1000 &1024 Dundas Street East

Traffic Impact Study

Ahmed Developments Inc.

July 25, 2022

→ The Power of Commitment

Executive Summary and Conclusions

GHD Limited was retained to prepare a Traffic Impact Study for the proposed mixed-use development on the lot municipally known as 1000 &1024 Dundas Street East in the City of Mississauga. The subject site is generally located on south side of Dundas Street East, east of Tomken Road.

This report establishes the existing and future road network and the subsequent traffic-related impacts of the subject site at the study intersections during the weekday a.m. and p.m. peak hours. These impacts are based on projected future background traffic derived for existing 2021 conditions, future traffic conditions in 2026, and future traffic conditions post opening of the BRT along Dundas in the 2031 planning horizon.

The proposed site plan was prepared by WZMH Architects and consists of 462 rental apartment units with 790 sq.m. of ground floor retail.

Access to the subject site is proposed via a single driveway along Dundas Street East. The driveway is proposed to allow full moves onto Dundas Street until the completion of Dundas BRT which will convert the full moves driveway into a right-in/out.

The proposed development is expected to generate a total of 117 new two-way trips during the weekday a.m. peak hour consisting of 44 inbound and 73 outbound trips and 191 new two-way trips during the weekday p.m. peak hour consisting of 104 inbound and 87 outbound trips.

The distribution of site traffic for each horizon year was based on a review of Transportation Tomorrow Survey (TTS) 2016 data and existing traffic patterns in the area.

The overall impact of the proposed development is negligible on all anticipated future intersection operations and will not adversely impact the operation of the study intersections along Dundas Street East. All reported critical movements under the future traffic scenarios are a result of the planned lane reductions along Dundas Street East due to the construction of the BRT.

No intersection improvements or mitigation measures are recommended for any of the study intersections.

While it is expected that along with reducing the number of through lanes along Dundas Street East to accommodate the dedicated BRT lanes, traffic along Dundas Street East will also be considerably reduced due to less capacity being available for vehicles, this was reflected in the negative traffic growth rates between 2026 to 2031 provided by the City. No transit modal projections were provided by the City, as a result GHD applied current transit modal splits to all future horizon years as a conservative measure.

The parking requirements as stated in Mississauga Zoning By-law 0225-2007 details the required rates for resident at 0.90 and 0.20 for visitor spaces. This results in the site Requiring 508 total parking spaces.

The subject site proposes total parking supply of 369 spaces which results in a parking rate of 0.70 spaces per unit for residents and 0.10 spaces per unit for visitors. These reduced rates are supported and found acceptable to GHD via data collected at comparable proxy sites and the implementation of TDM measures to reduce dependence on single occupancy vehicle traffic for the site.

The development is proposing Travel Demand Management (TDM), as outlined in **Section 9** of the reports to minimize the number of single occupant vehicle, and support the high order transit located nearby.

A total of 279 long-term bicycle parking spaces are required by City staff (consisting of 277 for residents and 2 for the retail uses) and 25 short term visitor bicycle spaces (consisting of 23 for residential visitors and 2 for retail visitors). The site provides a total bicycle parking supply of 304 parking spaces, 279 indoor spaces and 25 outdoor spaces which satisfies the City's requirement for bicycle parking.

As per the City's Zoning By-Law, the site is required to provide a total of two loading spaces (one for the residential uses and the other for the retail uses). The proposed site provides the required two loading spaces.

A review of the site circulation for emergency vehicles, waste collection, loading vehicles, and passenger cars confirmed that the proposed site access design and internal private street layout can accommodate the aforementioned vehicles with no issues. Parking ramps were also assessed with passenger cars and found to have no issues.

Sightlines at the proposed driveway were assessed and found to be acceptable to TAC standards.

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 to prepare a Traffic Impact Study for the proposed mixed-use development on the lot municipally known as 1000 &1024 Dundas Street East in the City of Mississauga. The subject site is generally located on south side of Dundas Street East, east of Tomken Road as illustrated in the **Figure 1**.

The purpose of this study is to:

- Establish baseline traffic conditions for the study area and determine future background operating conditions for a future planning horizon in 2026 and 2031.
- Utilizing Institute of Transportation Engineer's (ITE) Trip Generation data 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 peek periods through intersection capacity analysis.
- Review parking and loading.
- Complete a site circulation review with AutoTurn assessment for passenger cars, delivery vehicles, and waste collection.

1.2 Study Team

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

- William Maria, P. Eng., Transportation Planning Lead
- James Emerson, B. Eng., Transportation Planner

Figure 1 Site Location

2. Site Characteristics

2.1 Study Area

The study area intersections as confirmed by the Region and City are listed below:

- Dundas Street East and Stanfield Rd/Constitution Blvd (signalized)
- Dundas Street East and Tomken Road (signalized)
- Dundas Street East and Site Driveway

2.2 Site Plan

The development is proposed to contain 462 rental apartment units and 790 sq.m. of ground floor retail.

Access to the subject site is proposed via a single driveway along Dundas Street East. The driveway is proposed to provide full moves until the Dundas BRT is completed at which time the driveway will be converted to a right-in/out.

The proposed site plan dated May 24, 2022, is included in **Appendix A** and is shown in **Figure 2**.

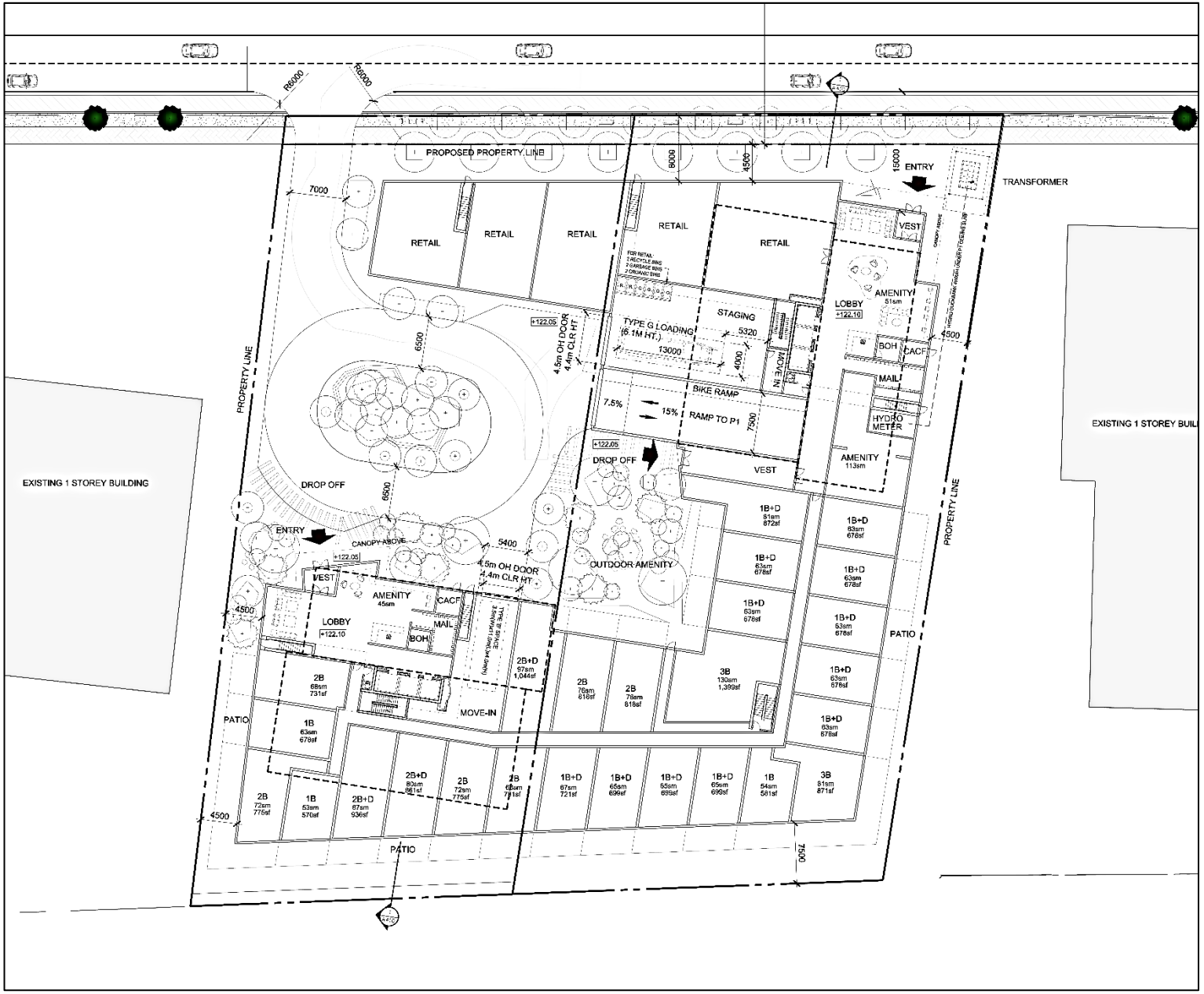


Figure 2 Site Plan

3. Existing Conditions

3.1 Road Characteristics

Dundas Street East is an east-west arterial road under the jurisdiction of City of Mississauga within the study area. In the study area, it has four-lane cross section with two through lanes in each direction. The posted speed limit of the Dundas Street East is 50 km/h. It intersects both Tomken Road and Stanfield Road at signalized intersections.

Tomken Road is a north-south arterial road under the jurisdiction of City of Mississauga. Within study area it has four-lane urban cross section with two travelling lanes in each direction. Tomken Road terminates at Dundas Street East providing an auxiliary right turn lane and a shared left/through lane. The posted speed limit of the road is 50 km/h.

Stanfield Road is a north-south collector road under the jurisdiction of City of Mississauga. South of Dundas Street it has two-lane cross section with one lane each direction and a two-way left turn lane. At its intersection with Dundas Street a northbound left turn lane is provided. It has posted speed limit of 50 km/h.

Constitution Boulevard is a north-south local road under the jurisdiction of City of Mississauga. It has two-lane cross section with one lane each direction. At its intersection with Dundas Street a southbound left turn lane is provided. It has posted speed limit of 40 km/h.

3.2 Pedestrian and Bicycle Routes

Sidewalks are provided on both sides of each road within the study area.

Within study area, bicycle lanes are only provided on Stanfield Road and Constitution Boulevard.

3.3 Transit Services

Transit service is provided via MiWay within study area. Transit routes provided within the study area are illustrated in **Figure 3** and are described as follows:

Route 1: The route runs between Kipling Bus Terminal in the City of Toronto and the intersection of Larid Road at Ridgeway Drive in the City of Mississauga. It runs both weekday and weekend services.

Route 1C: The route runs between Kipling Bus Terminal in the City of Toronto and South Common Centre in the City of Mississauga. It runs both weekday and weekend services.

Route 101/101A (Express): The route runs between Kipling Bus Terminal in the City of Toronto and the intersection of Larid Road at Ridgeway Drive in the City of Mississauga. It runs weekday services. Saturday service for this route was suspended as of Dec. 26, 2020 and is still suspended at this time.

Route 5: The route runs between Lorimar Drive/Cardiff Boulevard in the City of Mississauga and Long Branch GO Station in the City of Mississauga. It runs both weekday and weekend services.

Route 51: The route runs between Cardiff Boulevard in the City of Mississauga and Stanfield Road in the City of Mississauga. It runs both weekday and weekend services.

