5%	0%		-	22.2%	27.8%	50%	0%		-	1.6%	9.3%	88.6%	0.5%		-	75%	25%	0%	0%		-	**-**	-
Totals %	2.8%	4.7%	0.4%	0%		7.9%	0.8%	1%	1.8%	0%		3.6%	1.4%	8.1%	77.1%	0.4%		87%	1.2%	0.4%	0%	0%		1.6%	**-**	-
Heavy	1	0	1	0		-	4	3	0	0		-	2	1	75	1		-	0	2	0	0		-	**-**	-
Heavy %	7.1%	0%	50%	0%		-	100%	60%	0%	0%		-	28.6%	2.4%	19.2%	50%		-	0%	100%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (3.69 °C)

Start Time	N Approach NORTH DRIVEWAY						E Approach QUEEN ST E						S Approach ANN ST						W Approach QUEEN ST E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:15:00	3	1	0	0	10	4	0	0	0	0	7	0	0	5	31	0	1	36	0	0	0	0	1	0	40
07:30:00	1	2	0	0	16	3	0	0	0	0	16	0	1	5	23	0	2	29	0	0	0	0	1	0	32
07:45:00	0	2	0	0	8	2	0	0	1	0	9	1	0	6	21	0	2	27	1	1	0	0	1	2	32
08:00:00	2	3	0	0	20	5	0	3	1	0	22	4	0	3	31	1	3	35	0	1	0	0	0	1	45
Grand Total	6	8	0	0	54	14	0	3	2	0	54	5	1	19	106	1	8	127	1	2	0	0	3	3	**149**
Approach%	42.9%	57.1%	0%	0%		-	0%	60%	40%	0%		-	0.8%	15%	83.5%	0.8%		-	33.3%	66.7%	0%	0%		-	**-**
Totals %	4%	5.4%	0%	0%		9.4%	0%	2%	1.3%	0%		3.4%	0.7%	12.8%	71.1%	0.7%		85.2%	0.7%	1.3%	0%	0%		2%	**-**
PHF	0.5	0.67	0	0		0.7	0	0.25	0.5	0		0.31	0.25	0.79	0.85	0.25		0.88	0.25	0.5	0	0		0.38	**-**
Heavy	1	0	0	0		1	0	1	0	0		1	0	1	20	1		22	0	2	0	0		2	**-**
Heavy %	16.7%	0%	0%	0%		7.1%	0%	33.3%	0%	0%		20%	0%	5.3%	18.9%	100%		17.3%	0%	100%	0%	0%		66.7%	**-**
Lights	5	8	0	0		13	0	2	2	0		4	1	18	85	0		104	1	0	0	0		1	**-**
Lights %	83.3%	100%	0%	0%		92.9%	0%	66.7%	100%	0%		80%	100%	94.7%	80.2%	0%		81.9%	100%	0%	0%	0%		33.3%	**-**
Single-Unit Trucks	1	0	0	0		1	0	1	0	0		1	0	1	1	1		3	0	2	0	0		2	**-**
Single-Unit Trucks %	16.7%	0%	0%	0%		7.1%	0%	33.3%	0%	0%		20%	0%	5.3%	0.9%	100%		2.4%	0%	100%	0%	0%		66.7%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	19	0		19	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	17.9%	0%		15%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	1	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0.9%	0%		0.8%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	54	-	-	-	-	-	54	-	-	-	-	-	8	-	-	-	-	-	3	-	**-**
Pedestrians%	-	-	-	-	45.4%		-	-	-	-	45.4%		-	-	-	-	6.7%		-	-	-	-	2.5%		**-**

Spectrum

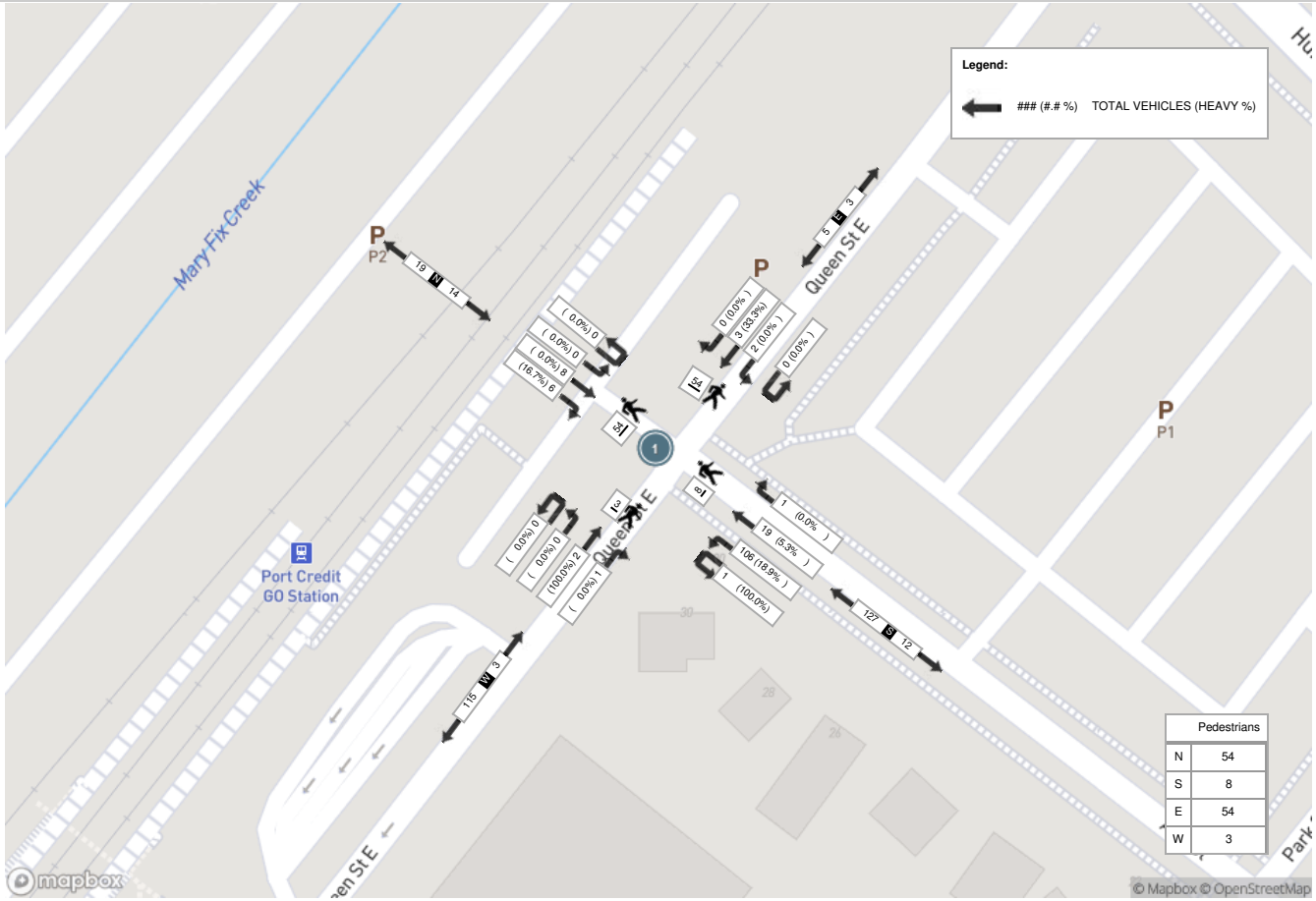
Turning Movement Count
Location Name: QUEEN ST E & ANN ST
Date: Thu, Feb 16, 2023 Deployment Lead: Walter Fugaj

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (2.34 °C)

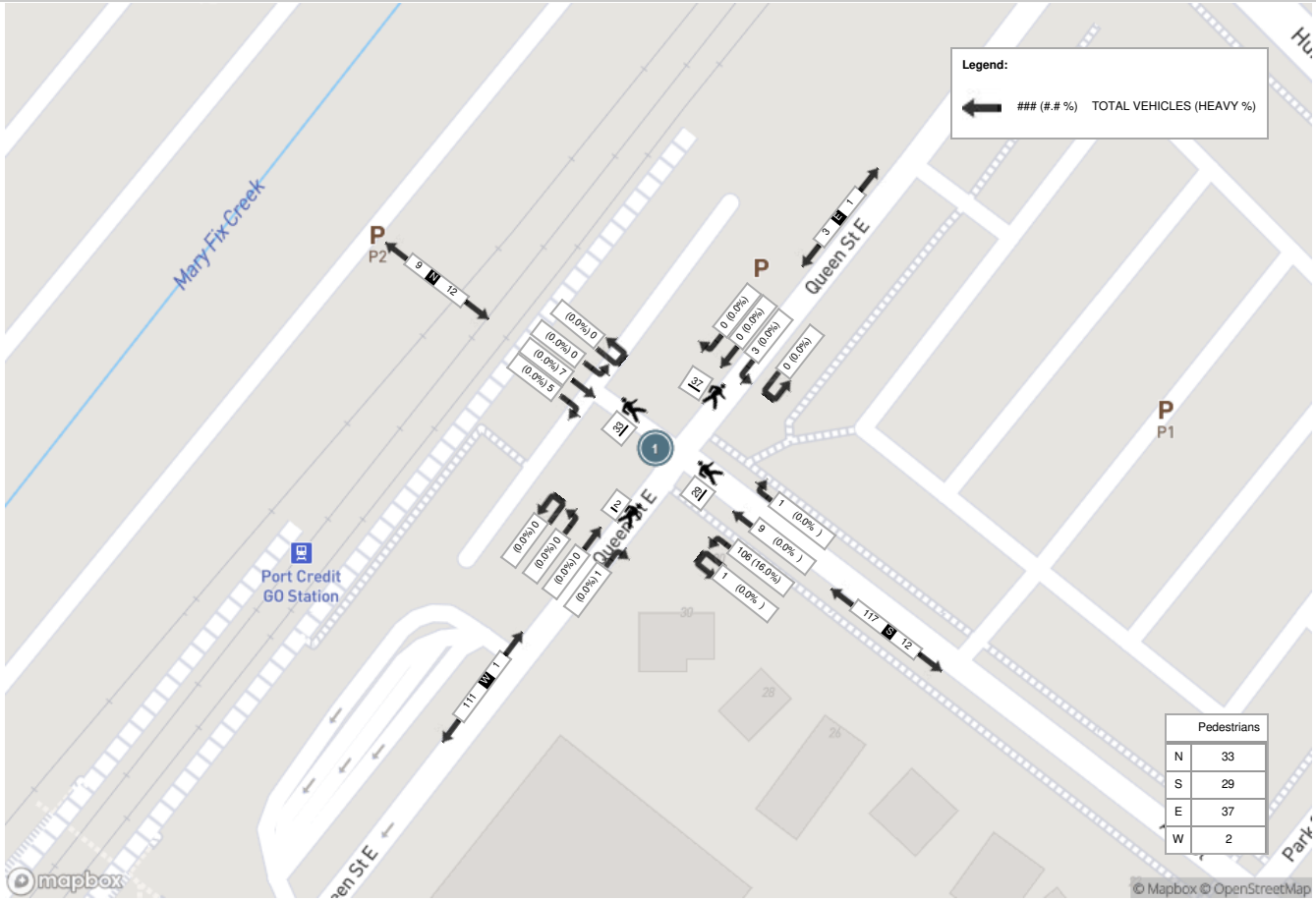
Start Time	N Approach NORTH DRIVEWAY						E Approach QUEEN ST E						S Approach ANN ST						W Approach QUEEN ST E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:00:00	0	3	0	0	6	3	0	0	2	0	7	2	0	2	19	0	4	21	0	0	0	0	2	0	26
17:15:00	0	0	0	0	3	0	0	0	0	0	9	0	1	3	31	0	5	35	0	0	0	0	0	0	35
17:30:00	4	2	0	0	3	6	0	0	0	0	3	0	0	2	22	0	5	24	0	0	0	0	0	0	30
17:45:00	1	2	0	0	21	3	0	0	1	0	18	1	0	2	34	1	15	37	1	0	0	0	0	1	42
Grand Total	5	7	0	0	33	12	0	0	3	0	37	3	1	9	106	1	29	117	1	0	0	0	2	1	**133**
Approach%	41.7%	58.3%	0%	0%		-	0%	0%	100%	0%		-	0.9%	7.7%	90.6%	0.9%		-	100%	0%	0%	0%		-	**-**
Totals %	3.8%	5.3%	0%	0%		9%	0%	0%	2.3%	0%		2.3%	0.8%	6.8%	79.7%	0.8%		88%	0.8%	0%	0%	0%		0.8%	**-**
PHF	0.31	0.58	0	0		0.5	0	0	0.38	0		0.38	0.25	0.75	0.78	0.25		0.79	0.25	0	0	0		0.25	**-**
Heavy	0	0	0	0		0	0	0	0	0		0	0	0	17	0		17	0	0	0	0		0	**-**
Heavy %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	16%	0%		14.5%	0%	0%	0%	0%		0%	**-**
Lights	5	7	0	0		12	0	0	3	0		3	1	9	89	1		100	0	0	0	0		0	**-**
Lights %	100%	100%	0%	0%		100%	0%	0%	100%	0%		100%	100%	100%	84%	100%		85.5%	0%	0%	0%	0%		0%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	17	0		17	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	16%	0%		14.5%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	100%	0%	0%	0%		100%	**-**
Pedestrians	-	-	-	-	33	-	-	-	-	-	37	-	-	-	-	-	29	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	32.7%		-	-	-	-	36.6%		-	-	-	-	28.7%		-	-	-	-	2%		**-**

Peak Hour: 07:15 AM - 08:15 AM **Weather: Overcast Clouds (3.69 °C)**



GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Peak Hour: 05:00 PM - 06:00 PM **Weather: Overcast Clouds (2.34 °C)**



Signal Timing Report

Runtime: 2019-11-28 13:42:19

Device: 0704

Region: Mississauga **Signal ID:** 0704 **Location:** HURONTARIO STREET N at Park Street

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	9	0	10	0	9	0	10
Ped Clear	Sec	0	17	0	21	0	17	0	21
Min Green	Sec	0	8	0	8	5	8	0	8
Passage	Sec	0.0	3.0	0.0	3.0	2.0	3.0	0.0	3.0
Maximum 1	Sec	0	30	0	30	15	30	0	30
Maximum 2	Sec	0	30	0	30	15	30	0	30
Yellow Change	Sec	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	other	redClear	other	phaseNotOn	phaseNotOn	redClear	other	phaseNotOn
[P2] Options	Bit	0	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In Walk	0	Enabled Non Lock Det Dual Entry	Enabled Non Lock Det	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In Walk	0	Enabled Non Lock Det Dual Entry
[P2] Ring	Ring	0	1	0	1	2	2	0	2
[P2] Concurrency	Phase (,)	()	(5,6)	()	(8)	(2)	(2)	()	(4)

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	105	100	100	140	100	0	0	0
Offset	Sec	2	16	96	97	19	0	0	0
Split	Split	1	2	3	4	5	0	0	0
Sequence	Sequence	1	1	1	1	1	0	0	0

Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	none	none	none	none	phaseOmitted	none	none	none
Split 1 - Time	Sec	0	63	0	42	0	63	0	42
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	none	none	none	none	phaseOmitted	none	none	none
Split 2 - Time	Sec	0	62	0	38	0	62	0	38
Split 2 - Coord	Enum	false	true	false	false	false	true	false	false
Split 3 - Mode	Enum	none	none	none	none	phaseOmitted	none	none	none
Split 3 - Time	Sec	0	57	0	43	0	57	0	43
Split 3 - Coord	Enum	false	true	false	false	false	true	false	false
Split 4 - Mode	Enum	none	none	none	pedRecall	none	none	none	none
Split 4 - Time	Sec	0	91	0	49	25	66	0	49
Split 4 - Coord	Enum	false	true	false	false	false	true	false	false
Split 5 - Mode	Enum	none	none	none	pedRecall	none	none	none	none
Split 5 - Time	Sec	0	60	0	40	23	37	0	40
Split 5 - Coord	Enum	false	true	false	false	false	true	false	false

TB Schedule	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F----------	---A--------	----M-------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	12345678901234567890123456789012345678901	12345678901234567890123456789012345678901	12345678901234567890123456789012345678901	1---------- -------	----------8----- -------	----------9--- ---------	----------0---- -------	1---------- -------
Day Plan	Number	1	3	2	3	3	3	3	3

TB Schedule	Units	9	10	11	12	13	14	15	16
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	0	0
Day of Week	Bit	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	----5---------- -------	-2---------- -------	----------4---------- -------	---------- 5------	---------- -6-----	---------- 4-------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0

TB Dayplan	Units	1	2	3	4	5	6	7	8
Plan 1 Hour	Hour	0	6	7	9	15	16	19	3
Plan 1 Minute	Min	0	0	0	30	0	30	30	0
Plan 1 Action	Number	8	1	4	2	5	3	2	7
Plan 2 Hour	Hour	0	7	3	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	2	7	0	0	0	0	0
Plan 3 Hour	Hour	0	8	23	3	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	2	8	7	0	0	0	0

TB Action	Units	1	2	3	4	5	6	7	8
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Free	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

Signal Timing Report

Runtime: 2019-11-28 13:44:54

Device: 0808

Region: Mississauga **Signal ID:** 0808 **Location:** LAKESHORE ROAD E at Elizabeth Street

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	8	0	8	0	0	0	0
Ped Clear	Sec	0	13	0	13	0	0	0	0
Min Green	Sec	5	8	0	8	0	0	0	0
Passage	Sec	2.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0
Maximum 1	Sec	10	80	0	30	0	0	0	0
Maximum 2	Sec	10	80	0	30	0	0	0	0
Yellow Change	Sec	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	2.0	0.0	2.5	0.0	0.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	phaseNotOn	redClear	other	phaseNotOn	other	other	other	other
[P2] Options	Bit	Enabled	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Act Rest In Walk	0	Enabled Non Lock Det	0	0	0	0
[P2] Ring	Ring	1	1	0	1	0	0	0	0
[P2] Concurrency	Phase (,)	()	()	()	()	()	()	()	()

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	140	120	120	120	0	0	0	0
Offset	Sec	104	116	47	47	0	0	0	0
Split	Split	1	2	3	4	0	0	0	0
Sequence	Sequence	1	1	1	1	0	0	0	0

Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	maxVehRecall	none	none	none	none	none	none	none
Split 1 - Time	Sec	10	98	0	32	0	0	0	0
Split 1 - Coord	Enum	false	true	false	false	false	false	false	false
Split 2 - Mode	Enum	maxVehRecall	none	none	none	none	none	none	none
Split 2 - Time	Sec	10	80	0	30	0	0	0	0
Split 2 - Coord	Enum	false	true	false	false	false	false	false	false
Split 3 - Mode	Enum	maxVehRecall	none	none	none	none	none	none	none
Split 3 - Time	Sec	10	80	0	30	0	0	0	0
Split 3 - Coord	Enum	false	true	false	false	false	false	false	false
Split 4 - Mode	Enum	none	none	none	pedRecall	none	none	none	none
Split 4 - Time	Sec	0	90	0	30	0	0	0	0
Split 4 - Coord	Enum	false	true	false	false	false	false	false	false

TB Schedule	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F---------	---A-------	----M------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	12345678901234567890123456789012345678901	12345678901234567890123456789012345678901	12345678901234567890123456789012345678901	1------------------------------	----------8------	----------9---	----------0-----	1------------------------------
Day Plan	Number	1	3	2	3	3	3	3	3

TB Schedule	Units	9	10	11	12	13	14	15	16
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	0	0
Day of Week	Bit	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	----5----------	-2----------	----------4----------	----------	----------	----------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0

TB Dayplan	Units	1	2	3	4	5	6	7	8
Plan 1 Hour	Hour	0	6	9	15	16	18	19	3
Plan 1 Minute	Min	0	0	30	0	30	0	30	0
Plan 1 Action	Number	8	1	2	3	4	3	2	7
Plan 2 Hour	Hour	0	7	3	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	2	7	0	0	0	0	0
Plan 3 Hour	Hour	0	8	23	3	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	2	8	7	0	0	0	0

TB Action	Units	1	2	3	4	5	6	7	8
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Free	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

Raf Andrenacci

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Wednesday, February 9, 2022 1:13 PM
To: Raf Andrenacci
Subject: RE: Growth Rates in the Area of Hurontario Street and Park Street.

Hi Raf,

Below are the recommended growth rates to be used along Hurontario Street and Lakeshore Road.

Hurontario Street

	Compounded Annual Growth from Existing to 2027	
	NB	SB
AM Peak	1.5%	1.5%
PM Peak	1.0%	1.5%

Lakeshore Road

	Compounded Annual Growth from Existing to 2027	
	EB	WB
AM Peak	0.0%	2.0%
PM Peak	1.0%	0.5%

Regards,

Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

From: Raf Andrenacci <Raf.Andrenacci@ghd.com>
Sent: Monday, February 7, 2022 12:13 PM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Subject: Re: Growth Rates in the Area of Hurontario Street and Park Street.

Hi Tyler,

We have submitted our ToR to the City last week and got a response yesterday.

We propose including the following developments in our analysis:

- 22-28 Ann Street & 78 Park Street
- 42-46 Park Street East & 23 Elizabeth Street
- 6, 8, 10 Ann Street

The horizon year for our development as agreed with City staff is 2027 (a five-year horizon).

Regards,
Raf

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Monday, February 7, 2022 12:03 PM
To: Raf Andrenacci <Raf.Andrenacci@ghd.com>
Subject: RE: Growth Rates in the Area of Hurontario Street and Park Street.

Hi Raf,

Thank you for your email.

I just have a few questions in regards to your TIS.

-Have you submitted a ToR to the City and have you received comments back?
-What background developments are you including in your analysis?
-What is the horizon year for your proposed development?

Thanks,

MISSISSAUGA

Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

From: Raf Andrenacci <Raf.Andrenacci@ghd.com>
Sent: Monday, February 7, 2022 11:45 AM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Subject: Growth Rates in the Area of Hurontario Street and Park Street.

Hi Tyler,

GHD is conducting a traffic impact study at 92 Park Street East and would like to gather information on the growth rates in the area.

Consistent with previously completed studies, we propose using the following growth rates along Hurontario Street:

Direction	AM	PM
Northbound	0%	0.5%
Southbound	1.5%	1%

Please advise if the growth rates are the same, or if they have been updated recently.

No information was found for growth rates along Park Street, Queen Street or Ann Street, please advise if there are any for those roads within the study area that we need to include in our report.