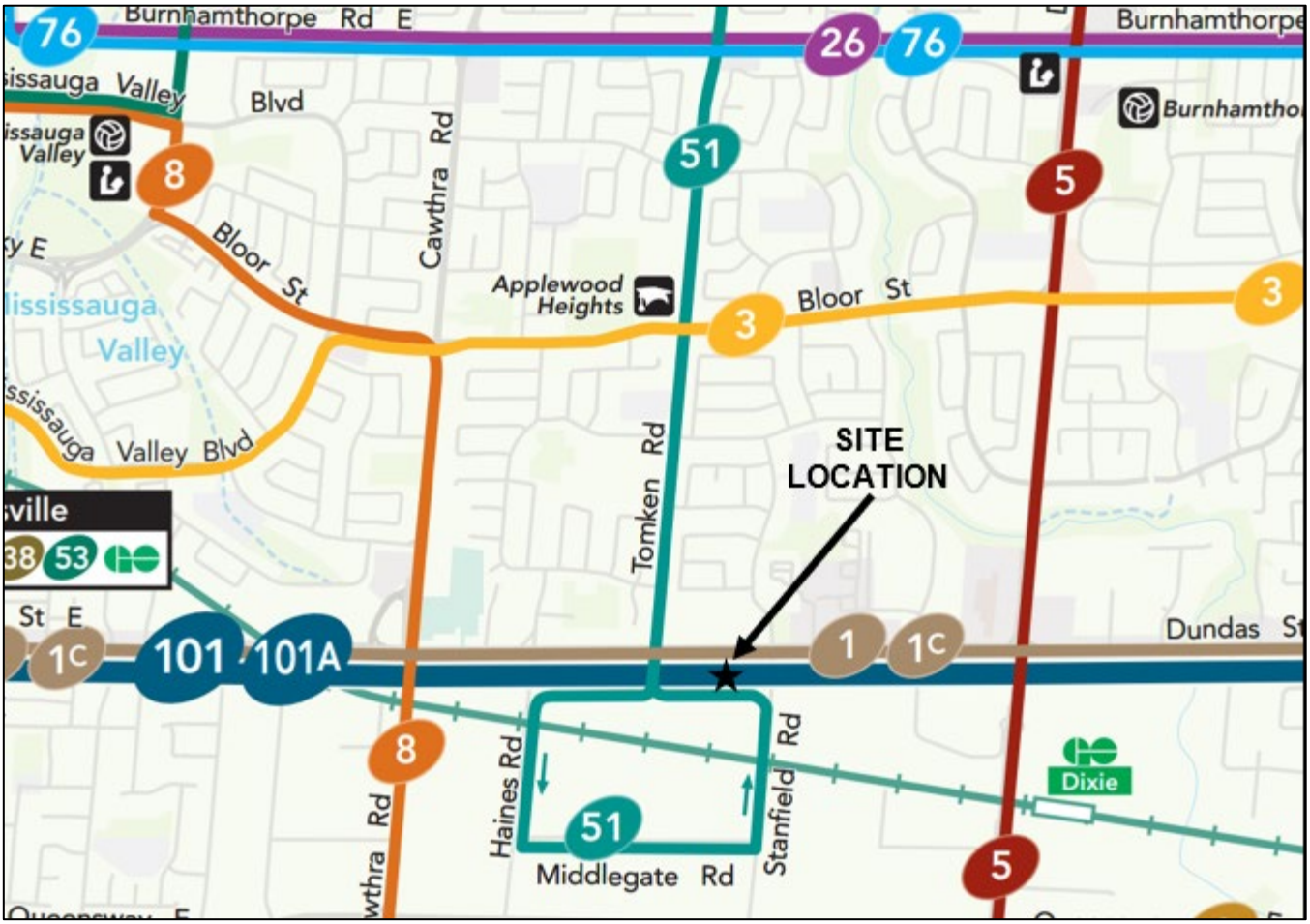


Figure 3 MiWay Transit Map

3.4 Existing Traffic Data

Due to COVID-19 pandemic and travel restrictions by provincial lockdown, traffic throughout the City is lower than historical levels. Therefore, it was discussed with the City and Region to use historical traffic data for all study intersections as an alternative to undertaking new traffic counts for the base 2021 traffic conditions. The most recent turning movement counts obtained from the Region's website was from 2014.The 2014 counts were factored with historic growth rates calculated using intersection counts from 2007 (Stanfield Road) and 2008 (Tomken Road) counts to the 2014 traffic counts. The resulting corridor growth rates were applied to the 2014 traffic counts to estimate the 2021 based volumes. Calculation details are included in **Appendix B.**

Table 1 Assumed Growth Rates from 2014 to 2021

Street Name	AM/PM	Compounded Annual Growth Rates (EB/WB or NB/SB)
		2014-2021
Dundas Street East	AM	EB: -2% / WB: -2%
	PM	**EB: -3% / WB: -3%**
Tomken Road	AM	NB: 3% / SB: 3%
	PM	**NB: -3% / SB: -3%**
Stanfield Road	AM	NB: -2.5% / SB: -2.5%
	PM	**NB: -5.5% / SB: -5.5%**
Constitution Blvd	AM	NB: -2.5% / SB: -2.5%
	PM	**NB: -5.5% / SB: -5.5%**

The estimated 2021 turning movement counts are provided in **Figure 4.**

Existing signal timings were purchased from the Region and are provided in **Appendix B**.

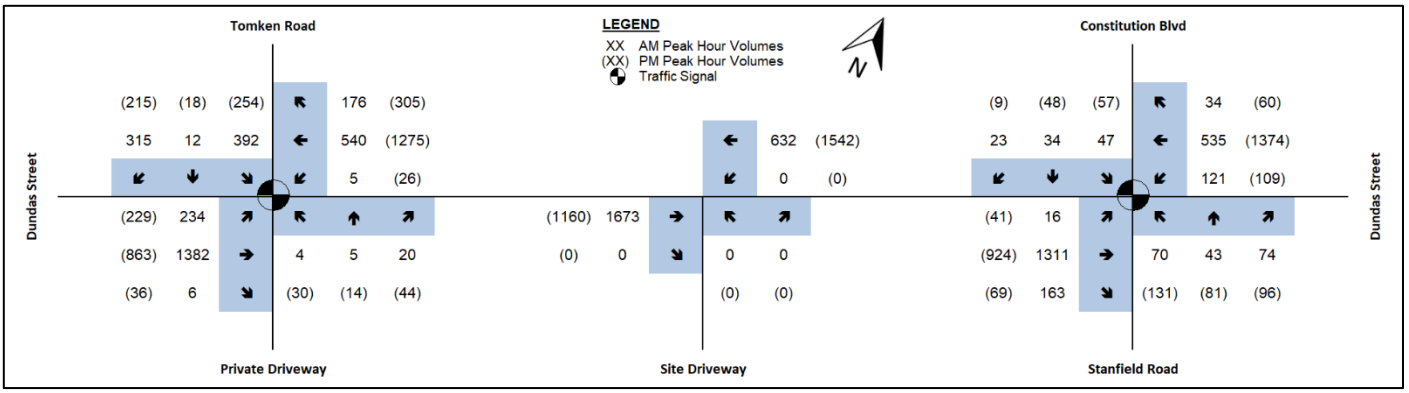


Figure 4 Estimated 2021 Traffic Conditions

4. Future Background Traffic

4.1 Study Horizon Years

The study horizon years include existing 2021, future background 2026 and 2031, and future total 2026 and 2031. The study horizons years were confirmed by the City and Region through the formal terms of reference and are provided in the **Appendix A**.

4.2 Corridor Growth

Growth rates to project the 2021 traffic volumes to the 2026 and 2031 planning horizons were provided by the City. The compounded annual growth rates for each interval are provided in the **Table 2**.

Table 2 Proposed Annual Growth Rates 2021 to 2031

Street Name	AM/PM	Compounded Annual Growth Rates (EB/WB or NB/SB)	
		2022-2026	2027-2031
Dundas Street East	AM	EB: 0.5% / WB: 1.5%	EB: -6% / WB: -4.5%
	PM	**EB: 0.5% / WB: 1%**	**EB: -5% / WB: -6%**
Tomken Road	AM	NB: 2% / SB: 3%	NB: 1% / SB: 0%
	PM	**NB: 3% / SB: 2%**	**NB: 0% / SB: 2%**
Stanfield Road	AM	NB: 2% / SB: 3%	NB: 1% / SB: 0%
	PM	**NB: 3% / SB: 2%**	**NB: 0% / SB: 2%**
Constitution	AM	NB: 2% / SB: 3%	NB: 1% / SB: 0%

Blvd	**PM**	**NB: 3% / SB: 2%**	**NB: 0% / SB: 2%**

4.3 Future Road Improvements

The Dundas Bus Rapid Transit (BRT) project is expected to replace one through lane in each direction along Dundas Street East with BRT lanes. As per the current preliminary design, the BRT project is also expected to reconstruct all signalized intersections along Dundas Street while unsignalized intersections and accesses will be restricted to the right-in/out only. The timeline for the Durham-Scarborough BRT project is not yet certain, however as per the discussion with Region, it is expected to be build-out and operational by the 2031 horizon year.

The existing and future lane configurations for the study intersections are illustrated in **Figure 5** & **6**.

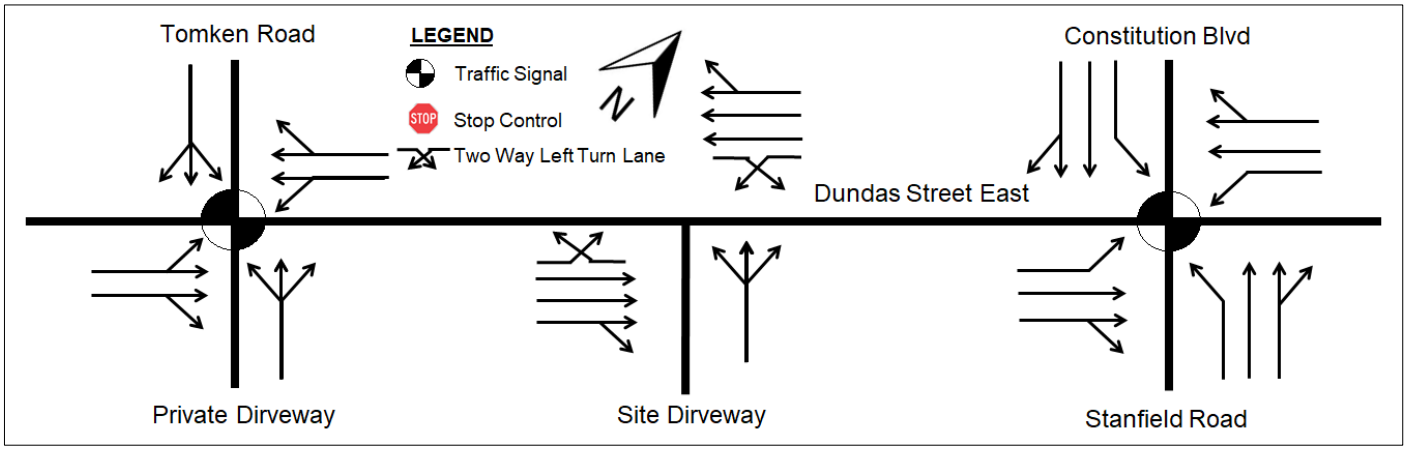


Figure 5 Existing/ Pre BRT Lane Configurations

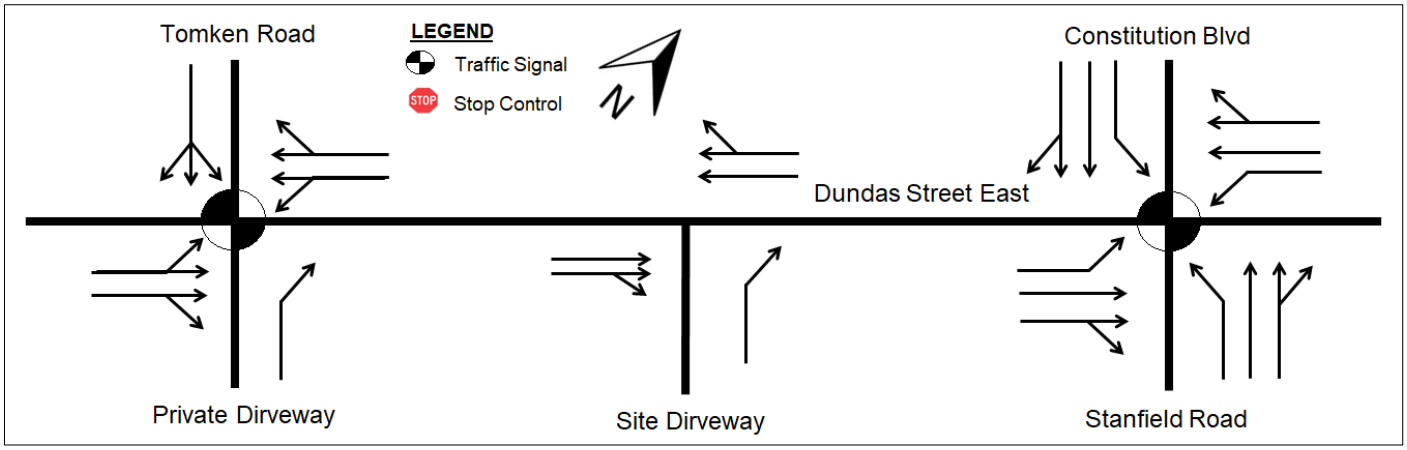


Figure 6 Post BRT Lane Configurations

4.4 Background Development Traffic

There were no background developments identified in the vicinity of the site by GHD or the Region/City to be included in the future intersection traffic volumes.

4.5 Future Background Traffic Volumes

The future background traffic volumes for the 2026 and 2031 planning horizons during the weekday a.m. and p.m. peak hour were calculated by combing the 2021 estimated traffic volumes with the associated corridor growth. The resulted turning movement volumes are provided in the **Figure 7** and **8** for the 2026 and 2031 horizon years.

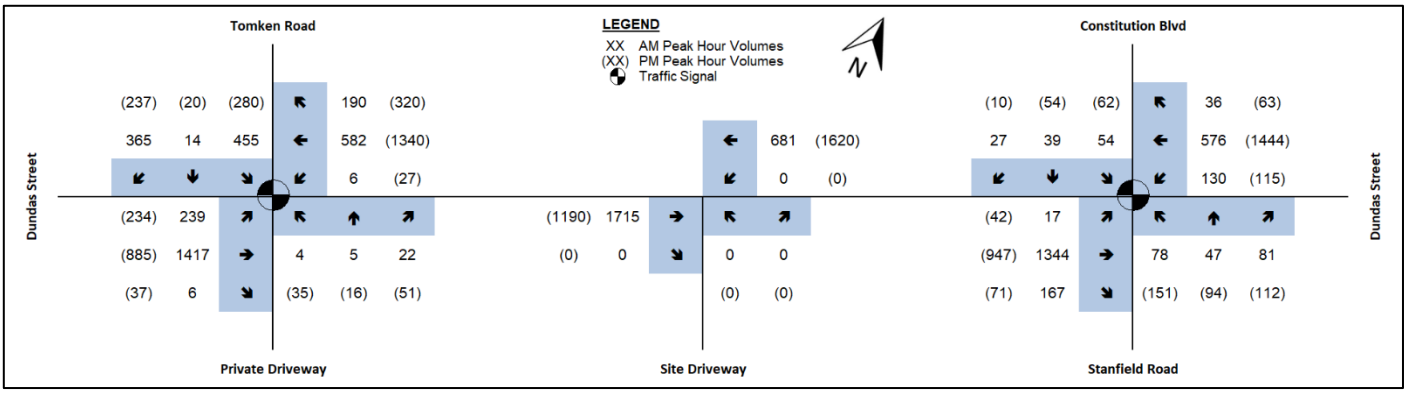


Figure 7 2023 Future Background Traffic Conditions

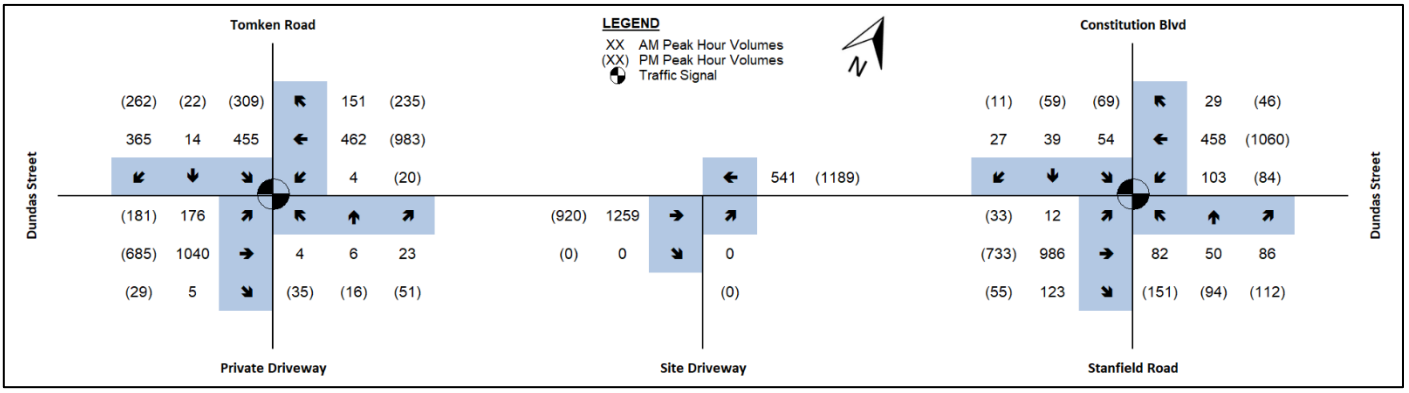


Figure 8 2025 Future Background Traffic Conditions

5. Site Generated Traffic

5.1 Site Traffic

The proposed development consists of 462 rental apartment units with 790 sq.m. of ground floor retail.

The development generated traffic was calculated using rates provided in the Institute of Transportation Engineering's (ITE) Trip Generation Manual, 10th Edition using Land Use Code 222 (Multifamily Housing, High-Rise) and Land Use Code 822 (Strip Retail Plaza (<40k)).

The 2016 Transportation Tomorrow Survey (TTS) confirms a comprehensive mode split of 22% for the AM peak and 12% for the PM peak. These model splits were applied to reduce the ITE trip generation in the calculation of development generated traffic for their respective peak hours.

Despite the expectation that transit modal splits will increase once the BRT is operational, this has not been taken into account in the analysis as neither the Region or City could provide details on the target modal split along the BRT line. The current modal splits were kept for all future conditions which provide for a more conservative analysis.

Table 3 below summarizes the estimated trip generation for both phases of the subject site.

Table 3 Estimated Site Trips

Land Uses	Units	Parameters	Peak Hour					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Multifamily Housing, High-Rise (LUC 222)	462 units	Trip Ratio	34%	66%	-	56%	44%	-
		Gross Trips	43	82	125	83	65	148
		Trip Reduction (AM:22% PM:12%)	10	18	28	10	8	18
		New Trips	**33**	**64**	**97**	**73**	**57**	**130**
Strip Retail Plaza (<40k) (LUC 822)	8073 sq.ft.	Trip Ratio	60%	40%	-	50%	50%	-
		Gross Trips	15	11	26	35	34	69
		Trip Reduction (AM:22% PM:12%)	4	2	6	4	4	8
		New Trips	**11**	**9**	**20**	**31**	**30**	**61**
Total Site Traffic			**44**	**73**	**117**	**104**	**87**	**191**

The proposed residential development is expected to generate a total of 117 two-way trips consisting of 44 inbound and 73 outbound during weekday AM peak hour and 191 two-way trips consisting of 104 inbound and 87 outbound during weekday PM peak hour.

5.2 Site Traffic Distribution and Assignment

The distribution of the site generated traffic was determined through 2016 TTS data using the two adjacent zones (zone 3660, 3669) where the site is located. The inbound and outbound for both the AM and PM peak hours were analysed separately. The resulting distribution was adopted to the local area network to account for the location of each access based on engineering judgement and local traffic patterns.

The 2016 TTS summary is provided in the **Appendix C**.

The site trip distribution was divided into two different scenarios, interim distribution, and ultimate distribution to account for the fact that Dundas BRT is expected to convert the existing full-move driveway along Dundas Street East into a right-in/out by the 2031 traffic scenario.

The interim and ultimate site trip distribution percentages are provided in **Figure 10** & **9** respectively.

The interim and ultimate site trip distribution volumes are provided in Figure 11 & 12 respectively.