Thanks,
Raf

Appendix B

Transportation Tomorrow Survey 2016

AM outbound

Fri Dec 10 2021 11:18:46 GMT-0500 (Eastern Standard Time) - Run Time: 2658ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest

Column: 2006 GTA zone of origin - gta06_orig

RowG:

ColG:(3642,3877,3878)

TblG:

Filters:

Start time of trip - start_time In 600-900

Trip 2016

Table:

	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 1 of Toronto	779	1			779	0	0	0
PD 2 of Toronto	66	1			66	0	0	0
PD 3 of Toronto	68	1			68	0	0	0
PD 4 of Toronto	196	1			196	0	0	0
PD 6 of Toronto	33	1			33	0	0	0
PD 7 of Toronto	95	0.5		0.5	47.5	0	47.5	0
PD 8 of Toronto	422	1			422	0	0	0
PD 9 of Toronto	62	1			62	0	0	0
PD 10 of Toron	100	1			100	0	0	0
Newmarket	27	1			27	0	0	0
Richmond Hill	18	1			18	0	0	0
King	23	1			23	0	0	0
Vaughan	35	1			35	0	0	0
Caledon	41	1			41	0	0	0
Brampton	120	1			120	0	0	0
Mississauga	3266	0.5		0.25	0.25	1633	0	816.5	816.5
Oakville	97	0.5			0.5	48.5	0	0	48.5
Glanbrook	138	1			138	0	0	0
Hamilton	47	1			47	0	0	0
Grey	23	1			23	0	0	0
Brantford	22	1			22	0	0	0
					3949	**0**	**864**	**865**
					70%	0%	15%	15%

AM inbound

Fri Dec 10 2021 11:21:24 GMT-0500 (Eastern Standard Time) - Run Time: 3778ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig

Column: 2006 GTA zone of destination - gta06_dest

RowG:

ColG:(3642,3877,3878)

TblG:

Filters:

Start time of trip - start_time In 600-900

Trip 2016

Table:

	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 1 of Toronto	62	1			62	0	0	0
PD 2 of Toronto	47	1			47	0	0	0
PD 3 of Toronto	7	1			7	0	0	0
PD 5 of Toronto	23	1			23	0	0	0
PD 6 of Toronto	20	1			20	0	0	0
PD 7 of Toronto	95	0.5		0.5	48	0	48	0
PD 8 of Toronto	158	1			158	0	0	0
PD 11 of Toron	19	1			19	0	0	0
PD 16 of Toron	15	1			15	0	0	0
Richmond Hill	10	1			10	0	0	0
Markham	33	1			33	0	0	0
Vaughan	31	1			31	0	0	0
Brampton	301	1			301	0	0	0
Mississauga	3117	0.66		0.25	0.25	2057	0	779	779
Halton Hills	56	1			56	0	0	0
Milton	34	1			34	0	0	0
Oakville	148	0.5			0.5	74	0	0	74
Burlington	73	1			73	0	0	0
Flamborough	33	1			33	0	0	0
Stoney Creek	16	1			16	0	0	0
Centre Wellingt	20	1			20	0	0	0
Orangeville	17	1			17	0	0	0
Brantford	26	1			26	0	0	0
					3180	**0**	**827**	**853**
					65%	0%	17%	18%

PM outbound

Fri Dec 10 2021 11:22:15 GMT-0500 (Eastern Standard Time) - Run Time: 2518ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest

Column: 2006 GTA zone of origin - gta06_orig

RowG:

ColG:(3642,3877,3878)

TblG:

Filters:

Start time of trip - start_time In 1600-1900

Trip 2016

Table:

	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 1 of Toronto	181	1			181	0	0	0
PD 2 of Toronto	11	1			11	0	0	0
PD 3 of Toronto	7	1			7	0	0	0
PD 5 of Toronto	9	1			9	0	0	0
PD 7 of Toronto	106	0.5		0.5	53	0	53	0
PD 8 of Toronto	223	1			223	0	0	0
PD 9 of Toronto	10	1			10	0	0	0
PD 11 of Toron	100	1			100	0	0	0
PD 16 of Toron	15	1			15	0	0	0
Whitby	39	1			39	0	0	0
Richmond Hill	43	1			43	0	0	0
Vaughan	31	1			31	0	0	0
Caledon	17	1			17	0	0	0
Brampton	273	1			273	0	0	0
Mississauga	3205	0.66		0.25	0.25	2115	0	801	801
Halton Hills	15	1			15	0	0	0
Milton	34	1			34	0	0	0
Oakville	239	0.5			0.5	120	0	0	120
Burlington	9	1			9	0	0	0
Flamborough	33	1			33	0	0	0
Stoney Creek	16	1			16	0	0	0
Orangeville	17	1			17	0	0	0
Peterborough	31	1			31	0	0	0
					3402	**0**	**854**	**921**
					66%	0%	16%	18%

PM inbound

Fri Dec 10 2021 11:22:46 GMT-0500 (Eastern Standard Time) - Run Time: 2345ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig

Column: 2006 GTA zone of destination - gta06_dest

RowG:

ColG:(3642,3877,3878)

TblG:

Filters:

Start time of trip - start_time In 1600-1900

Trip 2016

Table:

	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 1 of Toronto	854	1			854	0	0	0
PD 2 of Toronto	67	1			67	0	0	0
PD 3 of Toronto	66	1			66	0	0	0
PD 4 of Toronto	192	1			192	0	0	0
PD 5 of Toronto	22	1			22	0	0	0
PD 6 of Toronto	33	1			33	0	0	0
PD 7 of Toronto	262	0.5		0.5	131	0	131	0
PD 8 of Toronto	520	1			520	0	0	0
PD 9 of Toronto	43	1			43	0	0	0
PD 10 of Toron	56	1			56	0	0	0
PD 11 of Toron	13	1			13	0	0	0
Newmarket	27	1			27	0	0	0
King	23	1			23	0	0	0
Vaughan	49	1			49	0	0	0
Brampton	259	1			259	0	0	0
Mississauga	3993	0.66		0.25	0.25	2635	0	998	998
Oakville	182	0.5			0.5	91	0	0	91
Burlington	54	1			54	0	0	0
Hamilton	185	1			185	0	0	0
Grey	48	1			48	0	0	0
Perth	6	1			6	0	0	0
Brantford	35	1			35	0	0	0
					5409	**0**	**1129**	**1089**
					71%	0%	15%	14%

2016 TTS Trip Distribution

		North	South	East	West
AM	INBOUND	65%	0%	17%	18%
	OUTBOUN	70%	0%	15%	15%
PM	INBOUND	71%	0%	15%	14%
	OUTBOUN	66%	0%	16%	18%

AM Inbound

Mon Dec 13 2021 23:18:18 GMT-0500 (Eastern Standard Time) - Run Time: 2756ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(3642,3877,3878)
TblG:

Filters:
Start time of trip - start_time In 700-900
and
Type of dwelling unit - dwell_type In 2
and
Day of week trip data were collected - trip_day In 1, 2, 3, 4, 5,

Trip 2016
Table:

,1		
Transit excludir	17	2%
Auto driver	673	67%
		0%
		0%
Auto passenger	181	18%
School bus	45	4%
		0%
Walk	96	9%
	1012	1

AM Outbound

Mon Dec 13 2021 23:17:47 GMT-0500 (Eastern Standard Time) - Run Time: 2682ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(3642,3877,3878)
TblG:

Filters:
Start time of trip - start_time In 700-900
and
Type of dwelling unit - dwell_type In 2
and
Day of week trip data were collected - trip_day In 1, 2, 3, 4, 5,

Trip 2016
Table:

,1		
Transit excludir	306	9%
Auto driver	2130	62%
GO rail only	225	7%
Joint GO rail an	188	5%
Auto passenger	370	11%
School bus	72	2%
		0%
Walk	144	4%
	3435	1

PM Inbound

Mon Dec 13 2021 23:12:08 GMT-0500 (Eastern Standard Time) - Run Time: 2465ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(3642,3877,3878)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Type of dwelling unit - dwell_type In 2
and
Day of week trip data were collected - trip_day In 1, 2, 3, 4, 5,

Trip 2016
Table:

,1		
Transit excludir	315	7%
Auto driver	3005	67%
GO rail only	314	7%
Joint GO rail an	157	4%
Auto passenger	299	7%
School bus	40	1%
Paid rideshare	56	1%
Walk	286	6%
	4472	1

PM Outbound

Mon Dec 13 2021 23:16:50 GMT-0500 (Eastern Standard Time) - Run Time: 2844ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(3642,3877,3878)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Type of dwelling unit - dwell_type In 2
and
Day of week trip data were collected - trip_day In 1, 2, 3, 4, 5,

Trip 2016
Table:

,1		
Transit excludir	23	1%
Auto driver	1467	72%
		0%
Joint GO rail ar	65	3%
Auto passenger	205	10%
		0%
		0%
Walk	286	14%
	2046	1

From Transportation Master Plan 2015

2015

Peak period	Auto Driver
AM	65%
PM	75%

2031

Peak period	Auto Driver
AM	50%
PM	55%

Non-Auto Growth/Year

Peak period	Auto Driver
AM	0.94%
PM	1.25%

TTS 2016 Modal Split

Transportation Mode	Percentage Split			
	AM		PM	
	in	out	in	out
Transit	2%	21%	18%	4%
Auto driver	67%	62%	67%	72%
Auto passenger	22%	13%	9%	10%
Walk	9%	4%	6%	14%
TOTAL	100%	100%	100%	100%

Projected 2026 Modal Split

Transportation Mode	Percentage Split			
	AM		PM	
	in	out	in	out
Transit	11%	30%	30%	17%
Auto driver	57%	53%	55%	59%
Auto passenger	22%	13%	9%	10%
Walk	9%	4%	6%	14%
TOTAL	100%	100%	100%	100%

2026 Non-Auto Modal split

AM		PM	
in	out	in	out
21%	34%	36%	31%

Appendix C

Synchro Outputs

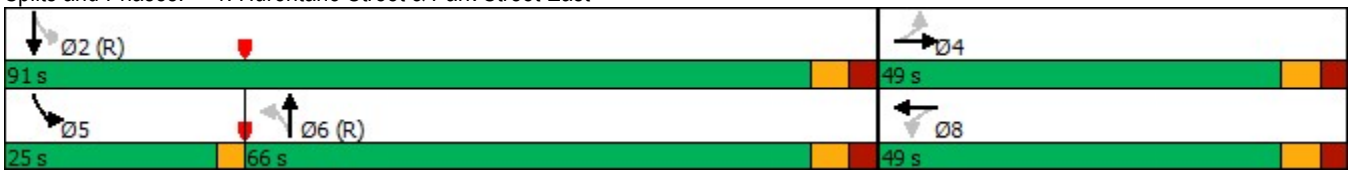
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	43	21	32	33	241	11	528	47	269	486	190
Future Volume (vph)	153	43	21	32	33	241	11	528	47	269	486	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	39.0		0.0	37.0		0.0	33.0		0.0	19.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.97	0.97		0.95	0.99		0.97	0.96	
Frt		0.951			0.868			0.988			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	1803	0	1825	1502	0	1547	3351	0	1772	3141	0
Flt Permitted	0.344			0.707			0.344			0.305		
Satd. Flow (perm)	648	1803	0	1324	1502	0	534	3351	0	552	3141	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			266			8			74	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		100.6			74.4			99.5			177.7	
Travel Time (s)		7.5			5.6			7.5			13.3	
Confl. Peds. (#/hr)	15		21	21		15	53		43	43		53
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Adj. Flow (vph)	184	52	25	39	40	290	13	636	57	324	586	229
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	77	0	39	330	0	13	693	0	324	815	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

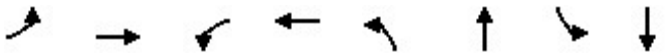
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		5.0	8.0	
Minimum Split (s)	38.0	38.0		38.0	38.0		33.0	33.0		8.0	33.0	
Total Split (s)	49.0	49.0		49.0	49.0		66.0	66.0		25.0	91.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		47.1%	47.1%		17.9%	65.0%	
Maximum Green (s)	42.0	42.0		42.0	42.0		59.0	59.0		22.0	84.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		9.0	9.0			9.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		17.0	17.0			17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	39.9	39.9		39.9	39.9		66.2	66.2		90.1	86.1	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.47	0.47		0.64	0.62	
v/c Ratio	1.00	0.15		0.10	0.53		0.05	0.44		0.65	0.42	
Control Delay	115.3	28.2		36.4	12.0		23.9	26.4		17.8	13.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	115.3	28.2		36.4	12.0		23.9	26.4		17.8	13.6	
LOS	F	C		D	B		C	C		B	B	
Approach Delay		89.6			14.6			26.4			14.8	
Approach LOS		F			B			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 97 (69%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 86.9% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Hurontario Street & Park Street East

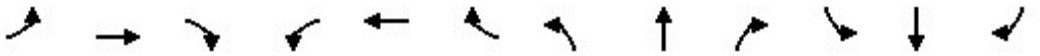




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	184	77	39	330	13	693	324	815
v/c Ratio	1.00	0.15	0.10	0.53	0.05	0.44	0.65	0.42
Control Delay	115.3	28.2	36.4	12.0	23.9	26.4	17.8	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.3	28.2	36.4	12.0	23.9	26.4	17.8	13.6
Queue Length 50th (m)	50.0	11.9	7.8	13.0	2.0	67.2	38.6	54.9
Queue Length 95th (m)	#86.1	22.1	15.7	30.9	6.1	80.7	49.1	60.8
Internal Link Dist (m)		76.6		50.4		75.5		153.7
Turn Bay Length (m)	39.0		37.0		33.0		19.0	
Base Capacity (vph)	194	553	397	636	252	1588	546	1959
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.14	0.10	0.52	0.05	0.44	0.59	0.42

Intersection Summary

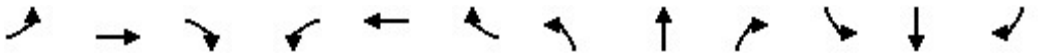
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	43	21	32	33	241	11	528	47	269	486	190
Future Volume (vph)	153	43	21	32	33	241	11	528	47	269	486	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.97		1.00	0.99		1.00	0.96	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.95	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.87		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1790	1804		1778	1502		1476	3350		1757	3141	
Flt Permitted	0.34	1.00		0.71	1.00		0.34	1.00		0.31	1.00	
Satd. Flow (perm)	647	1804		1323	1502		535	3350		565	3141	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	184	52	25	39	40	290	13	636	57	324	586	229
RTOR Reduction (vph)	0	13	0	0	190	0	0	4	0	0	28	0
Lane Group Flow (vph)	184	64	0	39	140	0	13	689	0	324	787	0
Confl. Peds. (#/hr)	15		21	21		15	53		43	43		53
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	39.9	39.9		39.9	39.9		66.2	66.2		86.1	86.1	
Effective Green, g (s)	39.9	39.9		39.9	39.9		66.2	66.2		86.1	86.1	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.47	0.47		0.61	0.61	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	514		377	428		252	1584		491	1931	
v/s Ratio Prot		0.04			0.09			0.21		c0.08	0.25	
v/s Ratio Perm	c0.28			0.03			0.02			c0.33		
v/c Ratio	1.00	0.12		0.10	0.33		0.05	0.43		0.66	0.41	
Uniform Delay, d1	50.0	37.1		36.9	39.5		19.9	24.5		14.1	13.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	66.3	0.1		0.1	0.4		0.4	0.9		3.2	0.6	
Delay (s)	116.4	37.2		37.0	39.9		20.3	25.4		17.3	14.5	
Level of Service	F	D		D	D		C	C		B	B	
Approach Delay (s)		93.0			39.6			25.3			15.3	
Approach LOS		F			D			C			B	

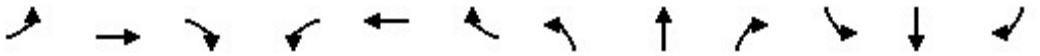
Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	207	3	19	66	117	3	89	22	9	3	3
Future Volume (vph)	19	207	3	19	66	117	3	89	22	9	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		10.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998				0.850		0.974			0.975	
Flt Protected		0.996			0.989			0.999			0.970	
Satd. Flow (prot)	0	1859	0	0	1785	1617	0	1543	0	0	1817	0
Flt Permitted		0.996			0.989			0.999			0.970	
Satd. Flow (perm)	0	1859	0	0	1785	1617	0	1543	0	0	1817	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		36.6			100.6			45.4			113.8	
Travel Time (s)		2.7			7.5			3.4			8.5	
Confl. Peds. (#/hr)	30		4	4		30	9		10	10		9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	3%	0%	1%	8%	1%	0%	27%	0%	0%	0%	0%
Adj. Flow (vph)	22	238	3	22	76	134	3	102	25	10	3	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	263	0	0	98	134	0	130	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	207	3	19	66	117	3	89	22	9	3	3
Future Volume (vph)	19	207	3	19	66	117	3	89	22	9	3	3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	22	238	3	22	76	134	3	102	25	10	3	3

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	263	98	134	130	16
Volume Left (vph)	22	22	0	3	10
Volume Right (vph)	3	0	134	25	3
Hadj (s)	0.06	0.22	-0.68	0.25	0.01
Departure Headway (s)	4.7	5.4	4.5	5.3	5.3
Degree Utilization, x	0.35	0.15	0.17	0.19	0.02
Capacity (veh/h)	738	642	772	628	606
Control Delay (s)	10.2	8.1	7.1	9.6	8.4
Approach Delay (s)	10.2	7.5		9.6	8.4
Approach LOS	B	A		A	A

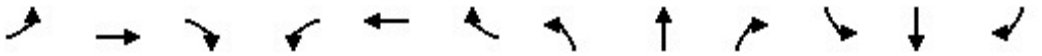
Intersection Summary				
Delay	9.1			
Level of Service	A			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	207	3	19	66	117	3	89	22	9	3	3
Future Vol, veh/h	19	207	3	19	66	117	3	89	22	9	3	3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	3	0	1	8	1	0	27	0	0	0	0
Mvmt Flow	22	238	3	22	76	134	3	102	25	10	3	3
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

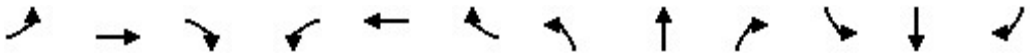
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10	8.5	9	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	8%	22%	0%	60%
Vol Thru, %	78%	90%	78%	0%	20%
Vol Right, %	19%	1%	0%	100%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	229	85	117	15
LT Vol	3	19	19	0	9
Through Vol	89	207	66	0	3
RT Vol	22	3	0	117	3
Lane Flow Rate	131	263	98	134	17
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.179	0.339	0.142	0.169	0.025
Departure Headway (Hd)	4.923	4.635	5.224	4.527	5.207
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	727	774	686	791	684
Service Time	2.967	2.672	2.962	2.265	3.265
HCM Lane V/C Ratio	0.18	0.34	0.143	0.169	0.025
HCM Control Delay	9	10	8.8	8.2	8.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.6	1.5	0.5	0.6	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	3	0	106	19	1	0	8	6
Future Volume (vph)	0	0	0	2	3	0	106	19	1	0	8	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.999			0.944	
Flt Protected					0.984			0.960				
Satd. Flow (prot)	0	0	0	0	1549	0	0	1578	0	0	1695	0
Flt Permitted					0.984			0.960				
Satd. Flow (perm)	0	0	0	0	1549	0	0	1578	0	0	1695	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		72.4			29.6			113.8			23.3	
Travel Time (s)		5.4			2.2			8.5			1.7	
Confl. Peds. (#/hr)	54		8	8		54	3		54	54		3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	100%	0%	33%	0%	19%	5%	0%	0%	0%	17%
Adj. Flow (vph)	0	0	0	2	4	0	128	23	1	0	10	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	6	0	0	152	0	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	32.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	2	3	0	106	19	1	0	8	6
Future Volume (vph)	0	0	0	2	3	0	106	19	1	0	8	6
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	0	0	2	4	0	128	23	1	0	10	7

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	6	152	17
Volume Left (vph)	2	128	0
Volume Right (vph)	0	1	7
Hadj (s)	0.44	0.45	-0.13
Departure Headway (s)	4.7	4.4	3.9
Degree Utilization, x	0.01	0.18	0.02
Capacity (veh/h)	730	810	901
Control Delay (s)	7.8	8.4	7.0
Approach Delay (s)	7.8	8.4	7.0
Approach LOS	A	A	A

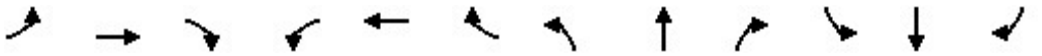
Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	32.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	2	3	0	106	19	1	0	8	6
Future Vol, veh/h	0	0	0	2	3	0	106	19	1	0	8	6
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	100	0	33	0	19	5	0	0	0	17
Mvmt Flow	0	0	0	2	4	0	128	23	1	0	10	7
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.4	8.4	6.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	84%	40%	0%
Vol Thru, %	15%	60%	57%
Vol Right, %	1%	0%	43%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	126	5	14
LT Vol	106	2	0
Through Vol	19	3	8
RT Vol	1	0	6
Lane Flow Rate	152	6	17
Geometry Grp	1	1	1
Degree of Util (X)	0.186	0.007	0.018
Departure Headway (Hd)	4.409	4.376	3.765
Convergence, Y/N	Yes	Yes	Yes
Cap	818	823	945
Service Time	2.415	2.376	1.812
HCM Lane V/C Ratio	0.186	0.007	0.018
HCM Control Delay	8.4	7.4	6.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0	0.1

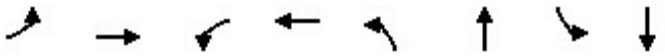


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	37	28	13	45	211	15	651	31	102	618	270
Future Volume (vph)	166	37	28	13	45	211	15	651	31	102	618	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	39.0		0.0	37.0		0.0	33.0		0.0	19.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.98		0.97	0.97		0.99	1.00		0.98	0.97	
Frt		0.935			0.876			0.993			0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	1735	0	1825	1632	0	1825	3509	0	1789	3343	0
Flt Permitted	0.420			0.710			0.254			0.345		
Satd. Flow (perm)	786	1735	0	1328	1632	0	481	3509	0	635	3343	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			135			7			99	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		100.6			74.4			99.5			177.7	
Travel Time (s)		7.5			5.6			7.5			13.3	
Confl. Peds. (#/hr)	26		30	30		26	36		39	39		36
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	4%	0%	0%	0%	0%	3%	0%	2%	2%	0%
Adj. Flow (vph)	182	41	31	14	49	232	16	715	34	112	679	297
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	72	0	14	281	0	16	749	0	112	976	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	43.0	43.0		43.0	43.0		57.0	57.0		57.0	57.0	
Total Split (s)	43.0	43.0		43.0	43.0		57.0	57.0		57.0	57.0	
Total Split (%)	43.0%	43.0%		43.0%	43.0%		57.0%	57.0%		57.0%	57.0%	
Maximum Green (s)	36.0	36.0		36.0	36.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		61.5	61.5		61.5	61.5	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.62	0.62		0.62	0.62	
v/c Ratio	0.95	0.16		0.04	0.56		0.05	0.35		0.29	0.47	
Control Delay	88.7	16.9		24.6	19.6		11.4	11.1		13.9	11.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	88.7	16.9		24.6	19.6		11.4	11.1		13.9	11.3	
LOS	F	B		C	B		B	B		B	B	
Approach Delay		68.3			19.9			11.1			11.5	
Approach LOS		E			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 96 (96%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 88.1%		ICU Level of Service E	
Analysis Period (min) 15			

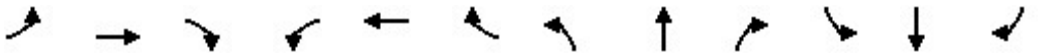
Splits and Phases: 1: Hurontario Street & Park Street East