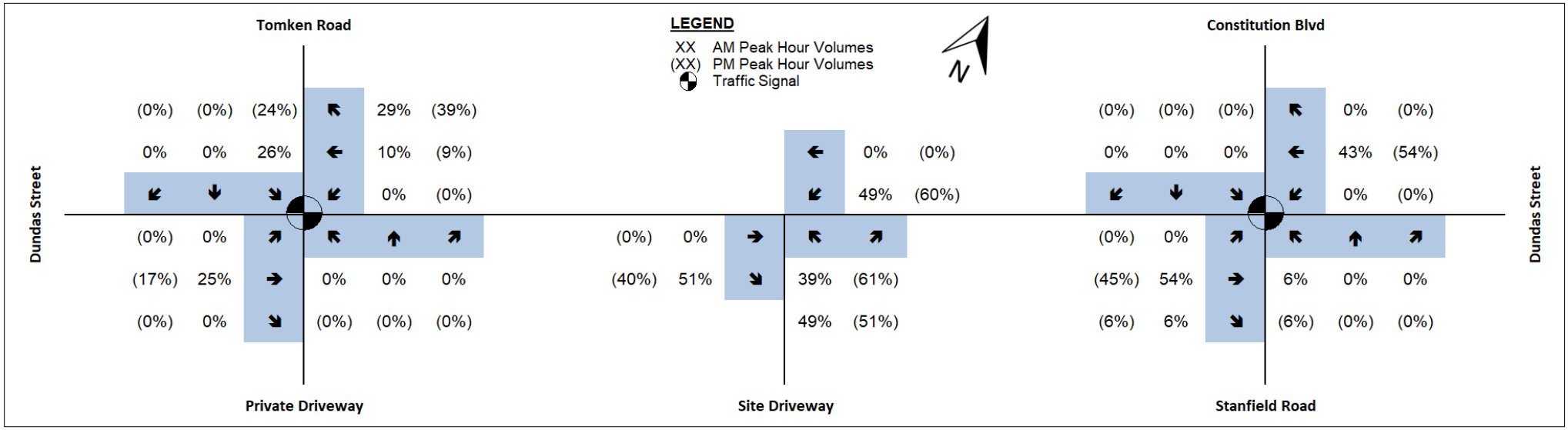


Figure 10 Interim Trip Distribution Percentages

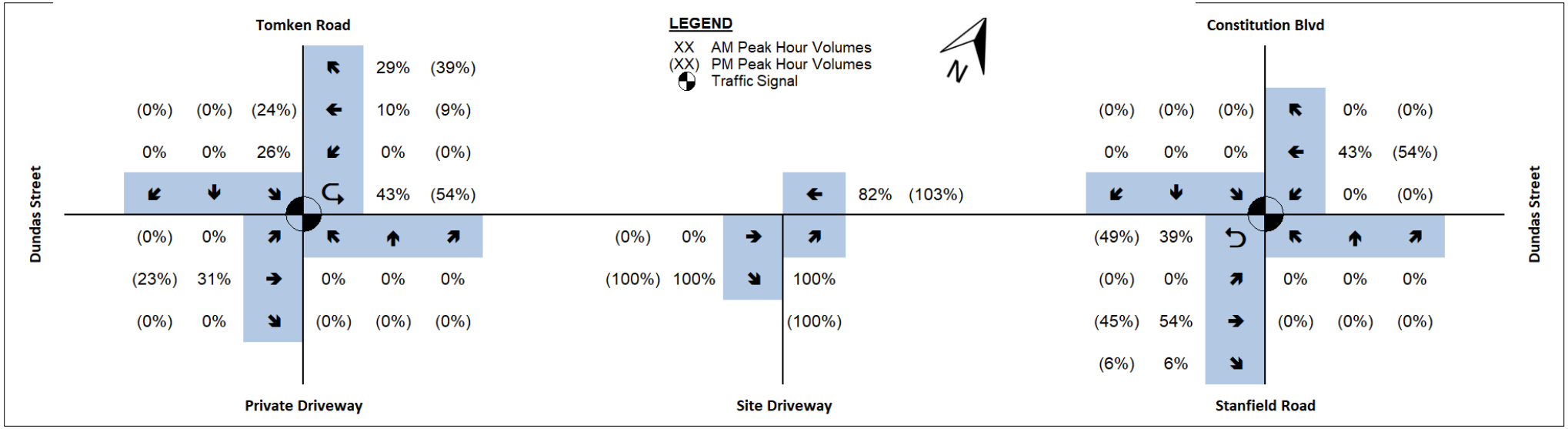


Figure 9 Ultimate Trip Distribution

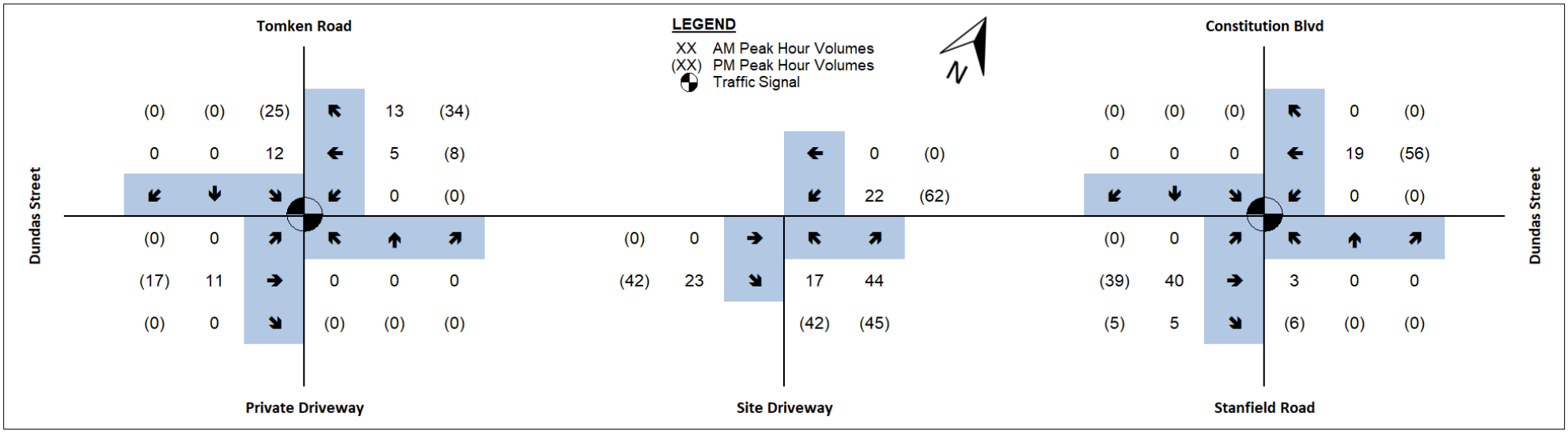


Figure 11 2026 Site Trip Volumes

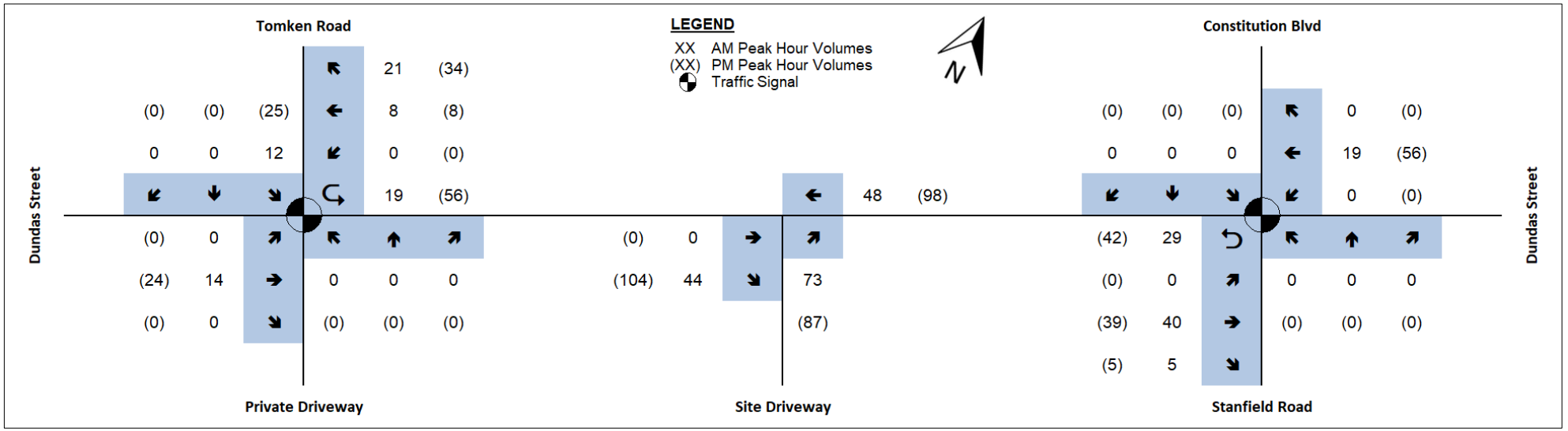


Figure 12 2031 Site Trip Volumes

6. Future Total Traffic

The future total traffic volumes in the weekday AM and PM peak hours for the 2026 and 2031 horizon years were derived by combining the projected future background traffic with the corresponding estimated site generated traffic. The resulting traffic volumes are presented in the **Figure 13** and **14** for the 2026 and 2031 horizons.

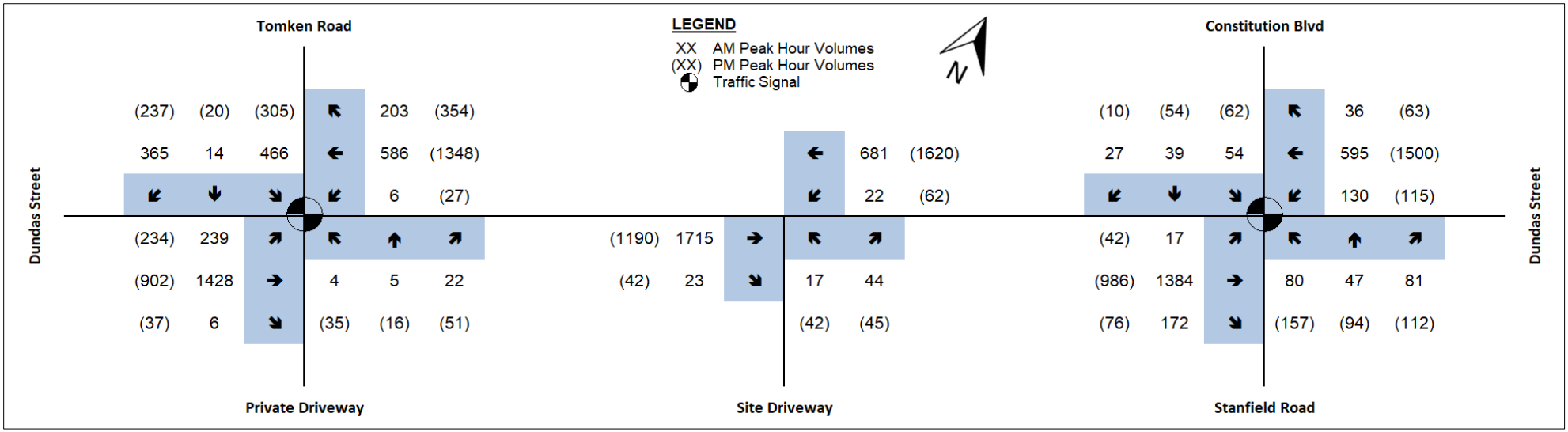


Figure 14 2026 Future Total Traffic Volumes

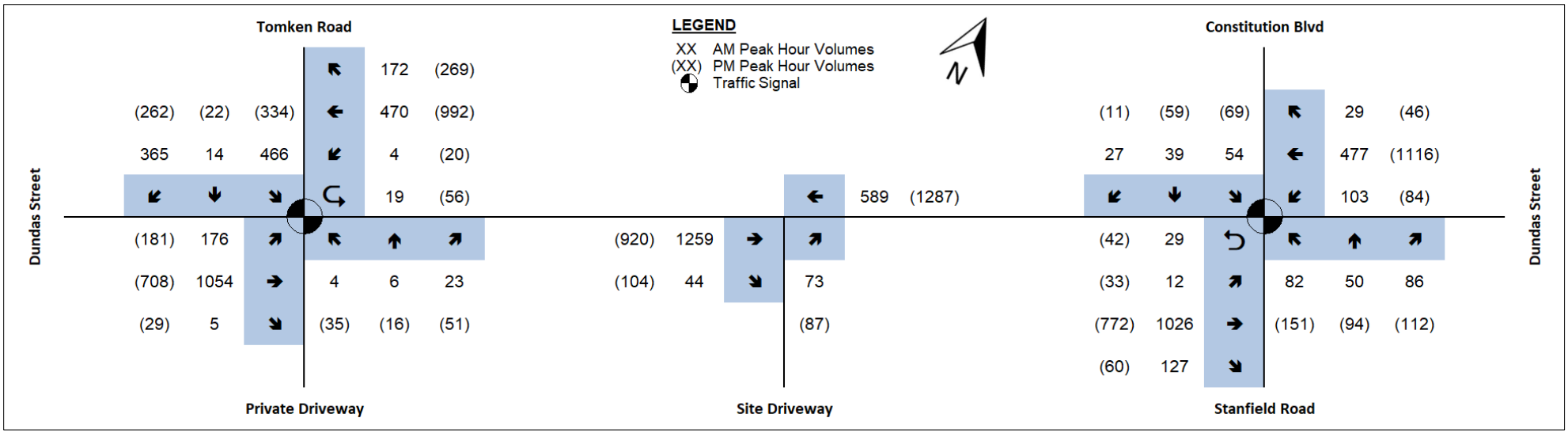


Figure 13 2031 Future Total Traffic Volumes

7. 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 (PHF) were calculated from the TMC obtained from regional website and used in the Synchro during the traffic modelling.

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

‘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
- Queues for an individual movement are projected to exceed available turning lane storage.

‘Critical’ intersections and movements for a unsignalized intersection include:

- Level of Services (LOS), based on average delay per vehicle, on individual movements exceeds LOS “E”,
- The estimated 95th percentile queue length for individual movements that are projected to, or exceed, the storage length.

7.1 Dundas Street East and Tomken Road

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. The detailed synchro reports are provided in the **Appendix D**.

Table 4 Capacity Analysis of Dundas Street East and Tomken Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) Delay	95th % Que.	V/C (LOS) Delay	95th % Que.
Existing 2021	Overall: 0.78 (C) 22 EBL = 0.74 (C) 24 EBTR = 0.28 (B) 11 WBL = 0.09 (B) 16 WBT = 0.47 (B) 19 WBR = 0.2 (A) 0 NBTLR = 0.25 (D) 49 SBTL = 0.77 (E) 67 SBR = 0.14 (D) 47	EBL = 50 m EBTR = 50 m WBL = 10 m WBT = 85 m WBR = 0 m NBTLR = 35 m SBTL = 125 m SBR = 25 m	Overall: 0.79 (B) 20 EBL = 0.74 (C) 24 EBTR = 0.28 (B) 11 WBL = 0.09 (B) 11 WBT = 0.47 (B) 14 WBR = 0.2 (A) 0 NBTLR = 0.25 (D) 49 SBTL = 0.77 (E) 67 SBR = 0.14 (D) 47	EBL = 50 m EBTR = 50 m WBL = 5 m WBT = 50 m WBR = 0 m NBTLR = 35 m SBTL = 125 m SBR = 25 m
Future Background 2026	Overall: 0.74 (C) 34 EBL = 0.71 (D) 39 EBTR = 0.67 (D) 38 WBL = 0.07 (C) 35 WBT = 0.35 (D) 35 WBR = 0.12 (A) 0 NBTLR = 0.03 (C) 21 SBTL = 0.7 (D) 35 SBR = 0.3 (C) 26	EBL = 75 m EBTR = 155 m WBL = 5 m WBT = 55 m WBR = 0 m NBTLR = 10 m SBTL = 160 m SBR = 40 m	Overall: 0.84 (C) 22 EBL = 0.77 (C) 29 EBTR = 0.28 (B) 11 WBL = 0.1 (B) 12 WBT = 0.5 (B) 14 WBR = 0.21 (A) 0 NBTLR = 0.35 (D) 53 **SBTL = 0.88 (E) 80** SBR = 0.15 (D) 47	EBL = 60 m EBTR = 50 m WBL = 5 m WBT = 55 m WBR = 0 m NBTLR = 40 m SBTL = 150 m SBR = 25 m
Future Total 2026	Overall: 0.75 (C) 34 EBL = 0.71 (D) 39 EBTR = 0.67 (D) 38 WBL = 0.07 (C) 35 WBT = 0.35 (D) 35 WBR = 0.13 (A) 0 NBTLR = 0.03 (C) 21 SBTL = 0.72 (D) 36 SBR = 0.3 (C) 26	EBL = 75 m EBTR = 155 m WBL = 5 m WBT = 60 m WBR = 0 m NBTLR = 10 m SBTL = 170 m SBR = 40 m	Overall: 0.79 (C) 28 EBL = 0.8 (D) 52 EBTR = 0.34 (B) 19 WBL = 0.13 (C) 27 WBT = 0.66 (C) 29 WBR = 0.23 (A) 0 NBTLR = 0.19 (D) 36 SBTL = 0.69 (D) 49 SBR = 0.15 (D) 36	EBL = 80 m EBTR = 70 m WBL = 10 m WBT = 100 m WBR = 0 m NBTLR = 30 m SBTL = 130 m SBR = 20 m
Future Background 2031	Overall: 0.75 (D) 37 EBL = 0.49 (C) 31 EBTR = 0.76 (D) 45 WBL = 0.04 (D) 37 WBT = 0.4 (D) 41 WBR = 0.1 (A) 0 NBTLR = 0.03 (C) 21 SBTL = 0.75 (D) 41 SBR = 0.27 (C) 25	EBL = 55 m EBTR = 195 m WBL = 5 m WBT = 80 m WBR = 0 m NBTLR = 10 m SBTL = 175 m SBR = 30 m	Overall: 0.71 (C) 30 EBL = 0.71 (D) 36 EBTR = 0.44 (C) 29 WBL = 0.07 (C) 23 WBT = 0.7 (C) 30 WBR = 0.15 (A) 0 NBTLR = 0.15 (C) 31 SBTL = 0.68 (D) 46 SBR = 0.17 (C) 32	EBL = 50 m EBTR = 105 m WBL = 5 m WBT = 95 m WBR = 0 m NBTLR = 30 m SBTL = 130 m SBR = 20 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) Delay	95th % Que.	V/C (LOS) Delay	95th % Que.
Future Total 2031	Overall: 0.81 (D) 40 EBL = 0.53 (C) 31 EBTR = 0.84 (D) 52 WBL = 0.24 (D) 38 WBT = 0.42 (D) 42 WBR = 0.12 (A) 0 NBTLR = 0.03 (C) 21 SBTL = 0.8 (D) 45 SBR = 0.3 (C) 26	EBL = 55 m EBTR = 215 m WBL = 10 m WBT = 85 m WBR = 0 m NBTLR = 10 m SBTL = 195 m SBR = 40 m	Overall: 0.74 (C) 32 EBL = 0.72 (D) 37 EBTR = 0.49 (C) 33 WBL = 0.25 (C) 24 WBT = 0.71 (C) 32 WBR = 0.17 (A) 0 NBTLR = 0.15 (C) 31 SBTL = 0.73 (D) 49 SBR = 0.17 (C) 32	EBL = 50 m EBTR = 115 m WBL = 20 m WBT = 115 m WBR = 0 m NBTLR = 30 m SBTL = 140 m SBR = 20 m

Under existing conditions, the signalized intersection of Dundas Street East and Tomken Road is operating satisfactorily with reserve capacity during AM and PM peak hours.

In the future 2026 background traffic conditions, signal split optimizations were applied to the AM peak hour as it mitigated some overcapacity movements that were reported. With these signal timing changes; the AM peak hour is reporting an overall intersection v/c ratio of 0.74 LOS C and with no critical movements. With no current signal optimizations to the PM peak hour, the overall intersection v/c ratio increases to 0.84. The southbound through/left is operating with a critical v/c ratio of 0.88, though it does not exceed the theoretical maximum v/c ratio of 1.00, indicating there is reservice capacity for the movement.

With the addition of site traffic, there is minimal increases to the overall v/c ratio in the AM peak hour with a maximum increase in any individual movement v/c ratio of 0.02 expected. During the PM peak hour, signal timing optimizations result in a lower overall v/c ratio of 0.79 LOS C with all individual movements reported operating below critical levels.

Under the future 2031 background traffic conditions, the intersection during the AM peak hour is expected to operate with an overall v/c ratio of 0.75 LOS C and no critical movements. During the PM peak hour, the overall intersection v/c ratio is 0.71 LOS C, with no critical movements or queues observed.

With the addition of site traffic under the 2031 future total traffic, the AM peak hour is reporting an overall intersection v/c ratio that increases from the background conditions by 0.06 to 0.81 LOS D, all movements are still below critical levels. Under the PM peak hour, signal timing optimizations result in a 0.03 increase in the v/c ratio from the future background conditions to 0.74 LOS C. There are marginal increases to 95th percentile queue lengths but all are still within the available storage lengths.

No intersection improvements are required to accommodate site traffic.

7.2 Dundas Street East and Site Driveway

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. The detailed synchro reports are provided in the **Appendix D**.

Table 5 Capacity Analysis of Dundas Street East and Site Driveway

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) Delay	95th % Que.	V/C (LOS) Delay	95th % Que.
Future Total 2026	EBTR = 0.23 (A) 0 NBLR = 0.14 (B) 14	EBTR = 0 m NBLR = 5 m	EBTR = 0.18 (A) 0 NBLR = 0.21 (C) 15	EBTR = 0 m NBLR = 5 m
Future Total 2031	EBTR = 0.3 (A) 0 NBR = 0.1 (B) 10	EBTR = 0 m NBR = 5 m	EBTR = 0.26 (A) 0 NBR = 0.13 (B) 10	EBTR = 0 m NBR = 5 m

At the site driveway, the future total traffic conditions for both 2026 and 2031 show that the intersection will have low v/c ratios and minimal queueing during both the AM and PM peak hours.

7.3 Dundas Street East and Stanfield Road/Constitution Boulevard

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. The detailed synchro reports are provided in the **Appendix D**.

Table 6 Capacity Analysis of Dundas Street East and Stanfield Road/Constitution Boulevard

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) Delay	95th % Que.	V/C (LOS) Delay	95th % Que.
Existing 2021	Overall: 0.47 (B) 17 EBL = 0.19 (A) 6 EBT = 0.27 (A) 5 WBL = 0.34 (B) 10 WBTR = 0.42 (A) 9 NBL = 0.75 (F) 82 NBTR = 0.67 (E) 72 SBL = 0.64 (E) 78 SBTR = 0.22 (E) 62	 EBL = 5 m EBT = 40 m WBL = 30 m WBTR = 95 m NBL = 65 m NBTR = 75 m SBL = 35 m SBTR = 30 m	Overall: 0.51 (B) 20 EBL = 0.22 (A) 8 EBT = 0.31 (A) 7 WBL = 0.4 (B) 18 WBTR = 0.48 (B) 15 NBL = 0.76 (F) 82 NBTR = 0.68 (E) 72 SBL = 0.33 (D) 52 SBTR = 0.14 (D) 51	 EBL = 10 m EBT = 50 m WBL = 45 m WBTR = 130 m NBL = 65 m NBTR = 75 m SBL = 30 m SBTR = 25 m
Future Background 2026	Overall: 0.69 (B) 13 EBL = 0.03 (A) 2 EBT = 0.39 (A) 2 WBL = 0.69 (C) 26 WBTR = 0.17 (A) 4 NBL = 0.66 (F) 81 NBTR = 0.57 (E) 74 SBL = 0.73 (F) 98 SBTR = 0.3 (E) 68	 EBL = 5 m EBT = 25 m WBL = 75 m WBTR = 30 m NBL = 45 m NBTR = 50 m SBL = 35 m SBTR = 30 m	Overall: 0.56 (C) 22 EBL = 0.26 (B) 10 EBT = 0.33 (A) 8 WBL = 0.46 (C) 22 WBTR = 0.53 (B) 18 NBL = 0.79 (F) 82 NBTR = 0.71 (E) 72 SBL = 0.34 (D) 49 SBTR = 0.14 (D) 48	 EBL = 10 m EBT = 55 m WBL = 50 m WBTR = 150 m NBL = 75 m NBTR = 85 m SBL = 30 m SBTR = 30 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) Delay	95th % Que.	V/C (LOS) Delay	95th % Que.
Future Total 2026	Overall: 0.72 (B) 13 EBL = 0.03 (A) 2 EBT = 0.41 (A) 2 WBL = 0.74 (C) 32 WBTR = 0.17 (A) 5 NBL = 0.66 (F) 81 NBTR = 0.55 (E) 73 SBL = 0.7 (F) 93 SBTR = 0.29 (E) 68	EBL = 5 m EBT = 30 m WBL = 80 m WBTR = 30 m NBL = 45 m NBTR = 50 m SBL = 35 m SBTR = 30 m	Overall: 0.58 (C) 23 EBL = 0.28 (B) 12 EBT = 0.35 (A) 8 WBL = 0.49 (C) 24 WBTR = 0.55 (B) 19 NBL = 0.79 (F) 81 NBTR = 0.69 (E) 70 SBL = 0.33 (D) 49 SBTR = 0.14 (D) 47	EBL = 10 m EBT = 50 m WBL = 55 m WBTR = 160 m NBL = 80 m NBTR = 85 m SBL = 30 m SBTR = 30 m
Future Background 2031	Overall: 0.48 (B) 20 EBL = 0.02 (A) 4 EBTR = 0.45 (A) 8 WBL = 0.3 (A) 5 WBTR = 0.19 (A) 4 NBL = 0.68 (F) 86 NBTR = 0.61 (E) 79 SBL = 0.79 (F) 115 SBTR = 0.3 (E) 72	EBL = 5 m EBTR = 105 m WBL = 15 m WBTR = 35 m NBL = 50 m NBTR = 55 m SBL = 35 m SBTR = 35 m	Overall: 0.58 (C) 26 EBL = 0.14 (B) 10 EBTR = 0.41 (B) 13 WBL = 0.23 (B) 10 WBTR = 0.55 (B) 18 NBL = 0.79 (F) 82 NBTR = 0.71 (E) 72 SBL = 0.41 (D) 51 SBTR = 0.17 (D) 49	EBL = 10 m EBTR = 70 m WBL = 20 m WBTR = 160 m NBL = 75 m NBTR = 85 m SBL = 30 m SBTR = 30 m
Future Total 2031	Overall: 0.50 (B) 19 EBL = 0.06 (A) 4 EBTR = 0.47 (A) 8 WBL = 0.32 (A) 5 WBTR = 0.2 (A) 5 NBL = 0.68 (F) 86 NBTR = 0.61 (E) 79 SBL = 0.79 (F) 115 SBTR = 0.3 (E) 72	EBL = 0 m EBTR = 5 m WBL = 0 m WBTR = 15 m NBL = 0 m NBTR = 50 m SBL = 0 m SBTR = 35 m	Overall: 0.6 (C) 26 EBL = 0.31 (B) 11 EBTR = 0.42 (B) 12 WBL = 0.24 (B) 10 WBTR = 0.58 (B) 18 NBL = 0.79 (F) 83 NBTR = 0.71 (E) 72 SBL = 0.47 (D) 54 SBTR = 0.18 (D) 51	EBL = 0 m EBTR = 15 m WBL = 0 m WBTR = 20 m NBL = 0 m NBTR = 75 m SBL = 0 m SBTR = 35 m

Under existing all existing, future background, and future total conditions, this intersection is expected to operate satisfactory with acceptable v/c ratios, delays and queuing. Under both the pre and post BRT configurations, no critical movements are reported and the overall increase in v/c ratio and delays due to the subject site traffic is nominal.

No intersection improvements have been identified as a result of the proposed development.

8. Parking Assessment

8.1 Zoning By-Law Requirement

The proposed residential development consists of a total of 462 rental apartment units with 790 m^2 of retail space.

Based on our review of the City's updated parking By-law (June 16th,2022) requirements for rental apartment units, By-law 0225-2007 as amended, stipulates a rate of 0.90 for residential parking per unit and a rate of 0.20 for visitor parking per unit. Parking for retail development within a mixed-use site can be shared with the residential visitor parking so long as parking is provided at a rate based on the higher of the two requirements. The relevant updated bylaw rates will be included in **Appendix E.**

The subject site is located in Precinct 3, which details a proposed parking rate for rental apartments of 0.90 spaces/unit with 0.20 spaces/unit for visitors. Retail parking can be shared with the residential visitor parking. These rates and the total required parking is summarized in **Table 7** below.

Table 7 PRS updated Bylaw Parking Requirement

Units	City's By-Law Requirement	
	Precinct 3 Parking Rate per unit	**Required Parking Supply**
462 units	0.90 (residents) 0. 20 (visitor)	416 (residents) 92 (Visitor)
790m^2 (Retail GFA)	Shared with Residential Visitor	Shared with Residential Visitor
TOTAL		**508**

Accessible parking spaces are required at a rate of 4% total visitor parking, resulting in a requirement of 4 spaces. 2 spaces must be Type A accessible parking space and 2 Type B spaces.

8.2 Proposed Parking Supply

The site proposes a reduced parking rate than the one required in the City's By-Law. The suggested rates and the total provided parking is summarized in **Table 8** below.

Table 8 Provided Parking Rates and Totals

Units	Parking Details	
	Provided Parking Rates	**Required Parking Supply**
462 units	0.70 (Residents) 0. 10 (Visitor, 4% Accessible Spaces)	323 (Residents) 46 (Visitor, 2 Accessible Spaces)
790m^2 (Retail GFA)	Shared with Residential Visitor	Shared with Residential Visitor
TOTAL		**369**

The proposed site plan provides a total parking supply of 369 parking spaces, 169 less than the By-law requirement. Resident parking will be provided within the underground parking garage.