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	182	72	14	281	16	749	112	976
v/c Ratio	0.95	0.16	0.04	0.56	0.05	0.35	0.29	0.47
Control Delay	88.7	16.9	24.6	19.6	11.4	11.1	13.9	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.7	16.9	24.6	19.6	11.4	11.1	13.9	11.3
Queue Length 50th (m)	34.6	6.2	2.1	23.8	1.2	34.2	9.4	44.1
Queue Length 95th (m)	#59.6	14.5	6.0	41.8	5.1	58.6	25.3	76.1
Internal Link Dist (m)		76.6		50.4		75.5		153.7
Turn Bay Length (m)	39.0		37.0		33.0		19.0	
Base Capacity (vph)	282	644	478	673	295	2160	390	2093
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.11	0.03	0.42	0.05	0.35	0.29	0.47

Intersection Summary

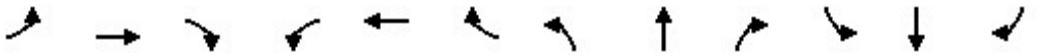
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	37	28	13	45	211	15	651	31	102	618	270
Future Volume (vph)	166	37	28	13	45	211	15	651	31	102	618	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.98	1.00		0.97	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.94		1.00	0.88		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1780	1736		1777	1632		1798	3509		1745	3344	
Flt Permitted	0.42	1.00		0.71	1.00		0.25	1.00		0.34	1.00	
Satd. Flow (perm)	787	1736		1328	1632		480	3509		633	3344	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	182	41	31	14	49	232	16	715	34	112	679	297
RTOR Reduction (vph)	0	23	0	0	102	0	0	3	0	0	38	0
Lane Group Flow (vph)	182	49	0	14	179	0	16	746	0	112	938	0
Confl. Peds. (#/hr)	26		30	30		26	36		39	39		36
Heavy Vehicles (%)	1%	0%	4%	0%	0%	0%	0%	3%	0%	2%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	24.5	24.5		24.5	24.5		61.5	61.5		61.5	61.5	
Effective Green, g (s)	24.5	24.5		24.5	24.5		61.5	61.5		61.5	61.5	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.62	0.62		0.62	0.62	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	192	425		325	399		295	2158		389	2056	
v/s Ratio Prot		0.03			0.11			0.21			c0.28	
v/s Ratio Perm	c0.23			0.01			0.03			0.18		
v/c Ratio	0.95	0.11		0.04	0.45		0.05	0.35		0.29	0.46	
Uniform Delay, d1	37.1	29.3		28.8	32.0		7.7	9.4		9.0	10.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	49.5	0.1		0.1	0.8		0.3	0.4		1.9	0.7	
Delay (s)	86.7	29.4		28.9	32.8		8.0	9.9		10.9	11.0	
Level of Service	F	C		C	C		A	A		B	B	
Approach Delay (s)		70.4			32.6			9.8			11.0	
Approach LOS		E			C			A			B	

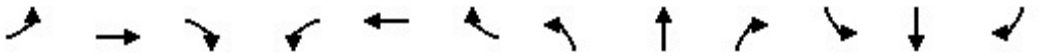
Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	172	2	21	185	94	5	59	24	57	26	4
Future Volume (vph)	18	172	2	21	185	94	5	59	24	57	26	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		10.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850		0.963			0.994	
Flt Protected		0.995			0.995			0.997			0.968	
Satd. Flow (prot)	0	1910	0	0	1878	1633	0	1459	0	0	1848	0
Flt Permitted		0.995			0.995			0.997			0.968	
Satd. Flow (perm)	0	1910	0	0	1878	1633	0	1459	0	0	1848	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		36.6			100.6			45.4			113.8	
Travel Time (s)		2.7			7.5			3.4			8.5	
Confl. Peds. (#/hr)	15		13	13		15	8		12	12		8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	39%	0%	0%	0%	0%
Adj. Flow (vph)	20	189	2	23	203	103	5	65	26	63	29	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	211	0	0	226	103	0	96	0	0	96	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	18	172	2	21	185	94	5	59	24	57	26	4
Future Volume (vph)	18	172	2	21	185	94	5	59	24	57	26	4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	20	189	2	23	203	103	5	65	26	63	29	4

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	211	226	103	96	96
Volume Left (vph)	20	23	0	5	63
Volume Right (vph)	2	0	103	26	4
Hadj (s)	0.01	0.08	-0.70	0.30	0.11
Departure Headway (s)	5.0	5.4	4.6	5.6	5.5
Degree Utilization, x	0.29	0.34	0.13	0.15	0.15
Capacity (veh/h)	684	645	753	581	596
Control Delay (s)	10.0	9.8	7.0	9.6	9.4
Approach Delay (s)	10.0	9.0		9.6	9.4
Approach LOS	A	A		A	A

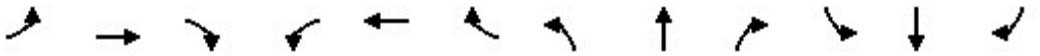
Intersection Summary				
Delay	9.4			
Level of Service	A			
Intersection Capacity Utilization	42.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	172	2	21	185	94	5	59	24	57	26	4
Future Vol, veh/h	18	172	2	21	185	94	5	59	24	57	26	4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	2	0	0	39	0	0	0	0
Mvmt Flow	20	189	2	23	203	103	5	65	26	63	29	4
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

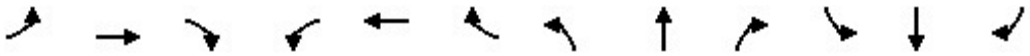
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	9.9	9.8	9	9.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	6%	9%	10%	0%	66%
Vol Thru, %	67%	90%	90%	0%	30%
Vol Right, %	27%	1%	0%	100%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	192	206	94	87
LT Vol	5	18	21	0	57
Through Vol	59	172	185	0	26
RT Vol	24	2	0	94	4
Lane Flow Rate	97	211	226	103	96
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.138	0.287	0.33	0.13	0.143
Departure Headway (Hd)	5.134	4.891	5.245	4.523	5.385
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	692	730	681	787	661
Service Time	3.213	2.957	3.006	2.284	3.465
HCM Lane V/C Ratio	0.14	0.289	0.332	0.131	0.145
HCM Control Delay	9	9.9	10.6	8	9.4
HCM Lane LOS	A	A	B	A	A
HCM 95th-tile Q	0.5	1.2	1.4	0.4	0.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	3	0	0	107	9	1	0	7	5
Future Volume (vph)	0	0	0	3	0	0	107	9	1	0	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.999			0.946	
Flt Protected					0.950			0.956				
Satd. Flow (prot)	0	0	0	0	1825	0	0	1481	0	0	1817	0
Flt Permitted					0.950			0.956				
Satd. Flow (perm)	0	0	0	0	1825	0	0	1481	0	0	1817	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		72.6			28.2			113.8			21.0	
Travel Time (s)		5.4			2.1			8.5			1.6	
Confl. Peds. (#/hr)	33		29	2		33	2		37	37		2
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	26%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	4	0	0	135	11	1	0	9	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	4	0	0	147	0	0	15	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	3	0	0	107	9	1	0	7	5
Future Volume (vph)	0	0	0	3	0	0	107	9	1	0	7	5
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	0	0	0	4	0	0	135	11	1	0	9	6

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	4	147	15
Volume Left (vph)	4	135	0
Volume Right (vph)	0	1	6
Hadj (s)	0.20	0.59	-0.24
Departure Headway (s)	4.5	4.5	3.8
Degree Utilization, x	0.00	0.18	0.02
Capacity (veh/h)	770	787	930
Control Delay (s)	7.5	8.5	6.9
Approach Delay (s)	7.5	8.5	6.9
Approach LOS	A	A	A

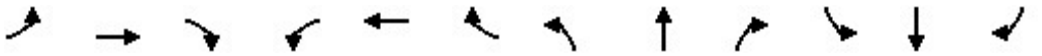
Intersection Summary				
Delay	8.4			
Level of Service	A			
Intersection Capacity Utilization	30.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	0	0	107	9	1	0	7	5
Future Vol, veh/h	0	0	0	3	0	0	107	9	1	0	7	5
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	0	0	0	26	0	0	0	0	0
Mvmt Flow	0	0	0	4	0	0	135	11	1	0	9	6
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.5	8.6	6.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	91%	100%	0%
Vol Thru, %	8%	0%	58%
Vol Right, %	1%	0%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	117	3	12
LT Vol	107	3	0
Through Vol	9	0	7
RT Vol	1	0	5
Lane Flow Rate	148	4	15
Geometry Grp	1	1	1
Degree of Util (X)	0.187	0.005	0.016
Departure Headway (Hd)	4.537	4.495	3.766
Convergence, Y/N	Yes	Yes	Yes
Cap	795	801	944
Service Time	2.543	2.495	1.815
HCM Lane V/C Ratio	0.186	0.005	0.016
HCM Control Delay	8.6	7.5	6.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0	0

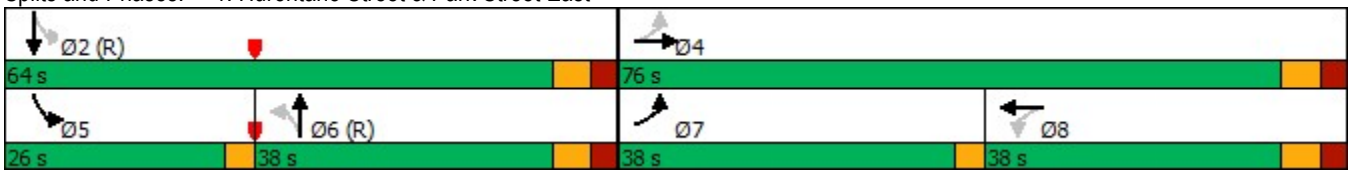


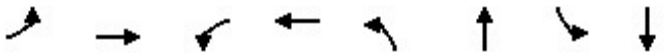
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	43	27	32	33	241	15	580	51	290	525	240
Future Volume (vph)	284	43	27	32	33	241	15	580	51	290	525	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	39.0		0.0	37.0		0.0	33.0		0.0	19.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.98		0.97	0.97		0.96	0.99			0.95	
Frt		0.942			0.868			0.988			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	1782	0	1825	1502	0	1547	3352	0	1772	3114	0
Flt Permitted	0.203			0.702			0.310			0.183		
Satd. Flow (perm)	383	1782	0	1315	1502	0	485	3352	0	341	3114	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			239			6			64	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		100.6			74.4			99.5			177.7	
Travel Time (s)		9.1			6.7			7.2			12.8	
Confl. Peds. (#/hr)	15		21	21		15	53		43	43		53
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Adj. Flow (vph)	342	52	33	39	40	290	18	699	61	349	633	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	85	0	39	330	0	18	760	0	349	922	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8			6			2		
Detector Phase	7	4		8	8		6	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	8.0		8.0	8.0		8.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	38.0		38.0	38.0		33.0	33.0		8.0	33.0	
Total Split (s)	38.0	76.0		38.0	38.0		38.0	38.0		26.0	64.0	
Total Split (%)	27.1%	54.3%		27.1%	27.1%		27.1%	27.1%		18.6%	45.7%	
Maximum Green (s)	35.0	69.0		31.0	31.0		31.0	31.0		23.0	57.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)		10.0		10.0	10.0		9.0	9.0			9.0	
Flash Dont Walk (s)		21.0		21.0	21.0		17.0	17.0			17.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	55.0	51.0		16.6	16.6		44.2	44.2		79.0	75.0	
Actuated g/C Ratio	0.39	0.36		0.12	0.12		0.32	0.32		0.56	0.54	
v/c Ratio	0.73	0.13		0.25	0.85		0.12	0.72		0.73	0.54	
Control Delay	41.5	16.1		56.1	36.5		44.8	48.6		32.0	23.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.5	16.1		56.1	36.5		44.8	48.6		32.0	23.2	
LOS	D	B		E	D		D	D		C	C	
Approach Delay		36.4			38.6			48.5			25.6	
Approach LOS		D			D			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 35.2		Intersection LOS: D	
Intersection Capacity Utilization 92.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street & Park Street East

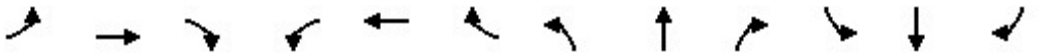




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	342	85	39	330	18	760	349	922
v/c Ratio	0.73	0.13	0.25	0.85	0.12	0.72	0.73	0.54
Control Delay	41.5	16.1	56.1	36.5	44.8	48.6	32.0	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	16.1	56.1	36.5	44.8	48.6	32.0	23.2
Queue Length 50th (m)	69.3	9.4	10.1	25.3	3.7	101.7	52.6	81.0
Queue Length 95th (m)	73.9	15.3	17.9	44.5	10.5	#135.2	#96.0	109.8
Internal Link Dist (m)		76.6		50.4		75.5		153.7
Turn Bay Length (m)	39.0		37.0		33.0		19.0	
Base Capacity (vph)	506	894	291	518	152	1061	477	1698
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.10	0.13	0.64	0.12	0.72	0.73	0.54

Intersection Summary

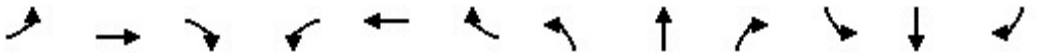
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	43	27	32	33	241	15	580	51	290	525	240
Future Volume (vph)	284	43	27	32	33	241	15	580	51	290	525	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	0.99		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		0.96	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.87		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1804	1781		1779	1502		1485	3352		1766	3114	
Flt Permitted	0.20	1.00		0.70	1.00		0.31	1.00		0.18	1.00	
Satd. Flow (perm)	386	1781		1314	1502		484	3352		340	3114	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	342	52	33	39	40	290	18	699	61	349	633	289
RTOR Reduction (vph)	0	20	0	0	210	0	0	4	0	0	30	0
Lane Group Flow (vph)	342	65	0	39	120	0	18	756	0	349	892	0
Confl. Peds. (#/hr)	15		21	21		15	53		43	43		53
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	51.0	51.0		16.7	16.7		44.1	44.1		75.0	75.0	
Effective Green, g (s)	51.0	51.0		16.7	16.7		44.1	44.1		75.0	75.0	
Actuated g/C Ratio	0.36	0.36		0.12	0.12		0.32	0.32		0.54	0.54	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	457	648		156	179		152	1055		466	1668	
v/s Ratio Prot	c0.17	0.04			0.08			0.23		c0.15	0.29	
v/s Ratio Perm	c0.11			0.03			0.04			c0.25		
v/c Ratio	0.75	0.10		0.25	0.67		0.12	0.72		0.75	0.53	
Uniform Delay, d1	36.0	29.4		56.0	59.0		34.1	42.4		23.5	21.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	0.1		0.8	9.1		1.6	4.2		6.5	1.2	
Delay (s)	42.6	29.4		56.8	68.1		35.7	46.6		30.0	22.4	
Level of Service	D	C		E	E		D	D		C	C	
Approach Delay (s)		40.0			66.9			46.3			24.5	
Approach LOS		D			E			D			C	

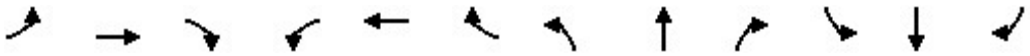
Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	244	3	35	73	132	3	92	67	63	8	3
Future Volume (vph)	19	244	3	35	73	132	3	92	67	63	8	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		10.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850		0.944			0.995	
Flt Protected		0.996			0.984			0.999			0.959	
Satd. Flow (prot)	0	1860	0	0	1788	1617	0	1570	0	0	1833	0
Flt Permitted		0.996			0.984			0.999			0.959	
Satd. Flow (perm)	0	1860	0	0	1788	1617	0	1570	0	0	1833	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		36.6			100.6			45.4			113.8	
Travel Time (s)		3.3			9.1			3.3			8.2	
Confl. Peds. (#/hr)	30		4	4		30	9		10	10		9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	3%	0%	1%	8%	1%	0%	27%	0%	0%	0%	0%
Adj. Flow (vph)	22	280	3	40	84	152	3	106	77	72	9	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	305	0	0	124	152	0	186	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	244	3	35	73	132	3	92	67	63	8	3
Future Volume (vph)	19	244	3	35	73	132	3	92	67	63	8	3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	22	280	3	40	84	152	3	106	77	72	9	3

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	305	124	152	186	84
Volume Left (vph)	22	40	0	3	72
Volume Right (vph)	3	0	152	77	3
Hadj (s)	0.06	0.26	-0.68	0.02	0.15
Departure Headway (s)	5.2	5.9	5.0	5.5	5.9
Degree Utilization, x	0.44	0.20	0.21	0.29	0.14
Capacity (veh/h)	653	573	679	589	542
Control Delay (s)	12.3	9.2	8.1	10.7	9.8
Approach Delay (s)	12.3	8.6		10.7	9.8
Approach LOS	B	A		B	A

Intersection Summary				
Delay	10.5			
Level of Service	B			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

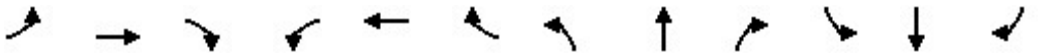
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	244	3	35	73	132	3	92	67	63	8	3
Future Vol, veh/h	19	244	3	35	73	132	3	92	67	63	8	3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	3	0	1	8	1	0	27	0	0	0	0
Mvmt Flow	22	280	3	40	84	152	3	106	77	72	9	3
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	12.2	9.6	10.3	9.8
HCM LOS	B	A	B	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	2%	7%	32%	0%	85%
Vol Thru, %	57%	92%	68%	0%	11%
Vol Right, %	41%	1%	0%	100%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	266	108	132	74
LT Vol	3	19	35	0	63
Through Vol	92	244	73	0	8
RT Vol	67	3	0	132	3
Lane Flow Rate	186	306	124	152	85
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.273	0.438	0.2	0.213	0.138
Departure Headway (Hd)	5.269	5.155	5.809	5.057	5.842
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	682	700	618	710	614
Service Time	3.299	3.179	3.536	2.784	3.878
HCM Lane V/C Ratio	0.273	0.437	0.201	0.214	0.138
HCM Control Delay	10.3	12.2	10	9.2	9.8
HCM Lane LOS	B	B	A	A	A
HCM 95th-tile Q	1.1	2.2	0.7	0.8	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	3	0	106	19	1	0	8	6
Future Volume (vph)	0	0	0	2	3	0	106	19	1	0	8	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.999			0.941	
Flt Protected					0.980			0.960				
Satd. Flow (prot)	0	0	0	0	1860	0	0	1578	0	0	1690	0
Flt Permitted					0.980			0.960				
Satd. Flow (perm)	0	0	0	0	1860	0	0	1578	0	0	1690	0
Link Speed (k/h)		50			48			50			48	
Link Distance (m)		72.4			29.6			113.8			23.3	
Travel Time (s)		5.2			2.2			8.2			1.7	
Confl. Peds. (#/hr)	54		8	8		54	3		54	54		3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	2%	0%	2%	0%	19%	5%	0%	0%	0%	16%
Adj. Flow (vph)	0	0	0	2	3	0	122	22	1	0	9	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	5	0	0	145	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	2	3	0	106	19	1	0	8	6
Future Volume (vph)	0	0	0	2	3	0	106	19	1	0	8	6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	2	3	0	122	22	1	0	9	7

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	5	145	16
Volume Left (vph)	2	122	0
Volume Right (vph)	0	1	7
Hadj (s)	0.10	0.45	-0.14
Departure Headway (s)	4.4	4.4	3.9
Degree Utilization, x	0.01	0.18	0.02
Capacity (veh/h)	790	811	908
Control Delay (s)	7.4	8.3	7.0
Approach Delay (s)	7.4	8.3	7.0
Approach LOS	A	A	A

Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	32.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	2	3	0	106	19	1	0	8	6
Future Vol, veh/h	0	0	0	2	3	0	106	19	1	0	8	6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	2	0	2	0	19	5	0	0	0	16
Mvmt Flow	0	0	0	2	3	0	122	22	1	0	9	7
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.4	8.4	6.9
HCM LOS	A	A	A

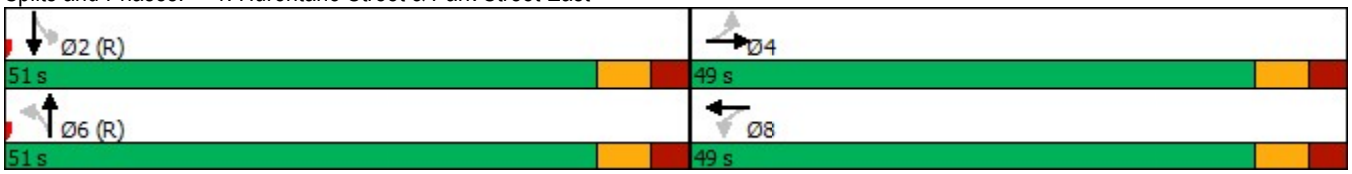
Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	84%	40%	0%
Vol Thru, %	15%	60%	57%
Vol Right, %	1%	0%	43%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	126	5	14
LT Vol	106	2	0
Through Vol	19	3	8
RT Vol	1	0	6
Lane Flow Rate	145	6	16
Geometry Grp	1	1	1
Degree of Util (X)	0.177	0.007	0.017
Departure Headway (Hd)	4.408	4.258	3.76
Convergence, Y/N	Yes	Yes	Yes
Cap	818	826	947
Service Time	2.415	2.357	1.804
HCM Lane V/C Ratio	0.177	0.007	0.017
HCM Control Delay	8.4	7.4	6.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0	0.1

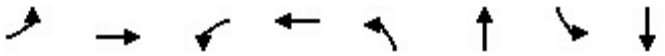
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	37	30	13	45	211	23	688	33	107	658	392
Future Volume (vph)	243	37	30	13	45	211	23	688	33	107	658	392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	39.0		0.0	37.0		0.0	33.0		0.0	19.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.98		0.97	0.97		0.99	1.00		0.98	0.97	
Frt		0.933			0.876			0.993			0.944	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	1729	0	1825	1632	0	1825	3509	0	1789	3291	0
Flt Permitted	0.484			0.709			0.171			0.308		
Satd. Flow (perm)	906	1729	0	1326	1632	0	326	3509	0	568	3291	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			88			6			157	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		100.6			74.4			99.5			177.7	
Travel Time (s)		9.1			6.7			7.2			12.8	
Confl. Peds. (#/hr)	26		30	30		26	36		39	39		36
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	4%	0%	0%	0%	0%	3%	0%	2%	2%	0%
Adj. Flow (vph)	267	41	33	14	49	232	25	756	36	118	723	431
Shared Lane Traffic (%)												
Lane Group Flow (vph)	267	74	0	14	281	0	25	792	0	118	1154	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0		38.0	38.0		33.0	33.0		33.0	33.0	
Total Split (s)	49.0	49.0		49.0	49.0		51.0	51.0		51.0	51.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	42.0	42.0		42.0	42.0		44.0	44.0		44.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.9	31.9		31.9	31.9		54.1	54.1		54.1	54.1	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.54	0.54		0.54	0.54	
v/c Ratio	0.92	0.13		0.03	0.48		0.14	0.42		0.38	0.62	
Control Delay	68.8	13.0		19.4	19.8		17.8	15.8		21.2	16.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	68.8	13.0		19.4	19.8		17.8	15.8		21.2	16.8	
LOS	E	B		B	B		B	B		C	B	
Approach Delay		56.7			19.7			15.9			17.2	
Approach LOS		E			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 97.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street & Park Street East

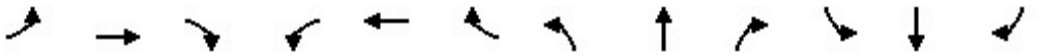




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	267	74	14	281	25	792	118	1154
v/c Ratio	0.92	0.13	0.03	0.48	0.14	0.42	0.38	0.62
Control Delay	68.8	13.0	19.4	19.8	17.8	15.8	21.2	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	13.0	19.4	19.8	17.8	15.8	21.2	16.8
Queue Length 50th (m)	49.0	5.4	1.8	28.9	2.3	45.9	12.8	67.8
Queue Length 95th (m)	#75.0	12.9	5.2	44.1	8.9	73.3	33.4	109.1
Internal Link Dist (m)		76.6		50.4		75.5		153.7
Turn Bay Length (m)	39.0		37.0		33.0		19.0	
Base Capacity (vph)	380	745	556	736	176	1901	307	1852
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.10	0.03	0.38	0.14	0.42	0.38	0.62

Intersection Summary

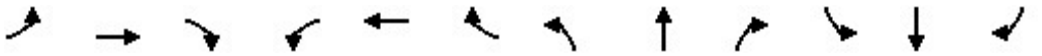
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	37	30	13	45	211	23	688	33	107	658	392
Future Volume (vph)	243	37	30	13	45	211	23	688	33	107	658	392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.98	1.00		0.97	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.93		1.00	0.88		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1779	1729		1777	1632		1808	3509		1750	3291	
Flt Permitted	0.48	1.00		0.71	1.00		0.17	1.00		0.31	1.00	
Satd. Flow (perm)	907	1729		1326	1632		326	3509		567	3291	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	267	41	33	14	49	232	25	756	36	118	723	431
RTOR Reduction (vph)	0	22	0	0	60	0	0	3	0	0	72	0
Lane Group Flow (vph)	267	52	0	14	221	0	25	789	0	118	1082	0
Confl. Peds. (#/hr)	26		30	30		26	36		39	39		36
Heavy Vehicles (%)	1%	0%	4%	0%	0%	0%	0%	3%	0%	2%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	31.9	31.9		31.9	31.9		54.1	54.1		54.1	54.1	
Effective Green, g (s)	31.9	31.9		31.9	31.9		54.1	54.1		54.1	54.1	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.54	0.54		0.54	0.54	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	289	551		422	520		176	1898		306	1780	
v/s Ratio Prot		0.03			0.14			0.22			c0.33	
v/s Ratio Perm	c0.29			0.01			0.08			0.21		
v/c Ratio	0.92	0.09		0.03	0.43		0.14	0.42		0.39	0.61	
Uniform Delay, d1	32.9	23.9		23.4	26.8		11.4	13.6		13.3	15.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	33.4	0.1		0.0	0.6		1.7	0.7		3.6	1.6	
Delay (s)	66.3	24.0		23.5	27.4		13.1	14.3		17.0	17.2	
Level of Service	E	C		C	C		B	B		B	B	
Approach Delay (s)		57.1			27.2			14.2			17.2	
Approach LOS		E			C			B			B	

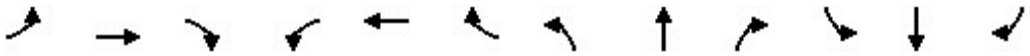
Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	198	2	60	215	140	5	65	56	78	31	4
Future Volume (vph)	18	198	2	60	215	140	5	65	56	78	31	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		10.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850		0.939			0.996	
Flt Protected		0.996			0.989			0.998			0.966	
Satd. Flow (prot)	0	1912	0	0	1871	1633	0	1499	0	0	1848	0
Flt Permitted		0.996			0.989			0.998			0.966	
Satd. Flow (perm)	0	1912	0	0	1871	1633	0	1499	0	0	1848	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		36.6			100.6			45.4			113.8	
Travel Time (s)		3.3			9.1			3.3			8.2	
Confl. Peds. (#/hr)	15		13	13		15	8		12	12		8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	39%	0%	0%	0%	0%
Adj. Flow (vph)	20	218	2	66	236	154	5	71	62	86	34	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	302	154	0	138	0	0	124	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.0%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	18	198	2	60	215	140	5	65	56	78	31	4
Future Volume (vph)	18	198	2	60	215	140	5	65	56	78	31	4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	20	218	2	66	236	154	5	71	62	86	34	4

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	240	302	154	138	124
Volume Left (vph)	20	66	0	5	86
Volume Right (vph)	2	0	154	62	4
Hadj (s)	0.01	0.14	-0.70	0.08	0.12
Departure Headway (s)	5.4	5.8	4.9	5.9	6.0
Degree Utilization, x	0.36	0.48	0.21	0.23	0.21
Capacity (veh/h)	621	603	703	540	535
Control Delay (s)	11.5	12.8	8.0	10.7	10.6
Approach Delay (s)	11.5	11.2		10.7	10.6
Approach LOS	B	B		B	B

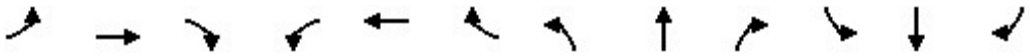
Intersection Summary				
Delay	11.1			
Level of Service	B			
Intersection Capacity Utilization	56.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	198	2	60	215	140	5	65	56	78	31	4
Future Vol, veh/h	18	198	2	60	215	140	5	65	56	78	31	4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	2	0	0	39	0	0	0	0
Mvmt Flow	20	218	2	66	236	154	5	71	62	86	34	4
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

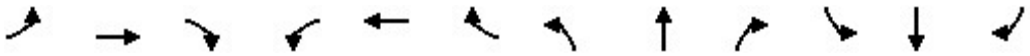
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	11.4	11.9	10.2	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	4%	8%	22%	0%	69%
Vol Thru, %	52%	91%	78%	0%	27%
Vol Right, %	44%	1%	0%	100%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	126	218	275	140	113
LT Vol	5	18	60	0	78
Through Vol	65	198	215	0	31
RT Vol	56	2	0	140	4
Lane Flow Rate	138	240	302	154	124
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.215	0.359	0.477	0.21	0.206
Departure Headway (Hd)	5.591	5.397	5.688	4.904	5.986
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	641	666	635	732	599
Service Time	3.633	3.43	3.417	2.633	4.028
HCM Lane V/C Ratio	0.215	0.36	0.476	0.21	0.207
HCM Control Delay	10.2	11.4	13.5	8.9	10.6
HCM Lane LOS	B	B	B	A	B
HCM 95th-tile Q	0.8	1.6	2.6	0.8	0.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	3	0	0	107	9	1	0	7	5
Future Volume (vph)	0	0	0	3	0	0	107	9	1	0	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.999			0.948	
Flt Protected					0.950			0.956				
Satd. Flow (prot)	0	0	0	0	1789	0	0	1799	0	0	1786	0
Flt Permitted					0.950			0.956				
Satd. Flow (perm)	0	0	0	0	1789	0	0	1799	0	0	1786	0
Link Speed (k/h)		50			48			50			48	
Link Distance (m)		72.6			28.2			113.8			20.4	
Travel Time (s)		5.2			2.1			8.2			1.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.00	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	3	0	0	118	10	1	0	8	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	3	0	0	129	0	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	3	0	0	107	9	1	0	7	5
Future Volume (vph)	0	0	0	3	0	0	107	9	1	0	7	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.00	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	0	3	0	0	118	10	1	0	8	5

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	3	129	13
Volume Left (vph)	3	118	0
Volume Right (vph)	0	1	5
Hadj (s)	0.23	0.21	-0.20
Departure Headway (s)	4.4	4.1	3.8
Degree Utilization, x	0.00	0.15	0.01
Capacity (veh/h)	781	859	928
Control Delay (s)	7.5	7.8	6.9
Approach Delay (s)	7.5	7.8	6.9
Approach LOS	A	A	A

Intersection Summary				
Delay	7.8			
Level of Service	A			
Intersection Capacity Utilization	23.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	3	0	0	107	9	1	0	7	5
Future Vol, veh/h	0	0	0	3	0	0	107	9	1	0	7	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.00	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	0	0	118	10	1	0	8	5
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.5	7.8	6.9
HCM LOS	A	A	A

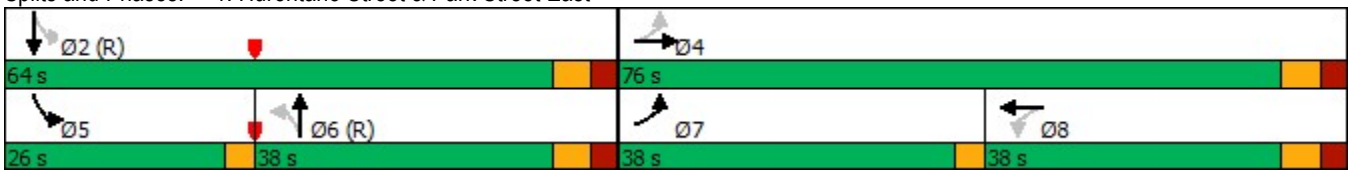
Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	91%	100%	0%
Vol Thru, %	8%	0%	58%
Vol Right, %	1%	0%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	117	3	12
LT Vol	107	3	0
Through Vol	9	0	7
RT Vol	1	0	5
Lane Flow Rate	128	3	13
Geometry Grp	1	1	1
Degree of Util (X)	0.147	0.004	0.014
Departure Headway (Hd)	4.128	4.38	3.785
Convergence, Y/N	Yes	Yes	Yes
Cap	874	809	944
Service Time	2.131	2.448	1.814
HCM Lane V/C Ratio	0.146	0.004	0.014
HCM Control Delay	7.8	7.5	6.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0	0

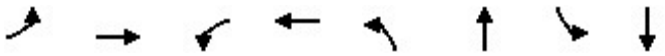
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	401	49	55	32	41	241	37	580	51	290	525	304
Future Volume (vph)	401	49	55	32	41	241	37	580	51	290	525	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	39.0		0.0	37.0		0.0	33.0		0.0	19.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.98		0.98	0.97		0.97	0.99			0.94	
Frt		0.921			0.872			0.988			0.945	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	1732	0	1825	1513	0	1547	3352	0	1772	3069	0
Flt Permitted	0.172			0.677			0.287			0.137		
Satd. Flow (perm)	324	1732	0	1269	1513	0	451	3352	0	256	3069	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		57			195			6			99	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		100.6			74.4			99.5			177.7	
Travel Time (s)		9.1			6.7			7.2			12.8	
Confl. Peds. (#/hr)	15		21	21		15	53		43	43		53
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Adj. Flow (vph)	483	59	66	39	49	290	45	699	61	349	633	366
Shared Lane Traffic (%)												
Lane Group Flow (vph)	483	125	0	39	339	0	45	760	0	349	999	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8			6			2		
Detector Phase	7	4		8	8		6	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	8.0		8.0	8.0		8.0	8.0		5.0	8.0	
Minimum Split (s)	8.0	38.0		38.0	38.0		33.0	33.0		8.0	33.0	
Total Split (s)	38.0	76.0		38.0	38.0		38.0	38.0		26.0	64.0	
Total Split (%)	27.1%	54.3%		27.1%	27.1%		27.1%	27.1%		18.6%	45.7%	
Maximum Green (s)	35.0	69.0		31.0	31.0		31.0	31.0		23.0	57.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)		10.0		10.0	10.0		9.0	9.0			9.0	
Flash Dont Walk (s)		21.0		21.0	21.0		17.0	17.0			17.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	62.3	58.3		20.3	20.3		37.6	37.6		71.7	67.7	
Actuated g/C Ratio	0.44	0.42		0.14	0.14		0.27	0.27		0.51	0.48	
v/c Ratio	0.94	0.17		0.21	0.88		0.38	0.84		0.82	0.65	
Control Delay	64.6	12.6		51.4	47.2		57.1	58.4		47.5	28.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	64.6	12.6		51.4	47.2		57.1	58.4		47.5	28.1	
LOS	E	B		D	D		E	E		D	C	
Approach Delay		53.9			47.7			58.3			33.1	
Approach LOS		D			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 45.4		Intersection LOS: D	
Intersection Capacity Utilization 99.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street & Park Street East





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	483	125	39	339	45	760	349	999
v/c Ratio	0.94	0.17	0.21	0.88	0.38	0.84	0.82	0.65
Control Delay	64.6	12.6	51.4	47.2	57.1	58.4	47.5	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	12.6	51.4	47.2	57.1	58.4	47.5	28.1
Queue Length 50th (m)	112.0	11.3	9.6	41.3	10.7	109.6	67.2	97.7
Queue Length 95th (m)	#136.8	18.3	17.6	60.4	22.5	#135.2	#117.1	122.2
Internal Link Dist (m)		76.6		50.4		75.5		153.7
Turn Bay Length (m)	39.0		37.0		33.0		19.0	
Base Capacity (vph)	514	882	280	486	120	903	425	1535
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.14	0.14	0.70	0.38	0.84	0.82	0.65

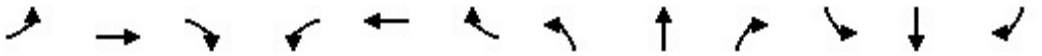
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	401	49	55	32	41	241	37	580	51	290	525	304
Future Volume (vph)	401	49	55	32	41	241	37	580	51	290	525	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	0.99		1.00	0.94	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.96	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.87		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1732		1781	1512		1492	3352		1769	3069	
Flt Permitted	0.17	1.00		0.68	1.00		0.29	1.00		0.14	1.00	
Satd. Flow (perm)	326	1732		1269	1512		450	3352		256	3069	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	483	59	66	39	49	290	45	699	61	349	633	366
RTOR Reduction (vph)	0	33	0	0	167	0	0	4	0	0	51	0
Lane Group Flow (vph)	483	92	0	39	172	0	45	756	0	349	948	0
Confl. Peds. (#/hr)	15		21	21		15	53		43	43		53
Heavy Vehicles (%)	1%	0%	0%	0%	0%	9%	18%	7%	0%	3%	8%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	58.3	58.3		20.3	20.3		37.6	37.6		67.7	67.7	
Effective Green, g (s)	58.3	58.3		20.3	20.3		37.6	37.6		67.7	67.7	
Actuated g/C Ratio	0.42	0.42		0.15	0.15		0.27	0.27		0.48	0.48	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	505	721		184	219		120	900		416	1484	
v/s Ratio Prot	c0.24	0.05			0.11			0.23		c0.16	0.31	
v/s Ratio Perm	c0.16			0.03			0.10			c0.24		
v/c Ratio	0.96	0.13		0.21	0.79		0.38	0.84		0.84	0.64	
Uniform Delay, d1	40.4	25.2		52.8	57.8		41.6	48.4		34.6	27.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.0	0.1		0.6	16.8		8.7	9.3		13.8	2.1	
Delay (s)	69.4	25.3		53.4	74.6		50.4	57.6		48.4	29.1	
Level of Service	E	C		D	E		D	E		D	C	
Approach Delay (s)		60.3			72.4			57.2			34.1	
Approach LOS		E			E			E			C	

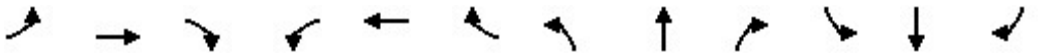
Intersection Summary			
HCM 2000 Control Delay	49.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	244	3	35	73	227	3	159	67	215	74	9
Future Volume (vph)	35	244	3	35	73	227	3	159	67	215	74	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		10.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850		0.960			0.996	
Flt Protected		0.994			0.984			0.999			0.965	
Satd. Flow (prot)	0	1859	0	0	1788	1617	0	1551	0	0	1846	0
Flt Permitted		0.994			0.984			0.999			0.965	
Satd. Flow (perm)	0	1859	0	0	1788	1617	0	1551	0	0	1846	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		36.6			100.6			45.4			113.8	
Travel Time (s)		3.3			9.1			3.3			8.2	
Confl. Peds. (#/hr)	30		4	4		30	9		10	10		9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	3%	0%	1%	8%	1%	0%	27%	0%	0%	0%	0%
Adj. Flow (vph)	40	280	3	40	84	261	3	183	77	247	85	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	323	0	0	124	261	0	263	0	0	342	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	244	3	35	73	227	3	159	67	215	74	9
Future Volume (vph)	35	244	3	35	73	227	3	159	67	215	74	9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	40	280	3	40	84	261	3	183	77	247	85	10

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	323	124	261	263	342
Volume Left (vph)	40	40	0	3	247
Volume Right (vph)	3	0	261	77	10
Hadj (s)	0.06	0.26	-0.68	0.15	0.13
Departure Headway (s)	7.3	7.9	6.9	7.5	7.2
Degree Utilization, x	0.65	0.27	0.50	0.54	0.68
Capacity (veh/h)	459	421	474	428	467
Control Delay (s)	23.1	12.6	15.4	19.0	24.2
Approach Delay (s)	23.1	14.5		19.0	24.2
Approach LOS	C	B		C	C

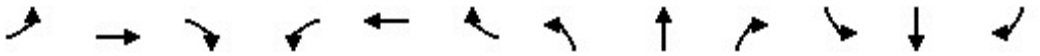
Intersection Summary				
Delay	20.1			
Level of Service	C			
Intersection Capacity Utilization	61.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	244	3	35	73	227	3	159	67	215	74	9
Future Vol, veh/h	35	244	3	35	73	227	3	159	67	215	74	9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	3	0	1	8	1	0	27	0	0	0	0
Mvmt Flow	40	280	3	40	84	261	3	183	77	247	85	10
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

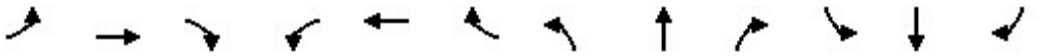
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	22.4	15.4	17.6	24
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	1%	12%	32%	0%	72%
Vol Thru, %	69%	87%	68%	0%	25%
Vol Right, %	29%	1%	0%	100%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	229	282	108	227	298
LT Vol	3	35	35	0	215
Through Vol	159	244	73	0	74
RT Vol	67	3	0	227	9
Lane Flow Rate	263	324	124	261	343
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.519	0.645	0.266	0.503	0.678
Departure Headway (Hd)	7.098	7.163	7.7	6.935	7.126
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	508	502	467	519	507
Service Time	5.156	5.216	5.452	4.687	5.178
HCM Lane V/C Ratio	0.518	0.645	0.266	0.503	0.677
HCM Control Delay	17.6	22.4	13.2	16.5	24
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	2.9	4.5	1.1	2.8	5.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	228	4	0	106	19	180	0	8	6
Future Volume (vph)	0	0	0	228	4	0	106	19	180	0	8	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.920			0.941	
Flt Protected					0.953			0.983				
Satd. Flow (prot)	0	1921	0	0	1830	0	0	1625	0	0	1683	0
Flt Permitted					0.953			0.983				
Satd. Flow (perm)	0	1921	0	0	1830	0	0	1625	0	0	1683	0
Link Speed (k/h)		50			48			50			48	
Link Distance (m)		72.4			29.6			113.8			27.0	
Travel Time (s)		5.2			2.2			8.2			2.0	
Confl. Peds. (#/hr)	54		8	8		54	3		54	54		3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	2%	0%	2%	0%	19%	5%	0%	0%	0%	17%
Adj. Flow (vph)	0	0	0	262	5	0	122	22	207	0	9	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	267	0	0	351	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	228	4	0	106	19	180	0	8	6
Future Volume (vph)	0	0	0	228	4	0	106	19	180	0	8	6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	262	5	0	122	22	207	0	9	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	0	267	351	16
Volume Left (vph)	0	262	122	0
Volume Right (vph)	0	0	207	7
Hadj (s)	0.00	0.20	-0.17	-0.14
Departure Headway (s)	5.2	5.0	4.5	4.9
Degree Utilization, x	0.00	0.37	0.44	0.02
Capacity (veh/h)	640	684	773	669
Control Delay (s)	8.2	10.8	10.9	8.0
Approach Delay (s)	0.0	10.8	10.9	8.0
Approach LOS	A	B	B	A

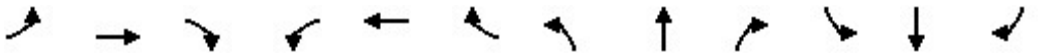
Intersection Summary				
Delay	10.8			
Level of Service	B			
Intersection Capacity Utilization	53.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	228	4	0	106	19	180	0	8	6
Future Vol, veh/h	0	0	0	228	4	0	106	19	180	0	8	6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	2	0	2	0	19	5	0	0	0	17
Mvmt Flow	0	0	0	262	5	0	122	22	207	0	9	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	0	10.9	11.5	7.9
HCM LOS	-	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	35%	0%	98%	0%
Vol Thru, %	6%	100%	2%	57%
Vol Right, %	59%	0%	0%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	305	0	232	14
LT Vol	106	0	228	0
Through Vol	19	0	4	8
RT Vol	180	0	0	6
Lane Flow Rate	351	0	267	16
Geometry Grp	1	1	1	1
Degree of Util (X)	0.453	0	0.368	0.021
Departure Headway (Hd)	4.649	5.139	4.971	4.752
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	775	0	723	748
Service Time	2.685	3.208	3.017	2.814
HCM Lane V/C Ratio	0.453	0	0.369	0.021
HCM Control Delay	11.5	8.2	10.9	7.9
HCM Lane LOS	B	N	B	A
HCM 95th-tile Q	2.4	0	1.7	0.1



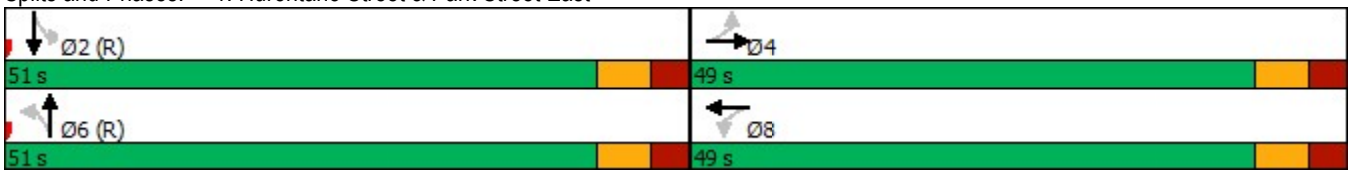
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	48	59	13	56	211	54	688	33	107	658	506
Future Volume (vph)	328	48	59	13	56	211	54	688	33	107	658	506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	39.0		0.0	37.0		0.0	33.0		0.0	19.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.98		0.98	0.97			1.00		0.98	0.96	
Frt		0.917			0.882			0.993			0.935	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	1685	0	1825	1645	0	1825	3509	0	1789	3246	0
Flt Permitted	0.509			0.681			0.101			0.283		
Satd. Flow (perm)	953	1685	0	1276	1645	0	194	3509	0	522	3246	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65			88			6			248	
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		100.6			74.4			99.5			177.7	
Travel Time (s)		9.1			6.7			7.2			12.8	
Confl. Peds. (#/hr)	26		30	30		26	36		39	39		36
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	4%	0%	0%	0%	0%	3%	0%	2%	2%	0%
Adj. Flow (vph)	360	53	65	14	62	232	59	756	36	118	723	556
Shared Lane Traffic (%)												
Lane Group Flow (vph)	360	118	0	14	294	0	59	792	0	118	1279	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