8.3 Resident Parking Reduction

In support of the proposed reduction in resident and visitor parking, additional details are provided including:

- TTS vehicle ownership data
- Proxy site approved parking rates for rental building
- TDM measures

8.3.1 2016 TTS vehicle ownership data

Vehicle ownership was determined through 2016 TTS data using the two adjacent zones (zone 3660, 3669) where the site is located. The ownership was filtered to only residents that lived in apartment buildings. Raw TTS data will be included in **Appendix C**.

Table 9 details the TTS vehicle ownership data.

Table 9 TTS Vehicle Ownership

Area	Number of Apartment Units		Percent of Vehicle Owning Households
	Without Vehicles	With Vehicles	
TTS Zones 3660, 3669	483	1332	73%
	Total: 1815 Units		

The 2016 TTS data confirms that within this planning zone, approximately 27 percent of apartment units do not own a vehicle. The TTS data include not only rental units but standard ownership as well which historically have higher vehicle ownership. Considering the future BRT service along Dundas Street, it is expected that future trends along Dundas Street will lead to lower automobile ownership as the Region works its way towards increasing the transit modal split rates.

Assuming transit use continues to increase, automobile ownership is expected to decrease. The subject site is planning for only 70 percent of the units to be rented with a parking space which is consistent with a small decrease from 73 percent surveyed in 2016.

8.3.2 Resident Parking Demand for Rental Buildings

Additionally, GHD has rental data for several rental buildings in the City of Toronto. **Table 13** below details the number of units where a parking space has been rented along with the unit. Details for each site is included in **Appendix G**. The site at 86-90 Dundas Street East is not a rental building but a standard condo development located within 400 metres of the future Hurontario LRT. The parking demand is based on the sales purchase of a parking space along with the unit.

Table 10 Resident Demand from Rental Data or Sales Data

Type	Building (Address)	Occupied Units	Parking Supply	Occupied Spaces	Demand Rate (spaces/unit)
Resident	835 Roselawn Avenue	35	42	25	0.71
	99 Marlee Avenue	52	43	25	0.48
	65 Dyenvor Road	54	69	19	0.35
	620 Northcliffe Boulevard	51	55	20	0.39
	665 Roselawn Avenue	68	84	51	0.75
	86-90 Dundas Street East*	285*	307*	210*	0.74*

*Not near high order transit

The subject site is expected to have a comparable resident parking demand to the sites listed above based on the subject site's location along a future BRT route and within walking distance to local amenities.

The following table (**Table 14**) details the score for walkability, transit and bike connectivity for the subject site and five proxy rental buildings based on data from the Walk Score transit connectivity and walkability index.

Table 11 Site and Proxy Accessibility Score

Building (Address)	Walk Score	Transit Score	Bike Score
1000 Dundas Street (Subject Site)	**70**	**54**	**65**
835 Roselawn Avenue	65	83	81
99 Marlee Avenue	72	83	86
65 Dynevor Road	74	77	59
620 Northcliffe Boulevard	70	80	68
665 Roselawn Avenue	71	73	82

The walk score for 1000 Dundas Street East is comparable to the walk score of the 5 rental buildings observed within the City of Toronto. Both the subject site and the sites within the City of Toronto are well served by local amenities within walking distance.

All sites within Toronto have higher transit scores (scored as "excellent"), as they are well served by bus routes along Eglinton West Avenue, Dufferin Street and Bathurst Street. Despite the subject site having slightly lower transit score, the proposed BRT along Dundas Street would improve the current transit score of the development, currently categorized as "good". The dedicated right-of-way for the BRT would provide faster and more reliable transit service and would allow residents to commute to work and complete errands in a more efficient manner. The proposed BRT along Dundas will have transit stops located within 200m of the site. Furter details on the proposed BRT are outlined in **Section 9.1.2**

The subject site has a comparable bike score to two of the developments within Toronto, with a bike score of 65, and categorized as “bikeable”. Currently, the development is in close proximity to the bike lane along Stanfield Road which provides a connection to the trail along The Queensway. The new configuration along Dundas Street to accommodate the BRT will also include the provision of a cycle track along Dundas Street. The provision of additional cycling infrastructure will improve the subject site’s bike score. The two developments within Toronto with the lower bike scores are similar to the subject site in Mississauga, with cycling infrastructure provided a short distance away. The three developments with higher bike scores in Toronto have cycling infrastructure (i.e. bike lane, signed route, multi-use trail) at their doorstep, which provide a connection to the bike lane along Yonge Street towards downtown Toronto, and are categorized as “very bikeable”. The proposed cycle track along Dundas Street is projected to have a similar impact on the subject site’s bike score

These scores detail that the proxy sites are comparable to the subject site and are expected to represent the expected parking demand for the site.

8.3.3 Effect of TDM Opportunities

The subject site details multiple measures to reduce overall site single-occupant vehicle trips in favour of more non-auto modes of travel and reduce vehicle dependency to create a sustainable transportation system. Further details on the effects and measures implemented for the site are outlined in **Section 9**.

8.4 Visitor Parking Reduction

GHD has parking demand (or utilization) surveys from previous projects for four buildings located within Durham Region during the expected peak period to establish the peak visitor parking demand. From our experience, the peak visitor period occurs on Saturday evenings. Therefore, to determine the maximum, we visited the locations every hour between 17:00 and 21:00 on two separate Saturdays to capture the peak visitor demand at each location and day. The data tabulated to document the peak visitor parking ratio per residential unit. An average ratio calculated.

It should be noted that during each survey, pedestrian traffic entering and leaving the site was also observed to confirm the estimated use of transit for the site being surveyed. It was noted that transit use was not observed to be a significant source of site traffic.

Given the available locations, the sizes were sufficiently large enough to obtain meaningful parking demand. Other criteria used to select the sites was the accessibility to the parking. That is the residential and visitor must be readily accessible and in these cases, this meant surface parking.

Of the reviewed sites, all had surface visitor parking, however only one had surface resident parking. The other sites had underground resident parking which were not accessible to the surveyor. The selected sites are provided in **Table 10**.

Table 12 Parking Survey locations

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

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

The survey results are summarized in **Table 11**. It is to be noted that the numbers provided in these tables are the maximum demand during the survey period for each condominium apartment location. Aggregated numbers based on the weighted average are also provided.

Table 13 Visitor Parking Ratio

Location	Number of visitor parking spaces	Number of units	Maximum observed demand ratio Feb 6, 2016	Maximum observed demand ratio Feb 13, 2016
1525, 1535 Diefenbaker Court and 1530, 1540 Pickering Parkway, City of Pickering	60	273	0.059	0.062
1600 Charles Street, Town of Whitby	35	140	0.079	0.086
340 Watson Street West, Town of Whitby	71	215	0.116	0.112
4 Randall Drive, Town of Ajax	35	143	0.126	0.119
Weighted average			**0.091**	**0.09**

Based on the parking survey (**Table 11**), the weighted average visitor parking demand ratios was 0.09 parking spaces per unit for the two surveyed days.

The proposed visitor parking supply of 0.10 spaces per unit exceeds the surveyed demand at these sites and is consistent with other developments being prosed along Dundas Street East in Mississauga.

8.5 Bicycle Parking

The City of Mississauga require the following rates for provided bicycle parking:

Table 14 Bicycle Parking Requirement

Land Use (Site Units)	City's Bicycle Parking Requirement	
	Bicycle Parking Rate per unit	Required Parking Supply
Apartments (462 units)	0.60 (Class A, Indoor) 0.05 (Min. 6, Class B, Outdoor)	277 (Indoor) 23 (Outdoor)
Retail (790m^2 GFA)	0.15/ 100m^2 (Class A, Indoor) 0.20/ 100m^2 (Class B, Outdoor)	2 (Indoor) 2 (Outdoor)
TOTAL		**279 (Indoor)** **25 (Outdoor)**

The proposed site plan provides a total bicycle parking supply of 304 parking spaces, 279 indoor spaces and 25 outdoor spaces satisfising the required bicycle parking requested by City staff.

8.6 Loading Spaces

Based on our review of the City's current parking By-law requirements, By-law 0225-2007 stipulates that one (1) loading space is required for residential buildings that have more than 30 units. Retail land use require one (1) loading space for retail GFA's greater than 250 m² but less than or equal to 2 350 m². Required loading spaces shall have an unobstructed rectangular area with a minimum width of 3.5 m and a minimum length of 9.0 m.

The proposed site therefore requires two loading space.

A total of two loading spaces are provided on the site plan which satisfies the City's Zoning By-Law. The two spaces also meet the required width of 3.5 metres and length of 9 metres.

9. 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 liveable community through improvements to overall active transportation standards for the local businesses and surrounding community.

9.1 Future TDM Opportunities

9.1.1 Cycling Strategy

The City's Parking Master Plan and Implementation Strategy recommended the addition of bicycle parking requirements in the City's Zoning Bylaw and these requirements for bicycle parking for new developments helps support the goal of the Cycling Master Plan. Based on the recommendation of the Bicycle Parking Zoning Bylaw Directions report (April 2021) prepared by HDR, 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 recommended for the subject site. An additional 0.1 long-term and 0.2 short term parking spaces are required for every 100 m2 of retail space. The proposed site would benefit from providing a total of 278 long-term and 24 short-term bicycle parking spaces for the residential development and 1 long-term and 24 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) requirement ensure that site user's have access to bike parking. 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 provided residents the necessary bicycle maintenance tools and supplies (i.e., bicycle pumps, lubricant, wrenches, screwdrivers, etc.).

The proposed development is located near many existing and proposed cycling routes within Mississauga. The cycling infrastructure along Dundas 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.

9.1.2 Transit Strategy

The proposed development will be within walking distance to the future Dundas BRT, which has an expected completion for 2030. The BRT will extend 48 kilometres from the from the Kipling Transit Hub at Kipling station on Line 2 Bloor–Danforth in Etobicoke, Toronto to Highway 6 in the neighbourhood of Waterdown in Hamilton. **Figure 15** details the expected cross section of the Dundas BRT near the subject site.

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.

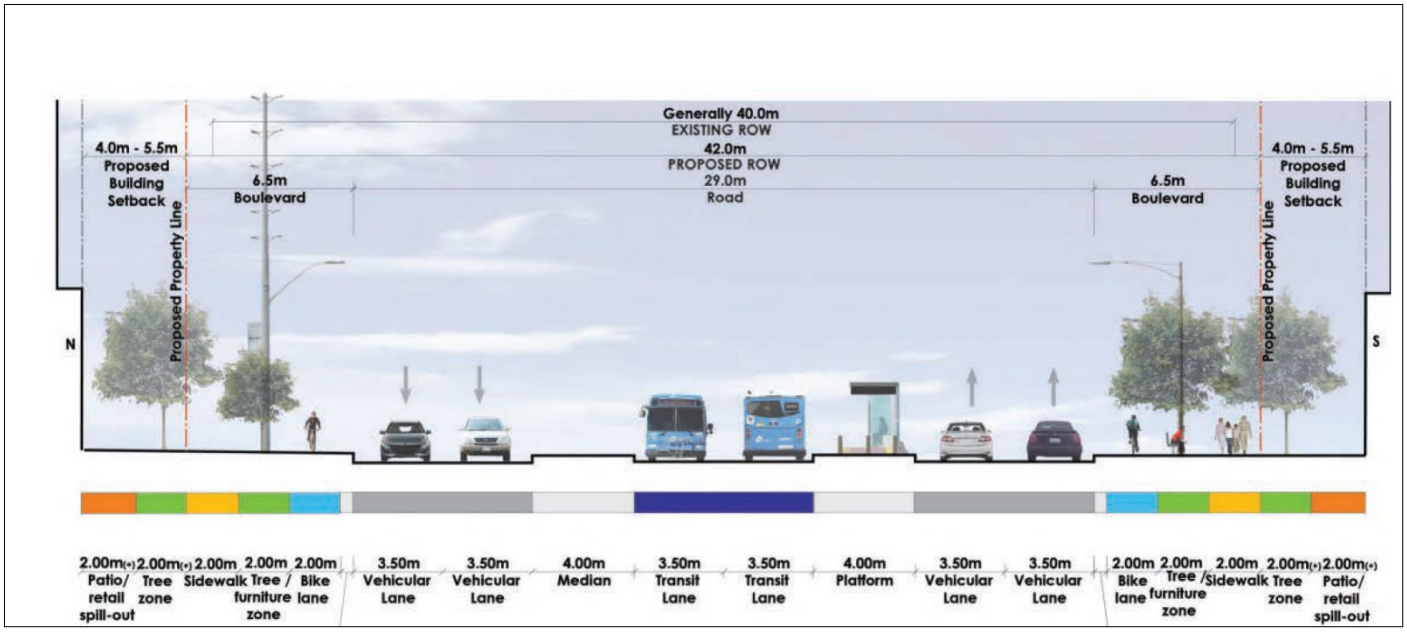


Figure 15 BRT Lane Configuration on Dundas Street East

9.1.3 Parking Strategy

Unbundled parking can be used to separate the rental of a unit from a parking space to provide residents with the true cost of renting a 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.

9.1.4 Carshare/Bikeshare Strategy

Carshare programs should be assessed to 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. Assigned carshare parking spaces would be provided in accessible location for users who wish using this service.

Bikeshare programs also provide a more sustainable mode of transportation to residents and the community by encouraging people to find an alternative to car-use for shorter trips.

9.1.5 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. Information on the future Dundas Street BRT line can also be handed out to new residents as an opportunity to promote the alternate mode of transportation near the site.

10. Vehicle Swept Path Analysis

GHD undertook a vehicle swept path analysis to assess the site plan's ability to accommodate the required turning movements of a loading vehicle, emergency vehicle and a waste collection truck. The underground parking was also analyzed at the ramps. The results of the analysis, which are provided in **Appendix F** illustrate that the site can sufficiently accommodate the aforementioned design vehicles with no issues.

11. Sightline Assessment

The subject site has a proposed driveway on Dundas Street East. An assessment of the available sightlines was undertaken in accordance with the Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads, 2017 edition. **Figure 16, 17,** and **Table 16.** details the findings of the assessment.

Figure 16 Case B1 and B2 Sight Distance

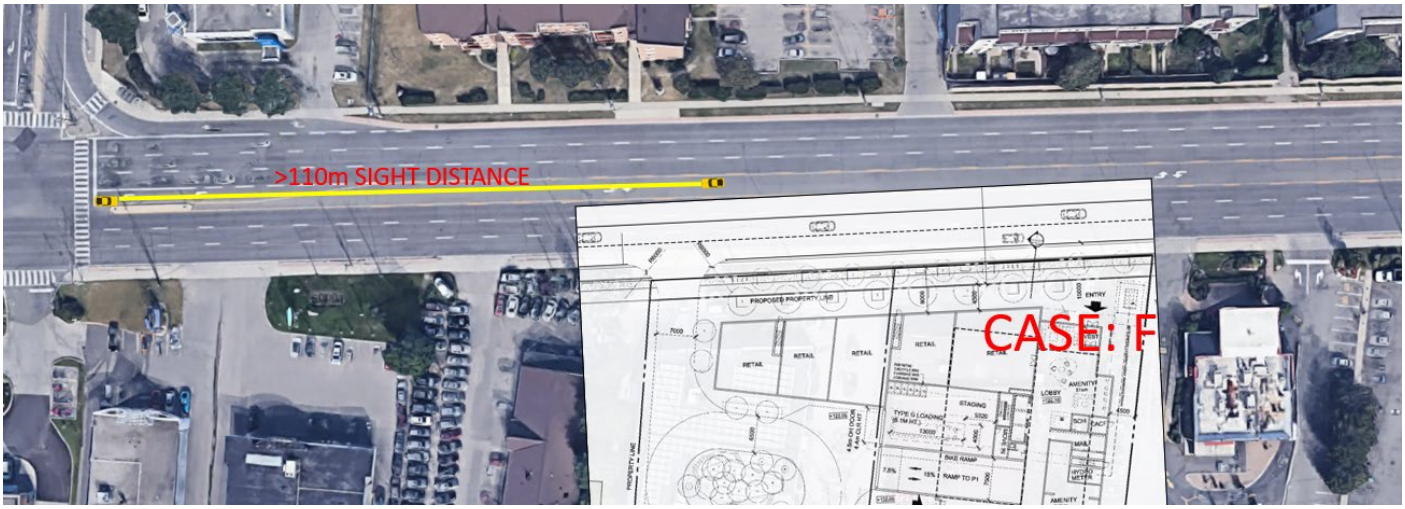


Figure 17 Case F Sight Distance

Table 15 Intersection Sight Distance Requirements for Site Entrance

Case (Design Speed of 50 km/h)	Required Intersection Sight Distance (TAC 2017)	Available Intersection Sight Distance	TAC Reference
B1: Vehicles turning left from stop	105 m	>110 m	Table 9.9.4
B2: Vehicles turning right from stop	95 m	>110 m	Table 9.9.6
F: Left turns from the major road	80 m	>110 m	Table 9.9.12

The proposed site driveway on Dundas Street East provides sufficient sightlines and sight distances to satisfy the requirements for cases B1, B2 and F from the 2017 TAC manual. Once the driveway is converted to a right-in/out, only case B2 must be provided and based on the proposed BRT median island, no changes are proposed to the driveway sightlines, as a result, the driveway is expected to continue providing sufficient intersection sight distances even after the BRT is constructed.

Appendices

Appendix A

Terms of Reference and Site Plan

Will Maria

From: Michael Turco <Michael.Turco@mississauga.ca>
Sent: Tuesday, November 16, 2021 8:12 AM
To: Will Maria
Cc: Trans Projects
Subject: RE: 1000 & 1024 Dundas Street East TOR

Hi Will,

Thank you for your e-mail. Based on our review of the Transportation Impact Study Terms of Reference for the proposed development at 1000 & 1024 Dundas Street East, dated November 8, 2021, please see our comments below in green:

Please be advised that, as the pre-application consultation meeting has not yet occurred for this site, all comments should be considered draft and preliminary and will be finalized after the meeting with the applicant/client.

Should you have any questions, please feel free to contact me.

Thank you,

Michael Turco, C.E.T., MITE
Traffic Planning Technologist
T 905-615-3200 ext. 3597
michael.turco@mississauga.ca

City of Mississauga | Transportation & Works Department
201 City Centre Drive, Suite 800 | Mississauga ON | L5B 2T4

From: Ryan Au <Ryan.Au@mississauga.ca>
Sent: Monday, November 8, 2021 3:39 PM
To: Michael Turco <Michael.Turco@mississauga.ca>
Subject: FW: 1000 & 1024 Dundas Street East TOR

From: Will Maria <William.Maria@ghd.com>
Sent: Monday, November 8, 2021 1:39 PM
To: Ryan Au <Ryan.Au@mississauga.ca>
Subject: 1000 & 1024 Dundas Street East TOR

GHD has been retained to complete a traffic impact study for the proposed mixed-use development located at 1000 & 1024 Dundas Street East in Mississauga.
In order to properly scope this project we ask that the City provide comments on the following scope and confirm if there are any additional items required to be included in the study.
The proposed development (attached) consists of one 16 storey and one 20 storey mixed use building with 8,500 sq.ft. of commercial GFA.

Based on the attached concept plan, one new driveway is proposed onto Dundas Street East to the drop-off loop, loading and garage ramp.

A traffic assessment (horizon years) at build-out assumed 2024, plus five years post build-out will be undertaken (2029). Only one horizon year is required and it shall be 5 years from the date of the report

The following will be addressed in the study:

- Establish existing and future operating conditions for the study intersections including anticipated corridor growth and future development.
- Review the expected trip generation and distribution of the subject site and determine the future impacts of the proposed development at the study intersections.
- Review the site plan in the context of operational/geometric issues. Provide recommendations on how to address any deficiencies (if any are revealed).
- We may need to provide justification for the proposed parking supply for the site based on a review of existing bylaw requirements within other municipalities, other parking studies and our own data.

Terms of Reference

The following study intersections have been selected:

- Dundas Street East and Tomken Road
- Dundas Street East and Stanfield Road
- Dundas Street East and the site access

GHD has reached out and is waiting for City staff (Tyler) to confirm if traffic data is available for the study. Please confirm if updated traffic data will be required to be undertaken since any data older than two years old will be outdated. Due to the ongoing COVID-19 pandemic we are not accepting new traffic counts. In order to grow traffic volumes to existing 2021 levels, please obtain historical traffic data counts and utilize regression analysis to determine appropriate growth rates. The report must thoroughly justify all proposed growth rates and the methodology utilized to calculate them. Furthermore, all background work to calculate the growth rates must be appended to the report in a format that is easily verifiable to the reviewer.

Signal timings will be purchased or obtained in the field. Signal timing plans for signalized intersections can be obtained from Jim Kartsomanis (Jim.Kartsomanis@mississauga.ca, Ext. 3964).

Future background traffic within the selected planning horizon generated by other developments will be included based upon any available Traffic Impact Studies and/or additional information supplied by City staff or the study team (please identify). Please use the following link to gather information of any development proposed in the neighbouring lands for background traffic: http://www.mississauga.ca/portal/residents/developmentinformation
GHD tried to access the City's development application webpage to collect his information but was asked to sign in to the ARC GIS Online. Do we need a login to access this information.
Please advise or let us know if there are other developments that we need to include and provide traffic data for proposed site trips. The website was down but should work now. Please let me know if you continue to have issues.

Traffic due to general background growth (non-specific development traffic) will be estimated based upon input from staff and a review of historic trends. This future 'non-site traffic' (from nearby future developments and background growth) will be combined with subject site traffic to determine total future traffic conditions. GHD will reach out to City staff (Tyler) for an appropriate growth rate along Dundas Street East including the future BRT line. Please contact Tyler Xuereb from Transportation Planning Section (tyler.xuereb@mississauga.ca, Ext. 4783) for growth rates, historical AADT data, and Turning Movement Counts

Any potential/committed future road / intersection / other transportation infrastructure improvements within the study area that could affect local traffic distribution or assignments will be accounting for. Please confirm if there are any. Please be advised that Dundas Street is a major east-west arterial road in Mississauga and is identified in the City's

Official Plan as an intensification corridor. The City of Mississauga has completed a master plan study of Dundas Street through the Dundas Connects project. This study explores ways to incorporate higher order transit on Dundas Street and investigate opportunities for associated transit-orientated development. Please also be advised to review project details as there will may be impacts to this site, such as future right-of-way widening and restricted access. Project details can be found at: https://www.mississauga.ca/projects-and-strategies/city-projects/dundas-connects/

Trip generation estimates will be prepared for the weekday am and pm peak hours for the subject site. ITE trip generation data will be reviewed and the appropriate rates used in the analysis. Please utilize the latest edition (11th) of the ITE Trip Generation Manual

Transit mode split and non-auto trip rates methodologies will be clearly documented in the report as per 2016 TTS data.

The directional distribution of traffic approaching and departing the site (via the driveways) will be determined based upon a review of existing (pre-pandemic) traffic patterns, the Toronto Tomorrow Survey 2016 (TTS), and will be confirmed with City staff. The site traffic will be assigned to the study area roadway network in accordance with our interpretation of these various patterns.

Review the proposed site plan with respect to the acceptability of the following:

- Site accesses including existing accesses adjacent to the site. Ensure that the site access conforms to all TAC standards (e.g. corner clearances, clear throat lengths, veh & ped sight line distances for ingress/egress, proximity/alignment to other driveways/roads, etc.);
- A review of on-site loading, fire truck and waste removal activities, using AutoTurn pathway analysis. Ensure that truck traffic (garbage/loading/fire) can enter and exit the site in a forward motion and access to the garbage, loading, and fire route areas are functional. On separate plans, illustrate truck turning movements with one continuous path with AutoTURN and insert the design vehicles on the plan. The site must be able to accommodate the largest design vehicles which will be accessing the property;
- Pedestrian access points and walking routes / distances, including routes for persons with disabilities;
- Locations and walking distances of nearby transit stops; and
- Document our review of internal and underground circulation, and truck loading using AutoTURN software

A parking appraisal will be completed for the development which will include:

- Reviewing the current parking By-Law requirement as well as the proposed City parking by-law requirements for comparison to the proposed parking supply;
- We will review existing data applicable to the study area for determining expected mode splits and possible synergy between residential and retail visitors;
- An estimate of the parking demand generated by each component of the proposed development options will be undertaken using the ITE Parking Generation Manual for comparison to the parking supply; and
- An opinion will be provided for reduced parking ratios applicable for proposing site specific minor variances to the existing parking requirements.