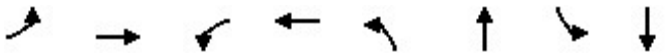
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0		38.0	38.0		33.0	33.0		33.0	33.0	
Total Split (s)	49.0	49.0		49.0	49.0		51.0	51.0		51.0	51.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	42.0	42.0		42.0	42.0		44.0	44.0		44.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	39.4	39.4		39.4	39.4		46.6	46.6		46.6	46.6	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.47	0.47		0.47	0.47	
v/c Ratio	0.96	0.17		0.03	0.42		0.66	0.48		0.49	0.78	
Control Delay	67.8	9.6		17.4	16.4		60.6	20.1		28.4	22.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	67.8	9.6		17.4	16.4		60.6	20.1		28.4	22.3	
LOS	E	A		B	B		E	C		C	C	
Approach Delay		53.4			16.4			22.9			22.9	
Approach LOS		D			B			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 27.0 Intersection LOS: C
Intersection Capacity Utilization 106.4% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: Hurontario Street & Park Street East

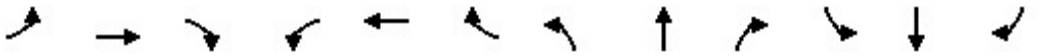




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	360	118	14	294	59	792	118	1279
v/c Ratio	0.96	0.17	0.03	0.42	0.66	0.48	0.49	0.78
Control Delay	67.8	9.6	17.4	16.4	60.6	20.1	28.4	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	9.6	17.4	16.4	60.6	20.1	28.4	22.3
Queue Length 50th (m)	63.6	6.0	1.6	26.2	9.0	56.4	16.1	91.9
Queue Length 95th (m)	#118.4	16.5	5.2	46.9	#32.2	73.3	35.1	120.9
Internal Link Dist (m)		76.6		50.4		75.5		153.7
Turn Bay Length (m)	39.0		37.0		33.0		19.0	
Base Capacity (vph)	400	745	535	741	90	1638	243	1645
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.16	0.03	0.40	0.66	0.48	0.49	0.78

Intersection Summary

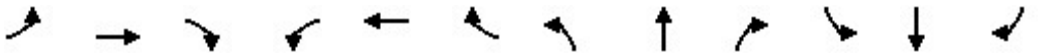
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	48	59	13	56	211	54	688	33	107	658	506
Future Volume (vph)	328	48	59	13	56	211	54	688	33	107	658	506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes	0.98	1.00		0.98	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.92		1.00	0.88		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1779	1686		1780	1645		1814	3509		1752	3245	
Flt Permitted	0.51	1.00		0.68	1.00		0.10	1.00		0.28	1.00	
Satd. Flow (perm)	953	1686		1276	1645		193	3509		523	3245	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	360	53	65	14	62	232	59	756	36	118	723	556
RTOR Reduction (vph)	0	39	0	0	53	0	0	3	0	0	132	0
Lane Group Flow (vph)	360	79	0	14	241	0	59	789	0	118	1147	0
Confl. Peds. (#/hr)	26		30	30		26	36		39	39		36
Heavy Vehicles (%)	1%	0%	4%	0%	0%	0%	0%	3%	0%	2%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	39.4	39.4		39.4	39.4		46.6	46.6		46.6	46.6	
Effective Green, g (s)	39.4	39.4		39.4	39.4		46.6	46.6		46.6	46.6	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.47	0.47		0.47	0.47	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	375	664		502	648		89	1635		243	1512	
v/s Ratio Prot		0.05			0.15			0.22			c0.35	
v/s Ratio Perm	c0.38			0.01			0.31			0.23		
v/c Ratio	0.96	0.12		0.03	0.37		0.66	0.48		0.49	0.76	
Uniform Delay, d1	29.5	19.3		18.6	21.5		20.6	18.4		18.4	22.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.6	0.1		0.0	0.4		32.7	1.0		6.8	3.6	
Delay (s)	65.1	19.3		18.6	21.9		53.3	19.4		25.2	25.7	
Level of Service	E	B		B	C		D	B		C	C	
Approach Delay (s)		53.8			21.7			21.8			25.6	
Approach LOS		D			C			C			C	

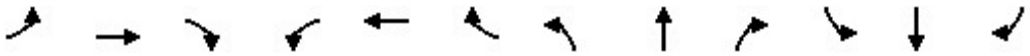
Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	106.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	198	2	60	215	296	5	156	56	204	126	15
Future Volume (vph)	40	198	2	60	215	296	5	156	56	204	126	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		10.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850		0.965			0.994	
Flt Protected		0.992			0.989			0.999			0.971	
Satd. Flow (prot)	0	1904	0	0	1871	1633	0	1447	0	0	1854	0
Flt Permitted		0.992			0.989			0.999			0.971	
Satd. Flow (perm)	0	1904	0	0	1871	1633	0	1447	0	0	1854	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		36.6			100.6			45.4			113.8	
Travel Time (s)		3.3			9.1			3.3			8.2	
Confl. Peds. (#/hr)	15		13	13		15	8		12	12		8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	39%	0%	0%	0%	0%
Adj. Flow (vph)	44	218	2	66	236	325	5	171	62	224	138	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	264	0	0	302	325	0	238	0	0	378	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	198	2	60	215	296	5	156	56	204	126	15
Future Volume (vph)	40	198	2	60	215	296	5	156	56	204	126	15
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	44	218	2	66	236	325	5	171	62	224	138	16

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	264	302	325	238	378
Volume Left (vph)	44	66	0	5	224
Volume Right (vph)	2	0	325	62	16
Hadj (s)	0.03	0.14	-0.70	0.32	0.09
Departure Headway (s)	7.9	7.9	7.0	8.2	7.5
Degree Utilization, x	0.58	0.66	0.63	0.54	0.79
Capacity (veh/h)	416	445	493	400	457
Control Delay (s)	21.3	23.6	20.0	20.5	32.9
Approach Delay (s)	21.3	21.7		20.5	32.9
Approach LOS	C	C		C	D

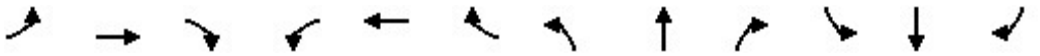
Intersection Summary				
Delay	24.3			
Level of Service	C			
Intersection Capacity Utilization	72.4%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	23.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	198	2	60	215	296	5	156	56	204	126	15
Future Vol, veh/h	40	198	2	60	215	296	5	156	56	204	126	15
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	2	0	0	39	0	0	0	0
Mvmt Flow	44	218	2	66	236	325	5	171	62	224	138	16
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

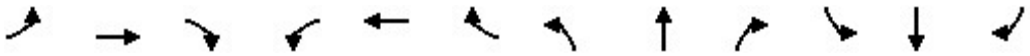
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	20.7	22	18.4	32
HCM LOS	C	C	C	D

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	2%	17%	22%	0%	59%
Vol Thru, %	72%	82%	78%	0%	37%
Vol Right, %	26%	1%	0%	100%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	240	275	296	345
LT Vol	5	40	60	0	204
Through Vol	156	198	215	0	126
RT Vol	56	2	0	296	15
Lane Flow Rate	238	264	302	325	379
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.508	0.57	0.647	0.624	0.779
Departure Headway (Hd)	7.665	7.778	7.703	6.905	7.396
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	470	464	468	524	489
Service Time	5.727	5.84	5.458	4.66	5.449
HCM Lane V/C Ratio	0.506	0.569	0.645	0.62	0.775
HCM Control Delay	18.4	20.7	23.6	20.5	32
HCM Lane LOS	C	C	C	C	D
HCM 95th-tile Q	2.8	3.5	4.5	4.2	7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	236	11	0	107	9	271	0	7	5
Future Volume (vph)	0	0	0	236	11	0	107	9	271	0	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.906			0.948	
Flt Protected					0.954			0.986				
Satd. Flow (prot)	0	0	0	0	1797	0	0	1683	0	0	1786	0
Flt Permitted					0.954			0.986				
Satd. Flow (perm)	0	0	0	0	1797	0	0	1683	0	0	1786	0
Link Speed (k/h)		50			48			50			48	
Link Distance (m)		72.6			28.2			113.8			23.7	
Travel Time (s)		5.2			2.1			8.2			1.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	259	12	0	118	10	298	0	8	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	271	0	0	426	0	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	236	11	0	107	9	271	0	7	5
Future Volume (vph)	0	0	0	236	11	0	107	9	271	0	7	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	0	259	12	0	118	10	298	0	8	5

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	271	426	13
Volume Left (vph)	259	118	0
Volume Right (vph)	0	298	5
Hadj (s)	0.23	-0.33	-0.20
Departure Headway (s)	5.1	4.3	5.0
Degree Utilization, x	0.39	0.51	0.02
Capacity (veh/h)	659	800	661
Control Delay (s)	11.3	11.8	8.0
Approach Delay (s)	11.3	11.8	8.0
Approach LOS	B	B	A

Intersection Summary				
Delay	11.6			
Level of Service	B			
Intersection Capacity Utilization	50.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

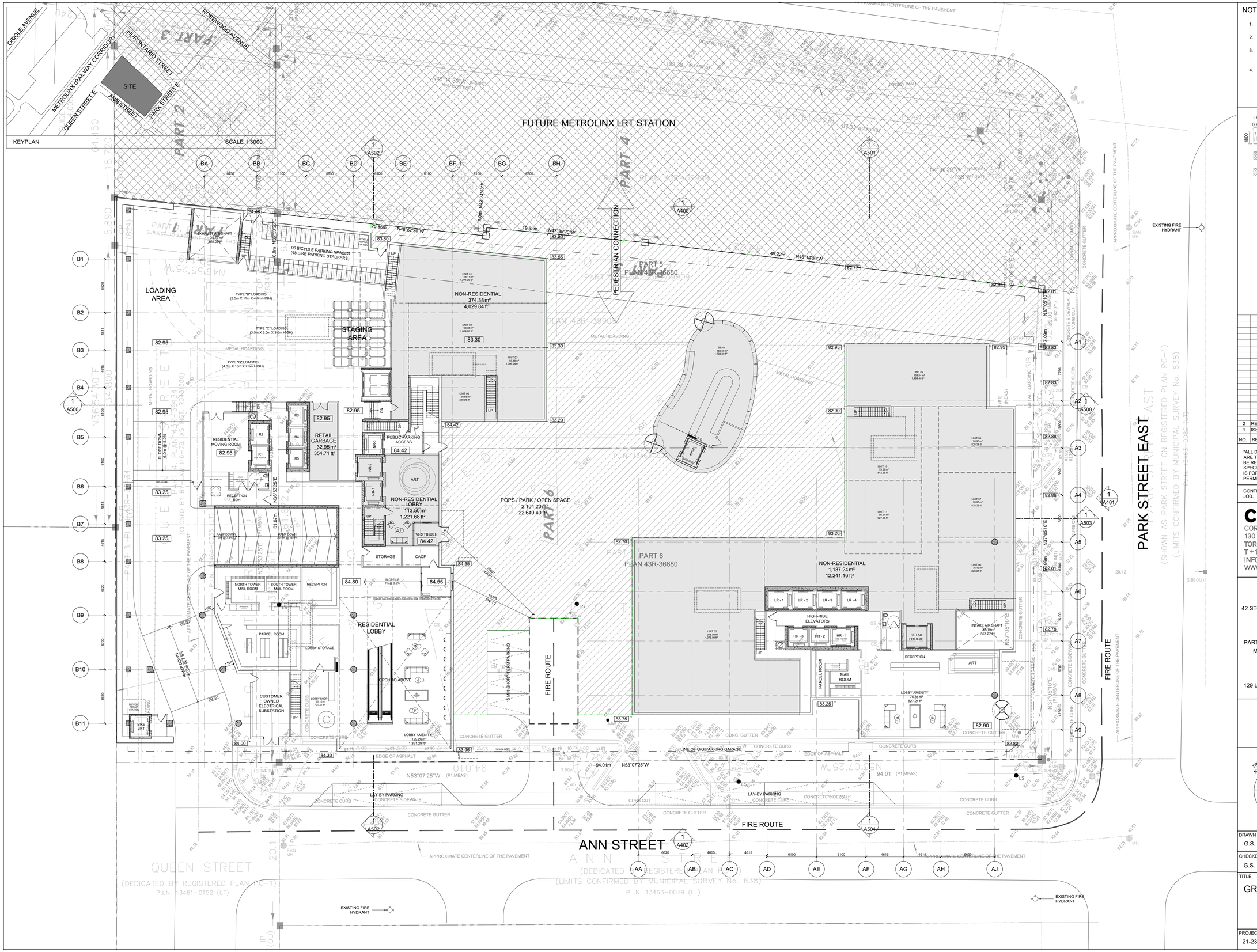
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	236	11	0	107	9	271	0	7	5
Future Vol, veh/h	0	0	0	236	11	0	107	9	271	0	7	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	259	12	0	118	10	298	0	8	5
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.3	11.8	8
HCM LOS	B	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	28%	96%	0%
Vol Thru, %	2%	4%	58%
Vol Right, %	70%	0%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	387	247	12
LT Vol	107	236	0
Through Vol	9	11	7
RT Vol	271	0	5
Lane Flow Rate	425	271	13
Geometry Grp	1	1	1
Degree of Util (X)	0.509	0.384	0.018
Departure Headway (Hd)	4.309	5.09	4.881
Convergence, Y/N	Yes	Yes	Yes
Cap	834	703	728
Service Time	2.342	3.15	2.946
HCM Lane V/C Ratio	0.51	0.385	0.018
HCM Control Delay	11.8	11.3	8
HCM Lane LOS	B	B	A
HCM 95th-tile Q	2.9	1.8	0.1

Appendix D

Site Plan



NOTES:

1. REFER TO SITE SERVICING AND GRADING PLAN FOR DETAILED GRADING.
2. REFER TO LANDSCAPE PLANS FOR PLANTING AND PAVING LOCATIONS, MATERIALS AND DETAILS.
3. BUILDING HAS 1 CHUTE EQUIPPED W/ TRISORTER FOR GARBAGE, RECYCLING, AND COMPOST. GARBAGE STREAM ATTACHED TO COMPACTOR.
4. LOADING SPACE AND STAGING AREA TO BE LEVEL (+- 2%) AND CONSTRUCTED OF 200mm REINFORCED CONCRETE

LEGEND:

600 / 1800 HORIZONTAL BICYCLE PARKING

FUTURE METROLINX LRT STATION

P.O.P.S SPACE

NO.	REVISIONS	DATE
2	RE-ISSUED FOR ZBA/OPA	31 MAY 2023
1	ISSUED FOR ZBA/OPA	4 FEBRUARY 2022

COREARCHITECTS

CORE ARCHITECTS INC.
130 QUEENS QUAY EAST, SUITE 700, WEST TOWER
TORONTO, ON CANADA M5A 0P6
T +1 416 343 0400 ○ F +1 416 343 0401
INFO@COREARCHITECTS.COM
WWW.COREARCHITECTS.COM

SITE PLAN APPLICATION FILE NO.:

PROJECT NAME:
88 PARK STREET EAST
42 STOREY MIXED-USE (RESIDENTIAL & RETAIL) BUILDING

PROJECT ADDRESS:
88 PARK STREET E, MISSISSAUGA

LEGAL DESCRIPTION:
PART OF LOTS 1 AND , REGISTERED PLAN PC-2, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL

OWNER:
EDENSHAW QUEEN DEVELOPMENTS LIMITED

OWNER'S ADDRESS:
129 LAKESHORE ROAD EAST, 2ND FLOOR MISSISSAUGA, ON, L5G 1E5 P: 905-990-3500 F:905-890-9501

88 PARK STREET EAST

MISSUSSAUGA, ON

PROJECT NORTH / TRUE NORTH

DRAWN: G.S.	SCALE: 1:200
CHECKED: G.S.	DATE: DECEMBER 2021

TITLE: GROUND FLOOR PLAN

PROJECT NO.	DRAWING NO.
21-231	A205

Appendix E

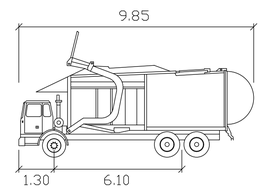
AutoTURN Circulation Review

GHD Ltd.
111 Brunel Road, Suite 200
Mississauga, Ontario L4Z 1X3 Canada
T 1 905 712 0510 **F** 1 905 712 0515

www.ghd.com

LICENSED PROFESSIONAL ENGINEER
Apr. 27, 2023
W.C. MARIA
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



Peel Garbage Front
meters

Width	: 2.77
Track	: 2.77
Lock to Lock Time	6.0
Steering Angle	: 28.0

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

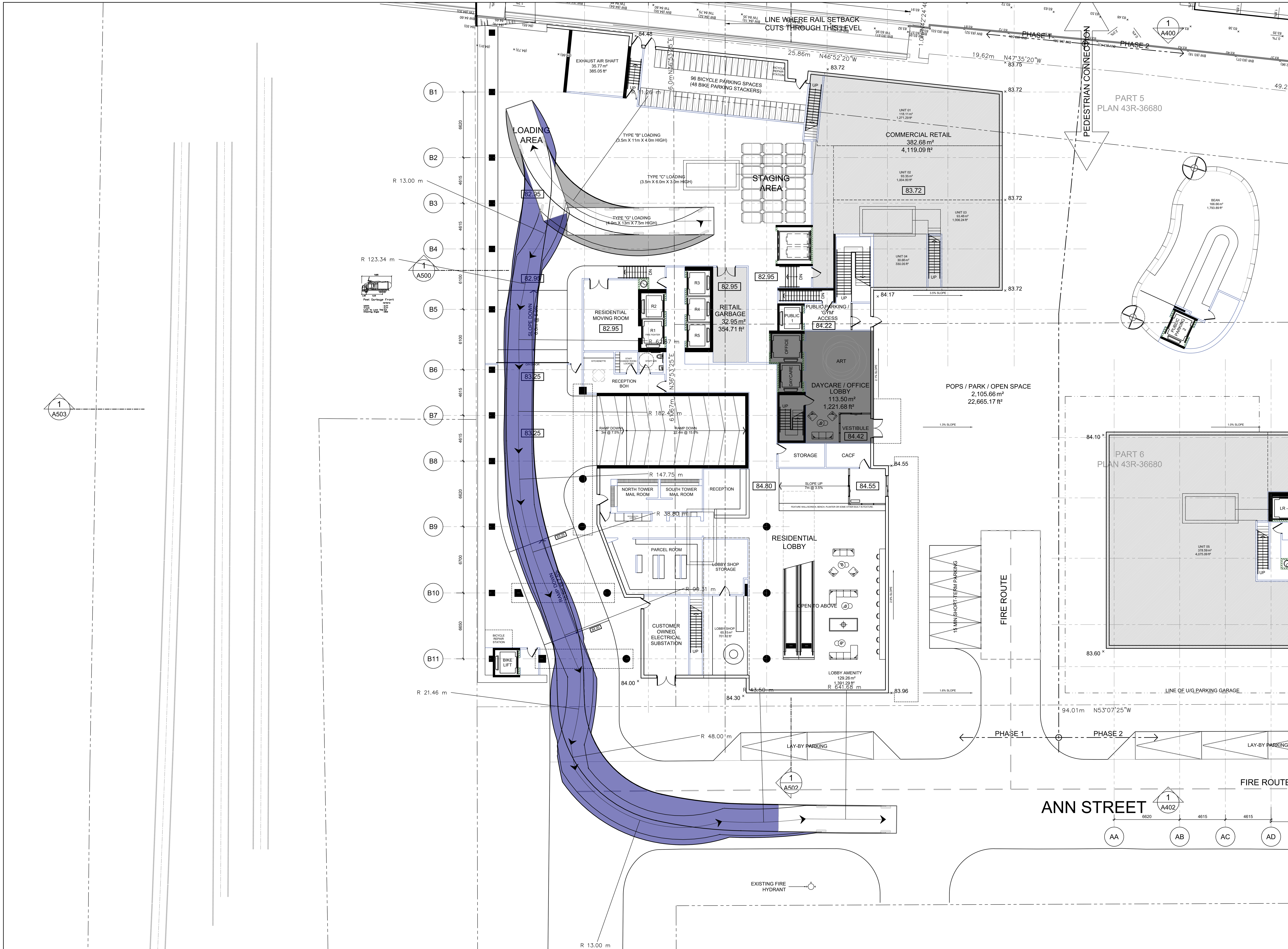
Project
88 PARK STREET EAST

Date	April 27, 2023
Scale	NTS
Project No.	-

Title
VEHICLE MANEUVERING DIAGRAM - WASTE TRUCK (INBOUND)

Size
ANSI D

Sheet No.
AT-101



LINE WHERE RAIL SETBACK CUTS THROUGH THIS LEVEL
PHASE 1
PHASE 2
PEDESTRIAN CONNECTION
PART 5
PLAN 43R-36680
EXHAUST AIR SHAFT
96 BICYCLE PARKING SPACES (48 BIKE PARKING STACKERS)
LOADING AREA
TYPE "B" LOADING (3.5m X 11m X 4.0m HIGH)
TYPE "C" LOADING (3.5m X 6.0m X 3.0m HIGH)
TYPE "G" LOADING (4.0m X 13m X 7.5m HIGH)
STAGING AREA
COMMERCIAL RETAIL
382.68 m²
4,119.09 ft²
RESIDENTIAL MOVING ROOM
RETAIL GARBAGE
32.95 m²
354.71 ft²
PUBLIC PARKING / GYM ACCESS
DAYCARE / OFFICE LOBBY
113.50 m²
1,221.68 ft²
ART
VESTIBULE
STORAGE
CACF
RECEPTION BOH
RAMP DOWN
NORTH TOWER MAIL ROOM
SOUTH TOWER MAIL ROOM
RECEPTION
RESIDENTIAL LOBBY
PARCEL ROOM
LOBBY SHOP STORAGE
OPEN TO ABOVE
CUSTOMER OWNED ELECTRICAL SUBSTATION
LOBBY AMENITY
BIKE LIFT
POPS / PARK / OPEN SPACE
2,105.66 m²
22,665.17 ft²
PART 6
PLAN 43R-36680
FIRE ROUTE
15 MIN SHORT-TERM PARKING
LINE OF U/G PARKING GARAGE
LAY-BY PARKING
ANN STREET
EXISTING FIRE HYDRANT
R 13.00 m
R 123.34 m
R 21.46 m
R 48.00 m
R 182.45 m
R 147.75 m
R 38.80 m
R 99.31 m
R 641.68 m
R 13.00 m
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
AA
AB
AC
AD
9.85
1.30
6.10
Peel Garbage Front
meters
Width : 2.77
Track : 2.77
Lock to Lock Time 6.0
Steering Angle : 28.0

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Apr. 27, 2023
W.C. MARIA
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

Date April 27, 2023
Scale NTS

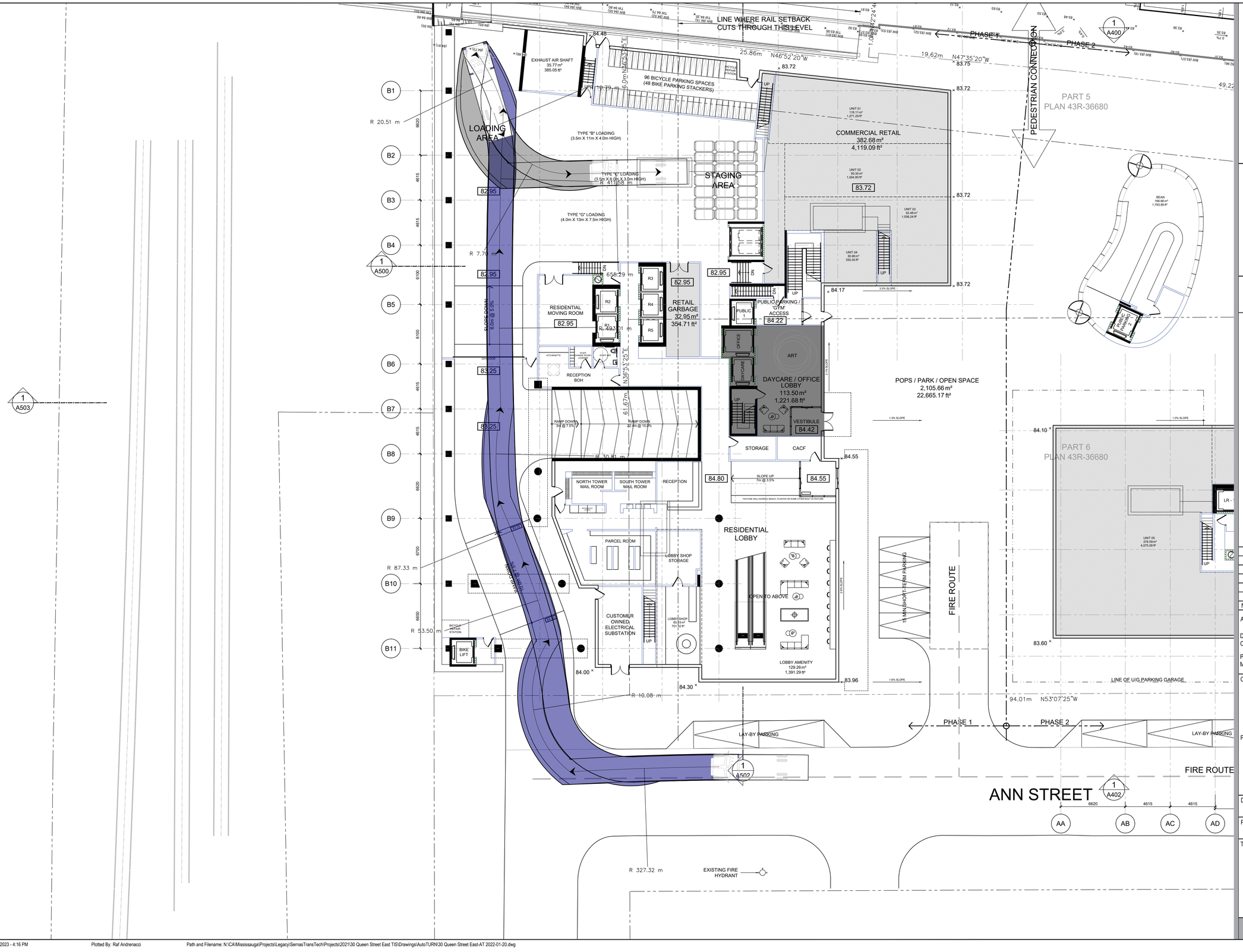
Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - WASTE TRUCK (OUTBOUND)

Size ANSI D

Sheet No. AT-102

Plot Date: 27 April 2023 - 4:16 PM   Plotted By: Raf Andrenacci   Path and Filename: N:\CA\Mississauga\Projects\Legacy\SernasTransTech\Projects\2021\30 Queen Street East TIS\Drawings\AutoTURN\30 Queen Street East-AT 2022-01-20.dwg



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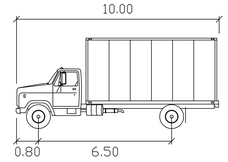
LICENSED PROFESSIONAL ENGINEER
Apr. 27, 2023
W.C. MARIA
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



MSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	6.0
Steering Angle	: 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

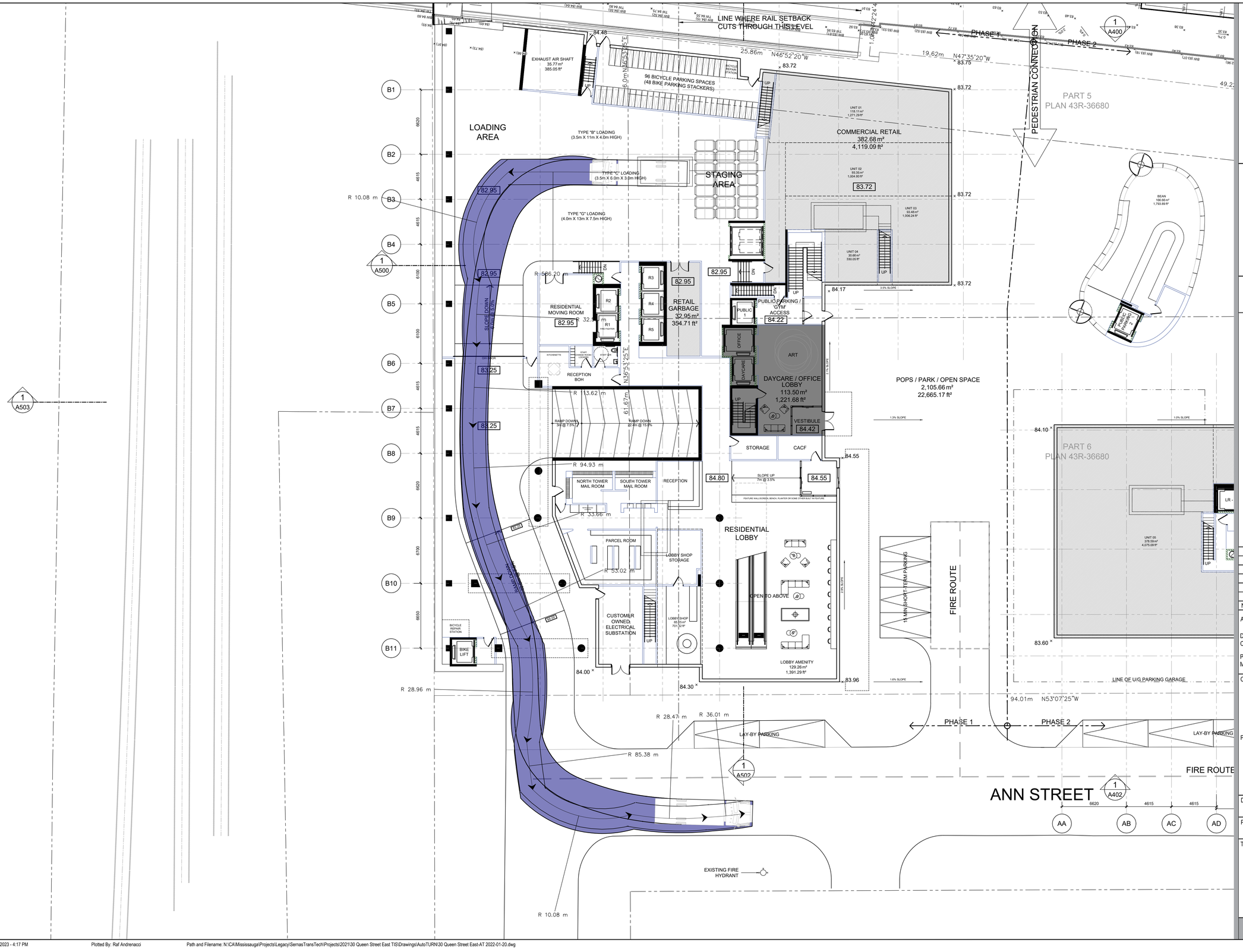
Date	Scale
April 27, 2023	NTS

Project No.
-

Title
VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (INBOUND)

Size
ANSI D

Sheet No.
AT-103



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Apr. 27, 2023
W.C. MARIA
PROVINCE OF ONTARIO

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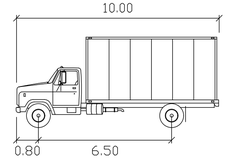
0 25mm



MSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	6.0
Steering Angle	: 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

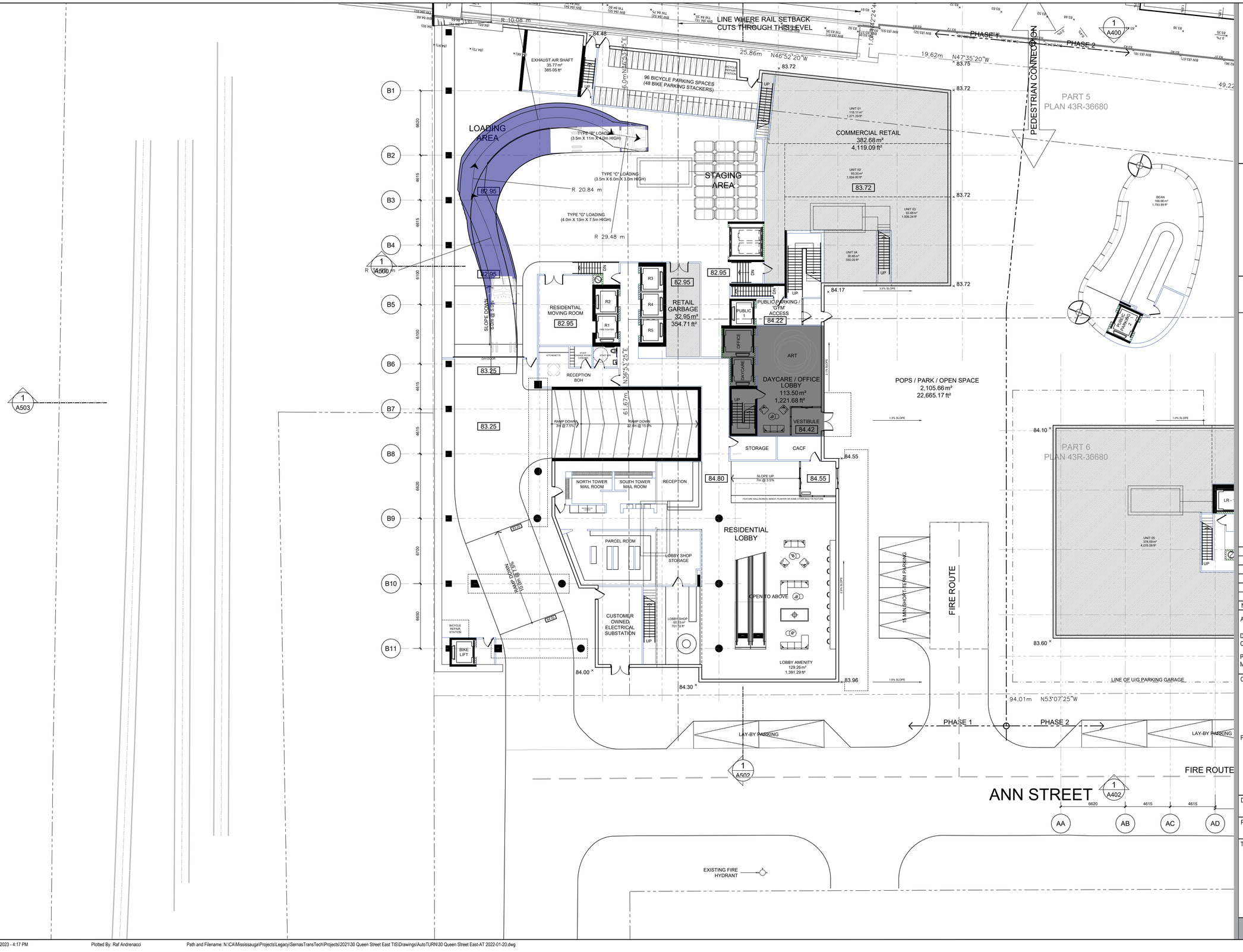
Date	Scale
April 27, 2023	NTS

Project No.
-

Title
VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (OUTBOUND)

Size
ANSI D

Sheet No.
AT-104



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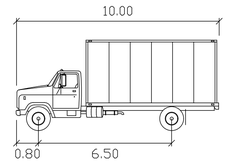
LICENSED PROFESSIONAL ENGINEER
Apr. 27, 2023
W.C. MARIA
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



MSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	6.0
Steering Angle	: 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

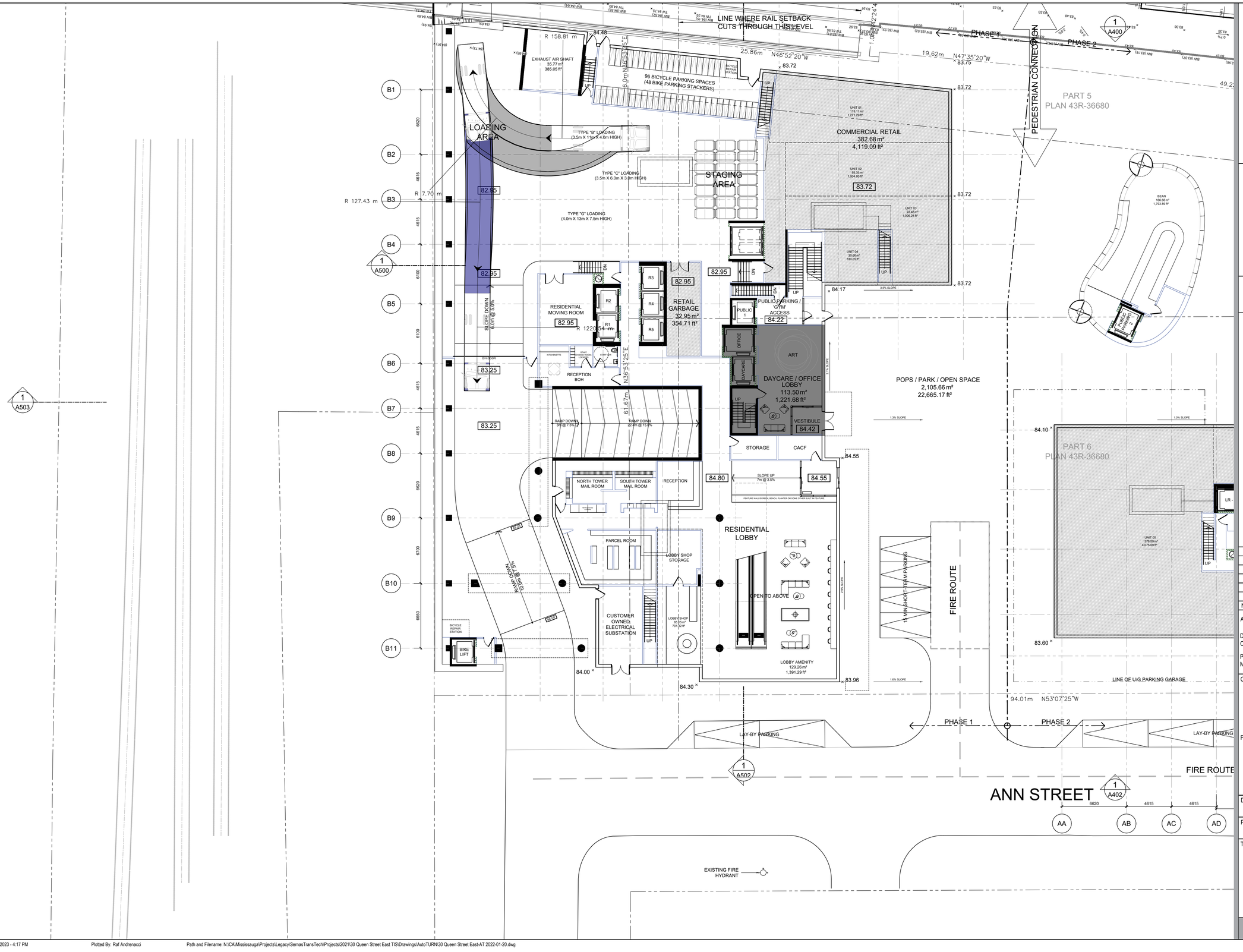
Date April 27, 2023
Scale NTS

Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (INBOUND)

Size ANSI D

Sheet No. AT-105



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LICENSED PROFESSIONAL ENGINEER
Apr. 27, 2023
W.C. MARIA
PROVINCE OF ONTARIO

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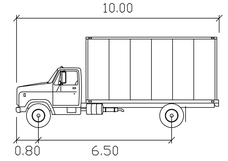
0 25mm



MSU

meters
Width : 2.60
Track : 2.60
Lock to Lock Time 6.0
Steering Angle : 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

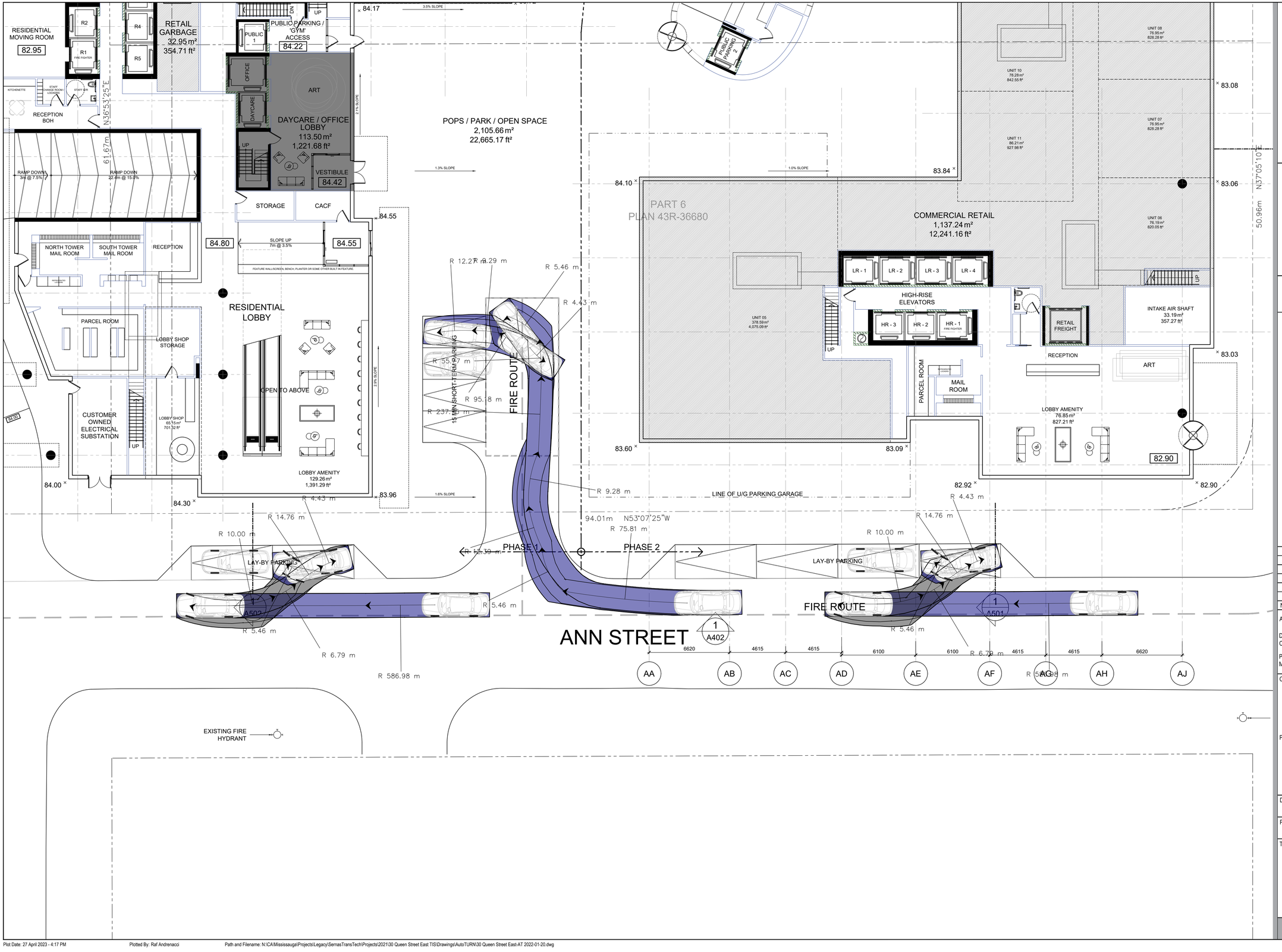
Date April 27, 2023
Scale NTS

Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (OUTBOUND)

Size ANSI D

Sheet No. AT-106



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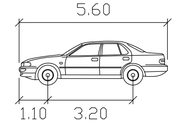
Apr. 27, 2023
W.C. MARIA
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



P

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

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

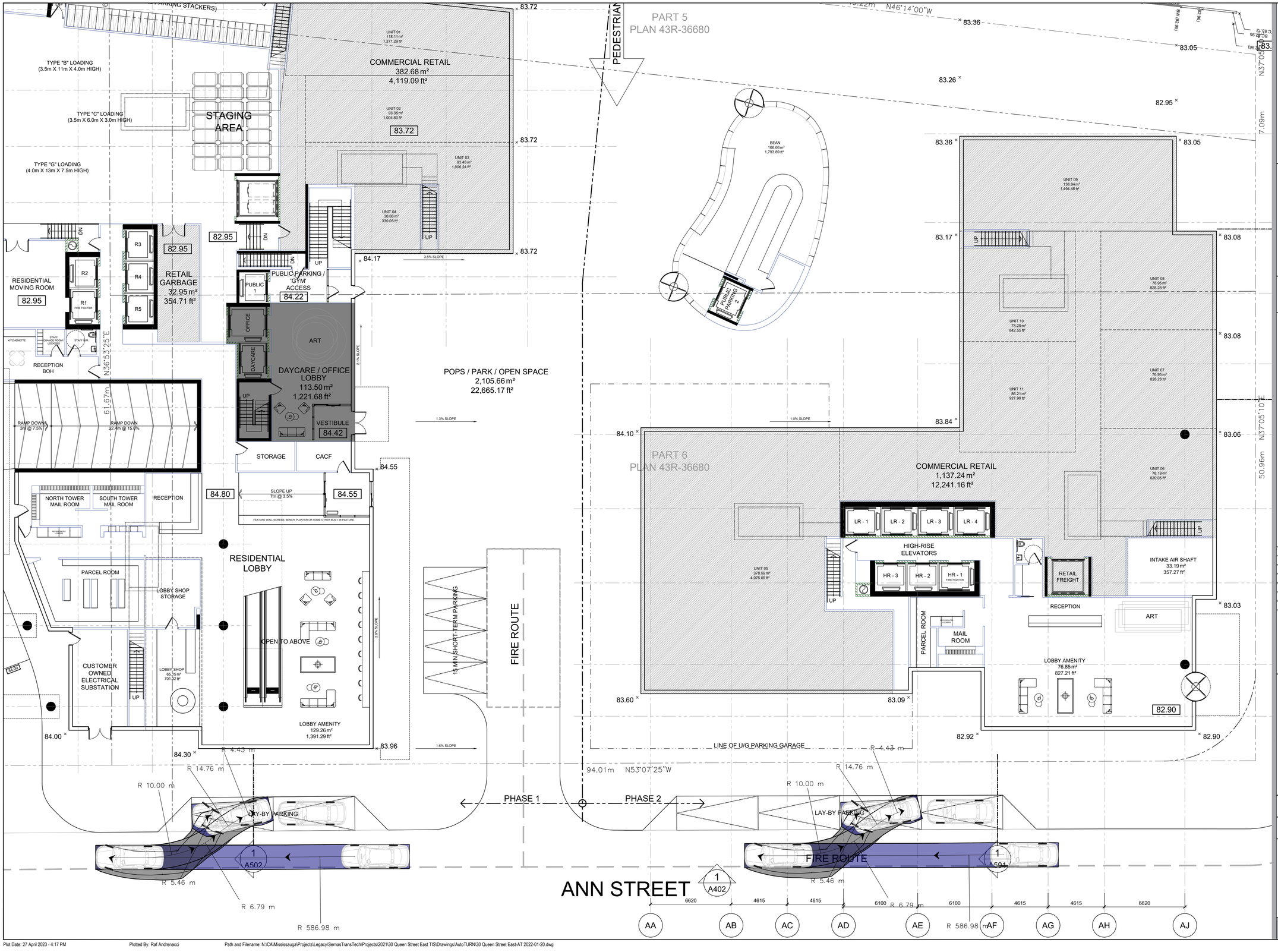
Date April 27, 2023
Scale NTS

Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (INBOUND FRONT)

Size ANSI D

Sheet No. AT-107



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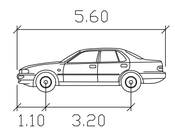


P
meters
Width : 2.00
Track : 2.00
Lock to Lock Time : 6.0
Steering Angle : 35.9

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

Date April 27, 2023
Scale NTS

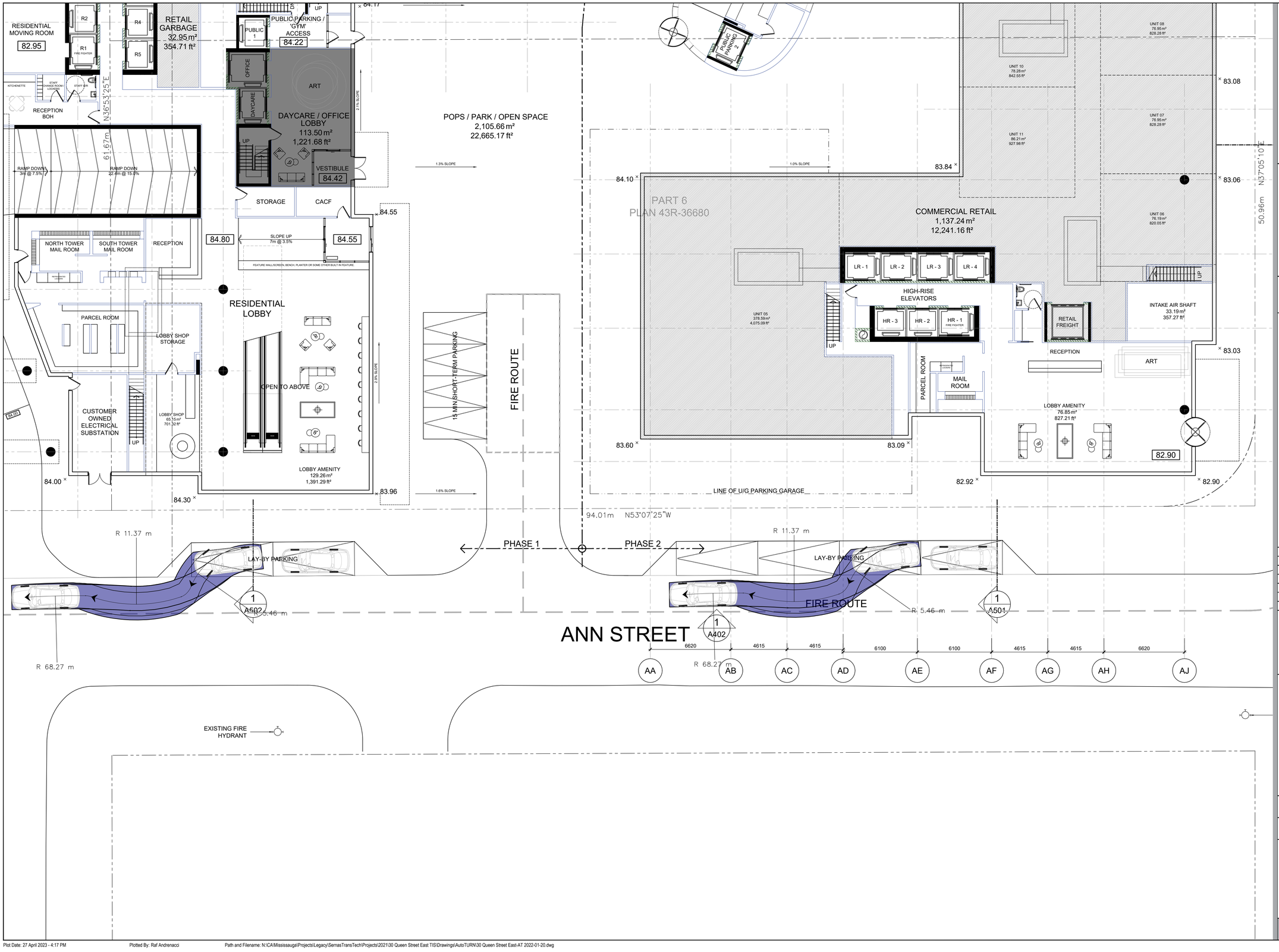
Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (INBOUND BACK)

Size ANSI D

Sheet No. AT-108

Plot Date: 27 April 2023 - 4:17 PM
Plotted By: Raf Andrenacci
Path and Filename: N:\CA\Mississauga\Projects\Legacy\SernasTransTech\Projects\2021\30 Queen Street East TIS\Drawings\AutoTURN\30 Queen Street East-AT 2022-01-20.dwg



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Apr. 27, 2023
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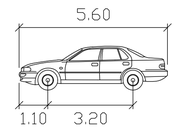
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



P

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

No.	Issue	Author	Checked	Approved	Date
1	First Submission	R.A	W.M	W.M	4/27/23

Designer R.A
Drafting Check W.M
Design Check W.M
Project Manager W.M
Project Director W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

Date April 27, 2023
Scale NTS
Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (OUTBOUND FRONT)

Size ANSI D

Sheet No. AT-109

RESIDENTIAL MOVING ROOM
82.95
R2
R1
FIRE FIGHTER
R4
R5
RETAIL GARBAGE
32.95 m²
354.71 ft²
PUBLIC 1
PUBLIC PARKING / 'GYM' ACCESS
84.22
UP
OFFICE
DAYCARE
ART
DAYCARE / OFFICE LOBBY
113.50 m²
1,221.68 ft²
2.5% SLOPE
VESTIBULE
84.42
KITCHENETTE
STAFF ROOM LOCKERS
STAFF WR
RECEPTION BOH
N36°53'25"E
61.67m
RAMP DOWN 3m @ 7.5%
RAMP DOWN 22.4m @ 15.0%
STORAGE
CACF
84.55
84.80
SLOPE UP 7m @ 3.5%
84.55
FEATURE WALL/SCREEN, BENCH, PLANTER OR SOME OTHER BUILT IN FEATURE.
NORTH TOWER MAIL ROOM
SOUTH TOWER MAIL ROOM
RECEPTION
RESIDENTIAL LOBBY
PARCEL ROOM
LOBBY SHOP STORAGE
OPEN TO ABOVE
CUSTOMER OWNED ELECTRICAL SUBSTATION
LOBBY SHOP
65.51m²
701.82 ft²
UP
LOBBY AMENITY
129.26m²
1,391.29 ft²
2.9% SLOPE
84.00
84.30
83.96
R 4.43 m
POPS / PARK / OPEN SPACE
2,105.66 m²
22,665.17 ft²
1.3% SLOPE
1.6% SLOPE
R 16.80 m
R 4.43 m
R 5.46 m
R 10.87 m
15 MIN SHORT-TERM PARKING
R 10.05 m
R 25.77 m
R 4.00 m
FIRE ROUTE
R 15.73 m
R 94.00 m
N53°07'25"W
PHASE 1
PHASE 2
R 102.31 m
R 5.46 m
R 32.80 m
R 5.46 m
LAY-BY PARKING
LAY-BY PARKING
FIRE ROUTE
1
A502
R 5.86 m
1
A501
R 5.86 m
R 16.42 m
R 16.42 m
ANN STREET
1
A402
R 5.56 m
EXISTING FIRE HYDRANT
PUBLIC PARKING 2
UNIT 08
76.95 m²
828.28 ft²
UNIT 10
78.28 m²
842.55 ft²
UNIT 11
86.21 m²
927.98 ft²
UNIT 07
76.95 m²
828.28 ft²
UNIT 06
76.19 m²
820.05 ft²
83.08
83.06
83.03
82.90
82.92
83.84
84.10
83.60
83.09
1.0% SLOPE
PART 6
PLAN 43R-36680
COMMERCIAL RETAIL
1,137.24 m²
12,241.16 ft²
LR - 1
LR - 2
LR - 3
LR - 4
HIGH-RISE ELEVATORS
HR - 3
HR - 2
HR - 1
FIRE FIGHTER
UP
UNIT 05
378.59 m²
4,075.09 ft²
RETAIL FREIGHT
INTAKE AIR SHAFT
33.19 m²
357.27 ft²
RECEPTION
ART
PARCEL ROOM
MAIL ROOM
LOBBY AMENITY
76.85 m²
827.21 ft²
LINE OF U/G PARKING GARAGE
50.96m
N37°05'10"E
6620
4615
4615
6100
6100
4615
4615
6620
AA
AB
AC
AD
AE
AF
AG
AH
AJ

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Apr. 27, 2023
W.C. MARIA
PROVINCE OF ONTARIO

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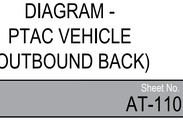
0 25mm



P

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

No.	Issue	Author	Checked	Approved	Date
1	First Submission	W.M	W.M	W.M	4/27/23

Author R.A | Designer R.A
Drafting Check W.M | Design Check W.M
Project Manager W.M | Project Director W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

Date April 27, 2023 | Scale NTS

Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (OUTBOUND BACK)

Size ANSI D

Sheet No. AT-110

RESIDENTIAL MOVING ROOM
82.95
R2
R1
FIRE FIGHTER
R4
R5
RETAIL GARBAGE
32.95 m²
354.71 ft²
KITCHENETTE
STAFF ROOM LOCKERS
STAFF WR
RECEPTION BOH
N36°53'25"E
61.67m
RAMP DOWN 3m @ 7.5%
RAMP DOWN 22.4m @ 15.0%
PUBLIC 1
PUBLIC PARKING / 'GYM' ACCESS
84.22
UP
OFFICE
DAYCARE
ART
DAYCARE / OFFICE LOBBY
113.50 m²
1,221.68 ft²
2.5% SLOPE
VESTIBULE
84.42
STORAGE
CACF
84.55
84.80
SLOPE UP 7m @ 3.5%
FEATURE WALL/SCREEN, BENCH, PLANTER OR SOME OTHER BUILT IN FEATURE.
NORTH TOWER MAIL ROOM
SOUTH TOWER MAIL ROOM
RECEPTION
RESIDENTIAL LOBBY
PARCEL ROOM
LOBBY SHOP STORAGE
CUSTOMER OWNED ELECTRICAL SUBSTATION
LOBBY SHOP
65.51 m²
701.82 ft²
OPEN TO ABOVE
LOBBY AMENITY
129.26 m²
1,391.29 ft²
84.00
84.30
83.96
1.6% SLOPE
POPS / PARK / OPEN SPACE
2,105.66 m²
22,665.17 ft²
1.3% SLOPE
86.52 m
2.0% SLOPE
15 MIN SHORT-TERM PARKING
FIRE ROUTE
PUBLIC PARKING 2
UNIT 10
75.28 m²
842.55 ft²
UNIT 08
76.95 m²
828.28 ft²
UNIT 11
86.21 m²
927.98 ft²
UNIT 07
76.95 m²
828.28 ft²
UNIT 06
76.19 m²
820.05 ft²
UNIT 05
378.59 m²
4,075.09 ft²
1.0% SLOPE
83.84
84.10
PART 6
PLAN 43R-36680
COMMERCIAL RETAIL
1,137.24 m²
12,241.16 ft²
LR - 1
LR - 2
LR - 3
LR - 4
HIGH-RISE ELEVATORS
HR - 3
HR - 2
HR - 1
FIRE FIGHTER
RETAIL FREIGHT
INTAKE AIR SHAFT
33.19 m²
357.27 ft²
RECEPTION
ART
PARCEL ROOM
MAIL ROOM
LOBBY AMENITY
76.85 m²
827.21 ft²
82.90
83.08
83.06
83.03
N37°05'10"E
50.96m
R 34.31 m
83.60
83.09
82.92
LINE OF U/G PARKING GARAGE
R 669.45 m
94.01m N53°07'25"W
PHASE 1
PHASE 2
LAY-BY PARKING
LAY-BY PARKING
1
A502
1
A503
R 9.70 m
FIRE ROUTE
ANN STREET
1
A402
6620
4615
4615
6100
6100
4615
4615
6620
AA
AB
AC
AD
AE
AF
AG
AH
AJ
EXISTING FIRE HYDRANT
R 335.27 m

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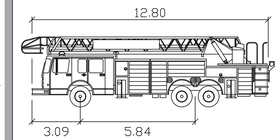
0 25mm



Aerial Fire

	meters
Width	: 2.54
Track	: 2.54
Lock to Lock Time	: 6.0
Steering Angle	: 37.0

No.	Issue	Author	Checked	Approved	Date
1	First Submission	W.M	W.M	W.M	4/27/23

Author R.A
Designer R.A
Drafting Check W.M
Design Check W.M
Project Manager W.M
Project Director W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

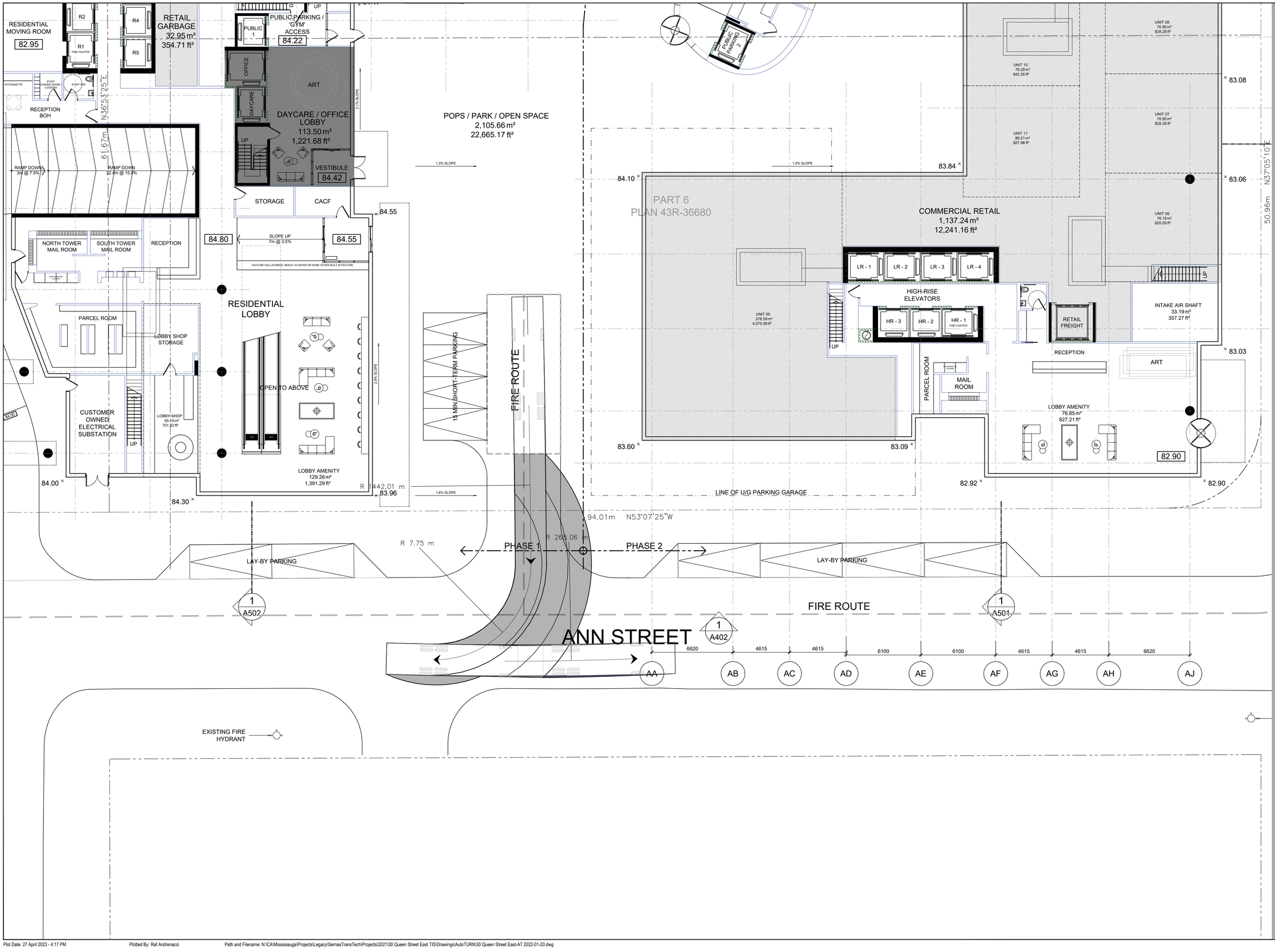
Project
88 PARK STREET EAST

Date April 27, 2023
Scale NTS
Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - EMERGENCY VEHICLE (INBOUND)

Size ANSI D

Sheet No. AT-111



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Apr. 27, 2023
W.C. MARIA
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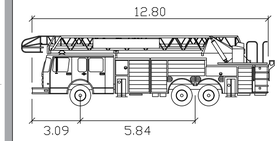


Aerial Fire

	meters
Width	: 2.54
Track	: 2.54
Lock to Lock Time	: 6.0
Steering Angle	: 37.0

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	4/27/23

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

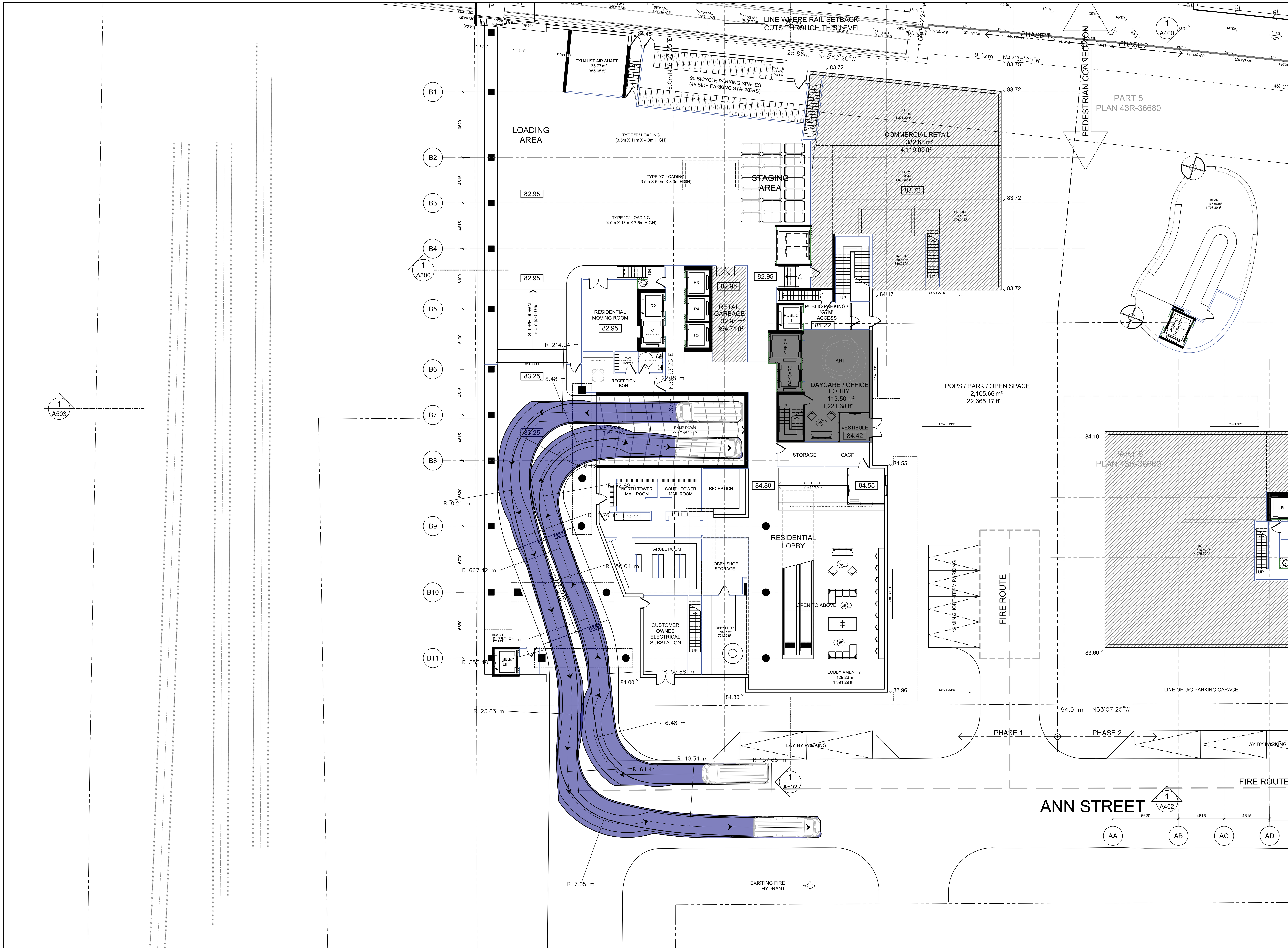
Project
88 PARK STREET EAST

Date April 27, 2023
Scale NTS
Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - EMERGENCY VEHICLE (OUTBOUND)

Size ANSI D

Sheet No. AT-112


LINE WHERE RAIL SETBACK CUTS THROUGH THIS LEVEL
PHASE 1
PHASE 2
PEDESTRIAN CONNECTION
PART 5 PLAN 43R-36680
EXHAUST AIR SHAFT 35.77 m² 385.05 ft²
96 BICYCLE PARKING SPACES (48 BIKE PARKING STACKERS)
LOADING AREA
TYPE "B" LOADING (3.5m X 11m X 4.0m HIGH)
TYPE "C" LOADING (3.5m X 6.0m X 3.0m HIGH)
TYPE "G" LOADING (4.0m X 13m X 7.5m HIGH)
STAGING AREA
COMMERCIAL RETAIL 382.68 m² 4,119.09 ft²
RESIDENTIAL MOVING ROOM
RETAIL GARBAGE 32.95 m² 354.71 ft²
PUBLIC PARKING / GYM ACCESS
DAYCARE / OFFICE LOBBY 113.50 m² 1,221.68 ft²
ART
VESTIBULE
STORAGE
CACF
POPS / PARK / OPEN SPACE 2,105.66 m² 22,665.17 ft²
PART 6 PLAN 43R-36680
RECEPTION BOH
NORTH TOWER MAIL ROOM
SOUTH TOWER MAIL ROOM
RECEPTION
RESIDENTIAL LOBBY
PARCEL ROOM
LOBBY SHOP STORAGE
OPEN TO ABOVE
CUSTOMER OWNED ELECTRICAL SUBSTATION
LOBBY AMENITY 129.26 m² 1,391.29 ft²
FIRE ROUTE
15 MIN SHORT TERM PARKING
LINE OF U/G PARKING GARAGE
LAY-BY PARKING
ANN STREET
EXISTING FIRE HYDRANT
Ford Transit 350 (2019)
meters
Width : 2.13
Track : 1.94
Lock to Lock Time : 6.0
Steering Angle : 35.4

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Conditions of Use

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0 25mm

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EDENSHAW QUEEN DEVELOPMENT LIMITED

Project

88 PARK STREET EAST

Date: April 27, 2023 | Scale: NTS

Project No.

Title

VEHICLE MANEUVERING DIAGRAM - DELIVERY VAN (GROUND FLOOR)

Size ANSI D

Sheet No. AT-113

Plot Date: 27 April 2023 - 4:17 PM   Plotted By: Raf Andrenacci   Path and Filename: N:\CA\Mississauga\Projects\Legacy\SernasTransTech\Projects\2021\30 Queen Street East TIS\Drawings\AutoTURN\30 Queen Street East-AT 2022-01-20.dwg

PHASE 1

PHASE 2

PART 5
PLAN 43R-36680

PART 6
PLAN 43R-36680

116 COMMERCIAL / RESIDENTIAL VISITOR PARKING SPACES
(PHASE 1 - 49; PHASE 2 - 67)
30 BIKE LOCKERS

NO. OF RECYCLING BINS: 14
NO. OF GARBAGE BINS: 11
NORTH TOWER GARBAGE ROOM
216.41 m²
2,329.42 ft²

FIRE PUMP ROOM
94.04 m²
1,012.26 ft²

PUBLIC PARKING ACCESS

VEST

DAYCARE

MAIN TELEPHONE ROOM
13.69 m²
147.41 ft²

DAYCARE / OFFICE ACCESS

MECHANICAL ROOM
42.14 m²
453.64 ft²

RETAIL BOH
84.79 m²
912.62 ft²

SECURITY
17.02 m²
183.19 ft²

ELECTRICAL ROOM
130.53 m²
1,404.97 ft²

LOCKER ROOM
28.26 m²
304.23 ft²

ELECTRICAL ROOM
124.87 m²
1,344.10 ft²

TEMPORARY INTAKE AIR SHAFT
27.04 m²
291.06 ft²

INCOMING SERVICES
58.07 m²
625.09 ft²

CISTERN
164.36 m²
1,769.10 ft²

LOW-RISE ELEVATORS

HIGH-RISE ELEVATORS

LOW-RISE MOVING

HIGH-RISE MOVING

TYPE "C" LOADING
(3.5m x 6.0m x 3.0m HIGH)

RETAIL FREIGHT

INTAKE AIR SHAFT
35.29 m²
380.05 ft²

CART WASH

SOUTH TOWER GARBAGE ROOM
178.42 m²
1,920.52 ft²
NO OF RECYCLING BINS: 13
NO. OF GARBAGE BINS: 11

COMMERCIAL / RETAIL BACK OF HOUSE
189.82 m²
2,043.16 ft²

RAMP DOWN 10m @ 7.5%

RAMP DOWN 16.0m @ 15.0%

RAMP UP 22.4m @ 15.0%

RAMP UP 3.0m @ 7.5%

ONE - WAY

ONE - WAY

A1 A2 A3 A4 A5 A6 A7 A8 A9

7295 5800 5800 6100 6100 6700 4250

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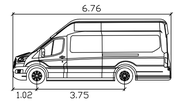

Ford Transit 350 (2019)

	meters
Width	: 2.13
Track	: 1.94
Lock to Lock Time	: 6.0
Steering Angle	: 35.4

No.	Issue	Checked	Approved	Date
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Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

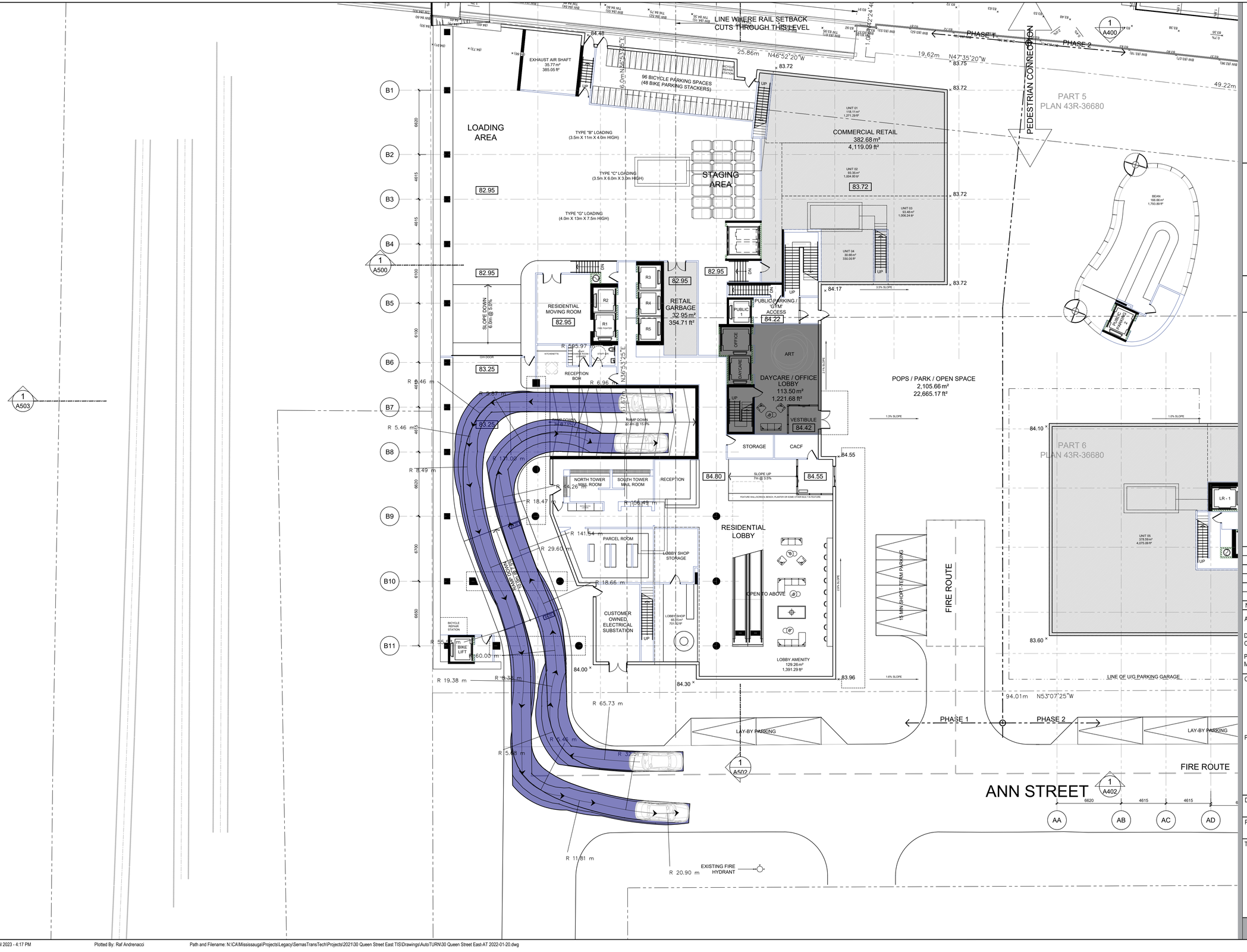
Date: April 27, 2023
Scale: NTS

Project No.: -

Title
VEHICLE MANEUVERING DIAGRAM - DELIVERY VAN (P1 LOADING SPACE)

Size: ANSI D

Sheet No.
AT-114



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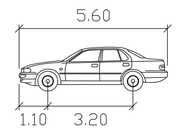

P

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

No.	Issue	Author	Checked	Approved	Date
1	First Submission	W.M	W.M		4/27/23

Author R.A | Designer R.A
Drafting Check W.M | Design Check W.M
Project Manager W.M | Project Director W.M

Client
EDENSHAW QUEEN DEVELOPMENT LIMITED

Project
88 PARK STREET EAST

Date April 27, 2023 | Scale NTS

Project No. -

Title
VEHICLE MANEUVERING DIAGRAM - PASSENGER VEHICLE (UNDERGROUND RAMP)

Size ANSI D

Sheet No. AT-115

Appendix F

Background Developments

Figure 1 Background Development Locations

Table 1 42-46 Park Street East & 23 Elizabeth Street North Site Trips

Background Development	Units	Year	Peak Hour Trips					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
42-46 Park Street East & 23 Elizabeth Street North (LEA Consulting)	258 Residential Units	2020	13	50	63	45	28	73

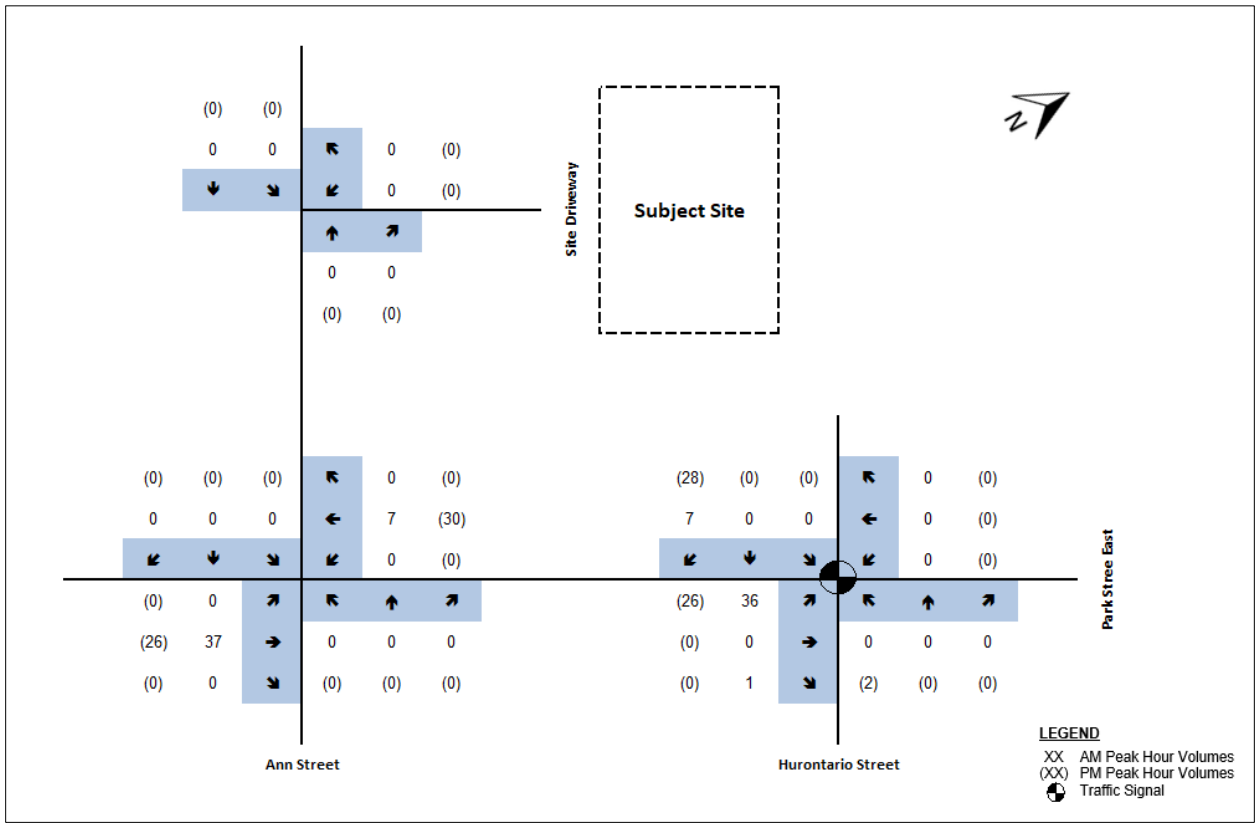

Figure 2 42-46 Park Street East & 23 Elizabeth Street North Site Trips within Study Area

Table 2 22-28 Ann Street & 78 Park Street East Site Trips

Background Development	Units	Year	Peak Hour Trips					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
22-28 Ann Street & 78 Park Street East (LEA Consulting)	316 Residential Units	2019	18	59	77	52	26	78

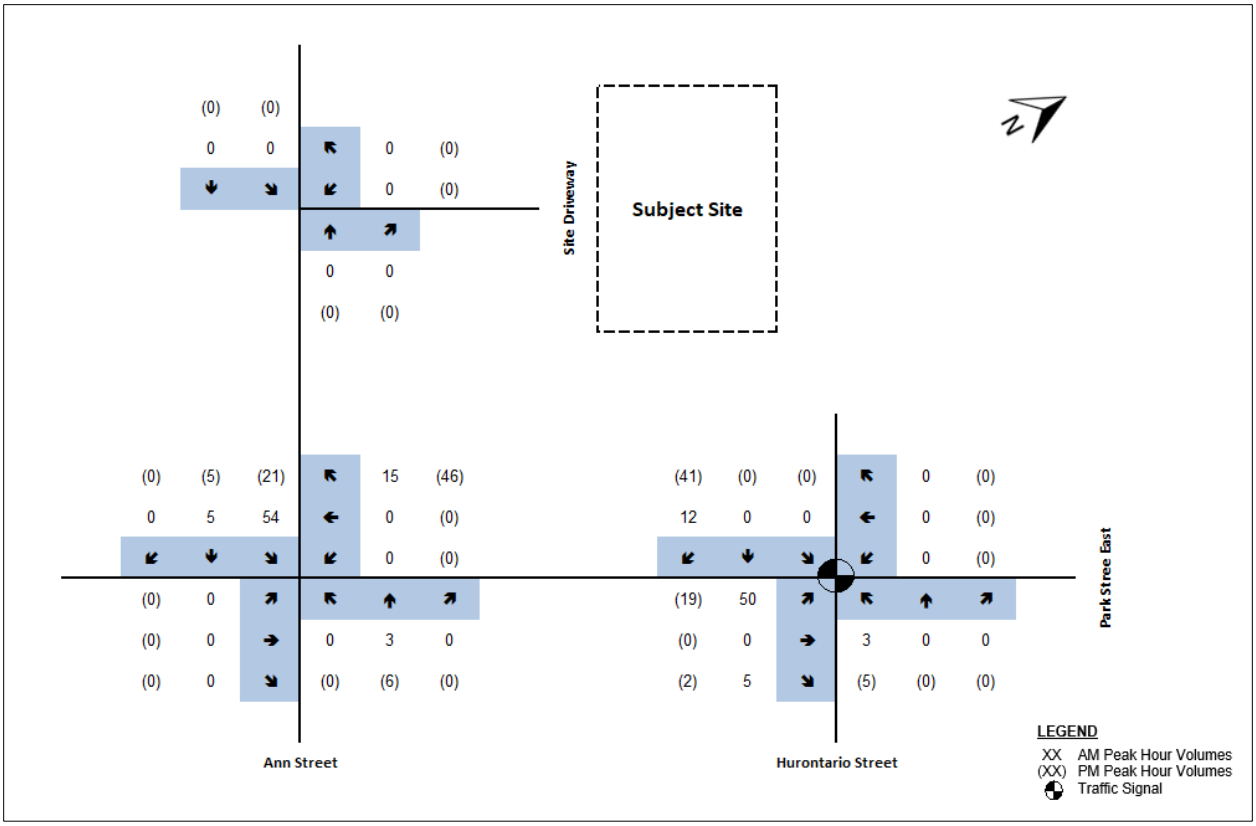

Figure 3 22-28 Ann Street & 78 Park Street East Site Trips within Study Area

Table 3 6, 8, 10 Ann Street Site Trips

Background Development	Units	Year	Peak Hour Trips					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
6, 8, 10 Ann Street (GHD)	69 Residential Units	2014	5	24	29	22	11	33

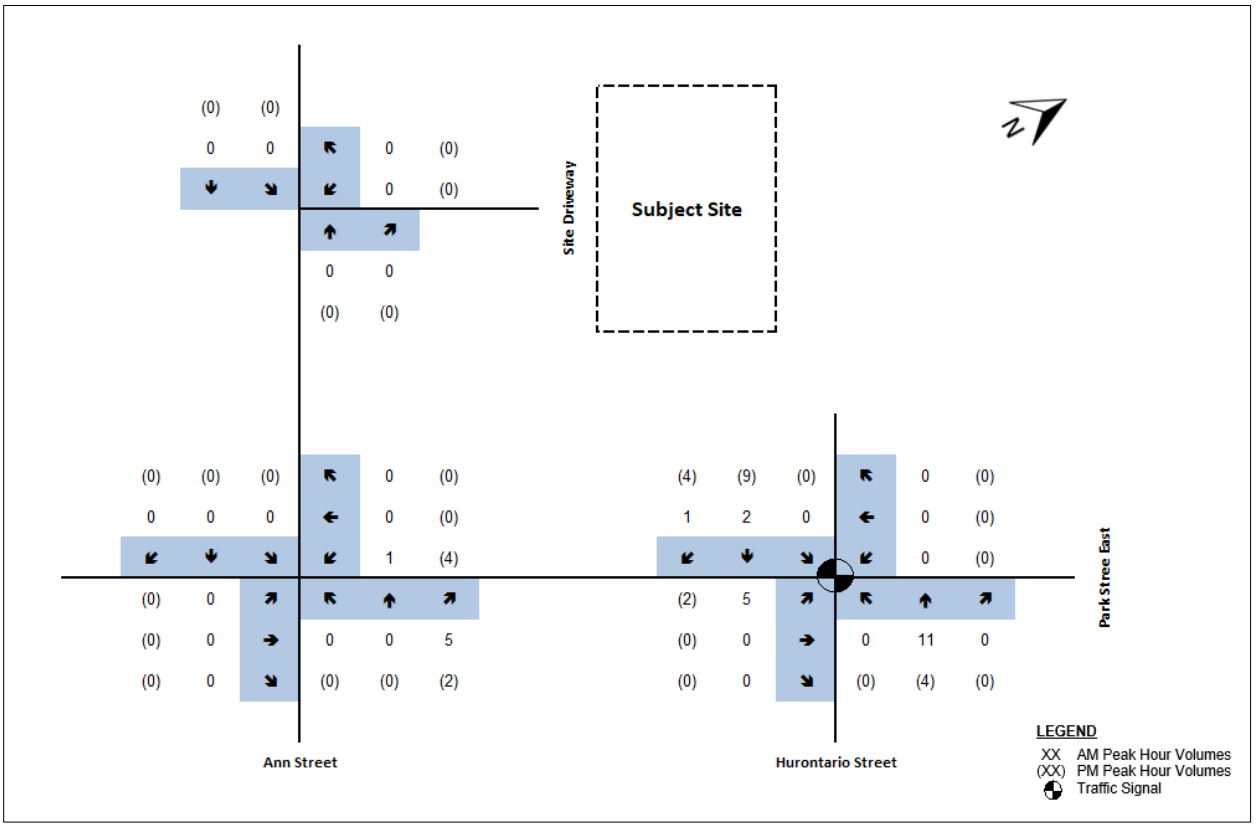

Figure 4 6, 8, 10 Ann Street Site Trips within Study Area

Table 4 17 and 19 Ann Street and 84 & 90 High Street East and 91 Park Street East Site Trips

Background Development	Units	Year	Peak Hour Trips					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
17 & 19 Ann St and 84 & 90 High St E and 91 Park St E	359 High-Rise Residential Units	2021	25	55	80	55	45	100

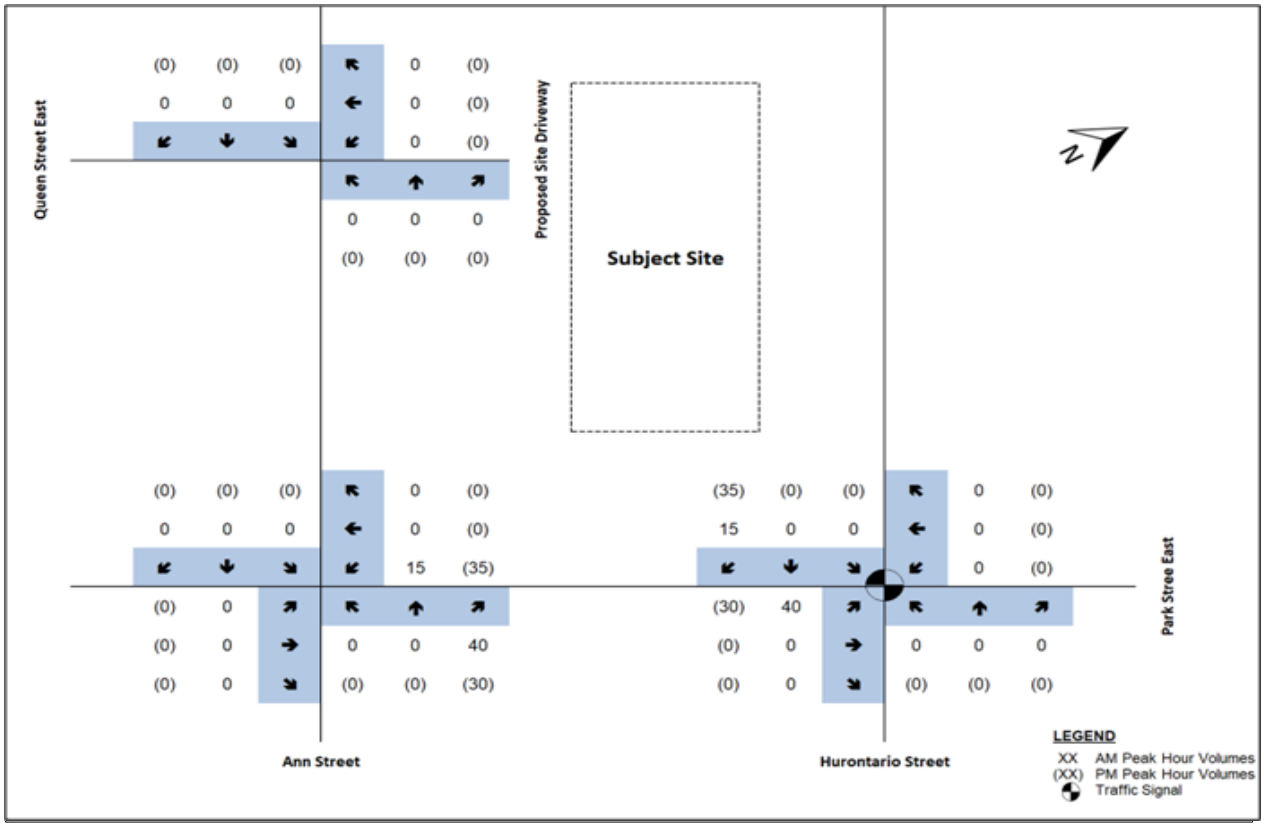

Figure 5 17 and 19 Ann Street and 84 & 90 High Street East and 91 Park Street EastSite Trips within Study Area

Figure 6 Total Background Development Traffic