Please be advised that this Section does not review Parking Studies. Please contact the Planning Section (ParkingStudy.Review@mississauga.ca) to confirm a terms of reference for the Parking Study

The study will also include a TDM plan to support the subject development. A comprehensive Transportation Demand Management Plan (TDM) is to be part of the report. Provide a TDM Plan to demonstrate measures to be implemented to reduce single occupancy vehicle (SOV) trips to/from the site. The TDM Plan component of the study should include active transportation measures including cycling

The report is to include a section for Community Impacts. Any traffic related impacts on the existing community and comments from the public through the planning approvals process shall be addressed in this section

Include detailed Recommendations regarding on-site/off-site roadway improvements, site access, site circulation, and TDM

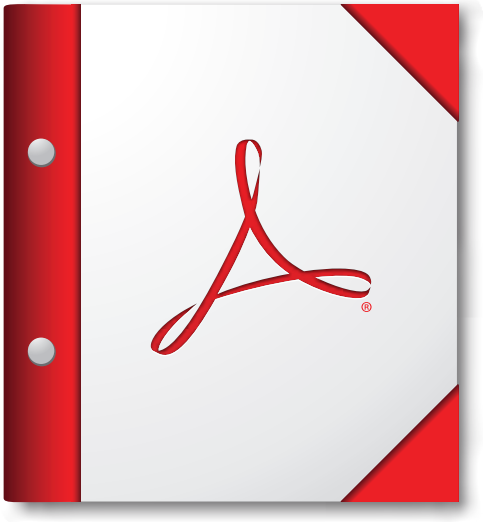
If the above scope is acceptable to the City and the Region then it will form the basis of our scope of work.

Thanks,
Will

William C. Maria, P.Eng.
Transportation Planning Lead

GHD Ltd.
T: 905 814 4397 | C: 647 229 8541 | V: 881397 | F: 905 890 8499 | E: will.maria@ghd.com
6705 Millcreek Drive Unit 1 Mississauga ON L5N 5M4 | **www.ghd.com**

WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION



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Get Adobe Reader Now!

R6000
R6000
A410
PROPOSED PROPERTY LINE
8000
4500
15000
ENTRY
TRANSFORMER
7000
RETAIL
RETAIL
RETAIL
RETAIL
RETAIL
FOR RETAIL:
2 RECYCLE BINS
2 GARBAGE BINS
2 ORGANIC BINS
R R G G O O
VEST
CANOPY ABOVE
HYDRO DUCKBANK RWAH UNDER PT CEILING SLAB
AMENITY
51sm
LOBBY
+122.10
+122.05
4.5m OH DOOR
4.4m CLR HT
TYPE G LOADING
(6.1M HT.)
13000
STAGING
5320
4000
MOVE IN
BOH
CACF
4500
6500
PROPERTY LINE
BIKE RAMP
7.5%
15%
RAMP TO P1
7500
MAIL
HYDRO METER
AMENITY
113sm
EXISTING 1 STOREY BUILDING
DROP OFF
+122.05
VEST
1B+D
81sm
872sf
1B+D
63sm
678sf
6500
ENTRY
CANOPY ABOVE
5400
4.5m OH DOOR
4.4m CLR HT
OUTDOOR AMENITY
+122.05
VEST
AMENITY
45sm
CACF
MAIL
BOH
LOBBY
+122.10
4500
TYPE B SPACE
3.5m(W)x10m(L)x4.0m(H)
2B+D
97sm
1,044sf
2B
68sm
731sf
2B
76sm
818sf
2B
76sm
818sf
3B
130sm
1,399sf
PATIO
1B
63sm
678sf
MOVE-IN
2B
72sm
775sf
1B
53sm
570sf
2B+D
87sm
936sf
2B+D
80sm
861sf
2B
72sm
775sf
2B
68sm
731sf
1B+D
67sm
721sf
1B+D
65sm
699sf
1B+D
65sm
699sf
1B+D
65sm
699sf
1B
54sm
581sf
3B
81sm
871sf
4500
PATIO
7500
PROPERTY LINE
EXISTING 1 STOREY BUILDING
A410

Key Plan

Item	Description	Date
–	ISSUED FOR PROGRESS SET	2022
	ISSUED FOR CONSULTANT COORDINATION	MAY03/2022
	ISSUED FOR OPA/ZBA – DRAFT	MAY/24/22

ISSUES/REVISIONS

WZMH ARCHITECTS
95 St. Clair Av W
Suite 1100
Toronto, Ontario
Canada M4V 1N6
T 416.961.6111
F 416.961.3176

1000–1024 DUNDAS ST EAST
MISSISSAUGA, ONTARIO

Sheet Title:
GROUND FLOOR

Scale: 1:150
Project Number: 07395.000
Drawing Number: A–201

Appendix B

Traffic Counts, Calculations and Signal Timings

Turning Movement Count - Details Report

Location..... CONSTITUTION BLVD @ DUNDAS ST E / STANFIELD RD

Municipality..... Mississauga

Road 1 CONSTITUTION BLVD **Road 2** DUNDAS ST E / STANFIELD RD

Count Date..... Tuesday, December 04, 2007

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT
07:00	07:15	11	8	5	1	24	21	3	17	1	41	18	88	6	2	112	3	302	18	10	323
07:15	07:30	9	15	9	0	33	16	15	29	13	60	12	96	5	9	113	4	389	20	12	413
07:30	07:45	9	20	5	0	34	20	9	25	13	54	27	178	4	16	209	3	501	37	14	541
07:45	08:00	18	22	5	0	45	25	14	17	4	56	35	152	10	10	197	3	462	45	14	510
08:00	08:15	22	10	10	2	42	24	20	32	5	76	52	180	15	14	247	6	425	54	17	485
08:15	08:30	16	20	8	1	44	19	18	34	9	71	36	164	7	10	207	4	441	46	17	491
08:30	08:45	11	13	8	1	32	21	15	12	5	48	49	190	10	16	249	6	415	43	18	464
08:45	09:00	10	7	4	0	21	34	12	12	3	58	36	191	8	12	235	6	396	33	14	435
11:00	11:15	13	14	11	0	38	30	15	27	8	72	22	193	10	17	225	4	274	25	14	303
11:15	11:30	10	9	4	2	23	30	10	38	9	78	22	210	9	17	241	4	284	23	13	311
11:30	11:45	7	8	3	1	18	20	20	36	7	76	21	297	7	20	325	10	262	15	10	287
11:45	12:00	8	4	6	0	18	25	16	25	6	66	26	296	11	25	333	5	339	35	19	379
12:00	12:15	6	11	9	1	26	38	17	41	9	96	26	273	6	19	305	18	306	33	10	357
12:15	12:30	14	18	12	0	44	30	18	37	8	85	30	251	7	14	288	12	277	29	15	318
12:30	12:45	12	13	11	1	36	26	13	23	5	62	46	294	15	13	355	16	264	27	20	307
12:45	13:00	12	6	11	0	29	21	18	25	1	64	37	328	2	14	367	9	275	35	8	319
13:00	13:15	12	17	6	0	35	29	22	29	5	80	47	361	10	38	418	15	270	17	9	302
13:15	13:30	15	33	9	0	57	30	16	32	5	78	60	323	14	22	397	20	283	38	14	341
13:30	13:45	15	13	8	1	36	22	18	29	13	69	46	339	29	27	414	8	297	33	12	338
13:45	14:00	7	14	10	0	31	37	21	34	4	92	20	219	22	9	261	6	245	22	15	273
15:00	15:15	10	14	5	0	29	26	34	33	7	93	71	293	23	15	387	10	247	32	7	289
15:15	15:30	13	13	10	1	36	43	59	27	15	129	42	344	15	23	401	7	268	26	21	301
15:30	15:45	6	16	13	1	35	44	46	37	4	127	40	420	24	19	484	9	260	30	10	299
15:45	16:00	11	18	4	0	33	30	41	35	10	106	23	434	18	21	475	4	255	45	13	304
16:00	16:15	11	9	10	0	30	27	49	31	6	107	34	453	30	15	517	15	252	23	14	290
16:15	16:30	11	19	8	3	38	44	22	21	7	87	48	451	13	11	512	14	228	31	11	273
16:30	16:45	13	16	4	0	33	61	61	56	3	178	41	529	26	14	596	10	249	23	15	282
16:45	17:00	7	27	2	0	36	55	67	45	4	167	52	505	22	12	579	7	299	36	13	342
17:00	17:15	11	16	10	0	37	44	45	34	4	123	88	562	35	12	685	14	262	32	6	308
17:15	17:30	11	17	9	0	37	31	27	38	8	96	55	518	38	13	611	12	278	34	9	324
17:30	17:45	7	11	6	1	24	49	28	27	6	104	46	596	29	20	671	9	242	31	9	282
17:45	18:00	12	9	9	1	30	37	29	26	4	92	32	576	11	17	619	10	277	19	13	306
Total	.....	360	460	244	18	1064	1009	818	964	211	2791	1240	10304	491	516	12035	283	9824	990	416	11097

Turning Movement Count - Details Report

Location..... CONSTITUTION BLVD @ DUNDAS ST E / STANFIELD RD

Municipality..... Mississauga

Road 1 CONSTITUTION BLVD **Road 2** DUNDAS ST E / STANFIELD RD

Count Date..... Thursday, February 13, 2014

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT
07:00	07:15	11	11	3	2	25	20	9	26	13	55	20	97	7	15	124	4	383	21	13	408
07:15	07:30	26	12	4	1	42	24	4	13	8	41	23	105	2	12	130	5	419	40	21	464
07:30	07:45	15	15	4	4	34	24	7	14	10	45	22	157	5	20	184	2	405	46	14	453
07:45	08:00	23	10	10	3	43	16	17	30	8	63	41	144	6	18	191	4	451	38	26	493
08:00	08:15	10	15	7	2	32	24	12	15	6	51	34	153	9	17	196	5	331	51	22	387
08:15	08:30	10	7	4	1	21	19	9	18	1	46	30	155	10	11	195	4	348	49	18	401
08:30	08:45	13	8	7	0	28	25	13	25	4	63	34	164	14	24	212	6	380	50	21	436
08:45	09:00	10	11	9	6	30	30	16	27	9	73	41	173	15	28	229	14	370	53	25	437
11:00	11:15	7	7	6	0	20	19	9	14	7	42	5	239	3	17	247	2	248	14	14	264
11:15	11:30	12	11	2	0	25	18	18	28	9	64	25	250	9	22	284	9	278	25	18	312
11:30	11:45	12	8	5	1	25	40	17	40	8	97	21	259	15	29	295	10	258	21	17	289
11:45	12:00	11	8	3	1	22	40	17	30	9	87	20	246	6	24	272	13	299	30	23	342
12:00	12:15	14	4	6	1	24	44	17	36	8	97	21	256	7	13	284	11	257	28	15	296
12:15	12:30	9	11	4	1	24	25	10	31	4	66	32	276	9	23	317	10	281	31	16	322
12:30	12:45	9	9	7	0	25	40	17	21	6	78	33	242	14	20	289	18	249	20	17	287
12:45	13:00	13	12	2	0	27	40	11	19	10	70	38	260	11	16	309	8	252	25	11	285
13:00	13:15	14	8	7	0	29	29	12	19	9	60	42	271	10	35	323	13	237	34	22	284
13:15	13:30	16	17	3	2	36	20	11	25	11	56	30	273	8	30	311	8	246	19	24	273
13:30	13:45	7	9	4	0	20	17	9	21	7	47	32	262	8	23	302	10	232	22	21	264
13:45	14:00	8	7	3	1	18	28	11	21	6	60	33	270	8	29	311	7	239	28	23	274
15:00	15:15	8	11	4	0	23	33	16	21	1	70	22	329	14	16	365	4	221	27	10	252
15:15	15:30	5	15	9	3	29	56	22	23	11	101	25	347	20	15	392	8	233	27	16	268
15:30	15:45	29	12	4	1	45	66	37	43	6	146	40	355	15	25	410	20	313	14	24	347
15:45	16:00	17	10	4	4	31	46	35	23	8	104	29	330	15	26	374	11	314	35	20	360
16:00	16:15	30	13	5	0	48	43	22	54	10	119	39	467	19	21	525	10	321	12	29	343
16:15	16:30	23	24	1	1	48	57	31	37	6	125	35	372	24	16	431	14	285	30	20	329
16:30	16:45	14	20	3	0	37	51	34	24	6	109	34	419	12	23	465	10	252	26	18	288
16:45	17:00	17	15	4	1	36	43	33	28	4	104	27	443	19	24	489	17	285	18	16	320
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17:15	17:30	16	15	2	0	33	57	28	30	18	115	23	418	15	16	456	9	284	38	17	331
17:30	17:45	17	8	5	1	30	39	18	32	5	89	21	425	19	17	465	9	273	27	10	309
17:45	18:00	11	12	3	2	26	39	13	26	6	78	27	422	14	20	463	8	269	29	22	306
Total	.....	455	377	145	41	977	1133	565	843	236	2541	928	9031	371	660	10330	291	9548	955	601	10794

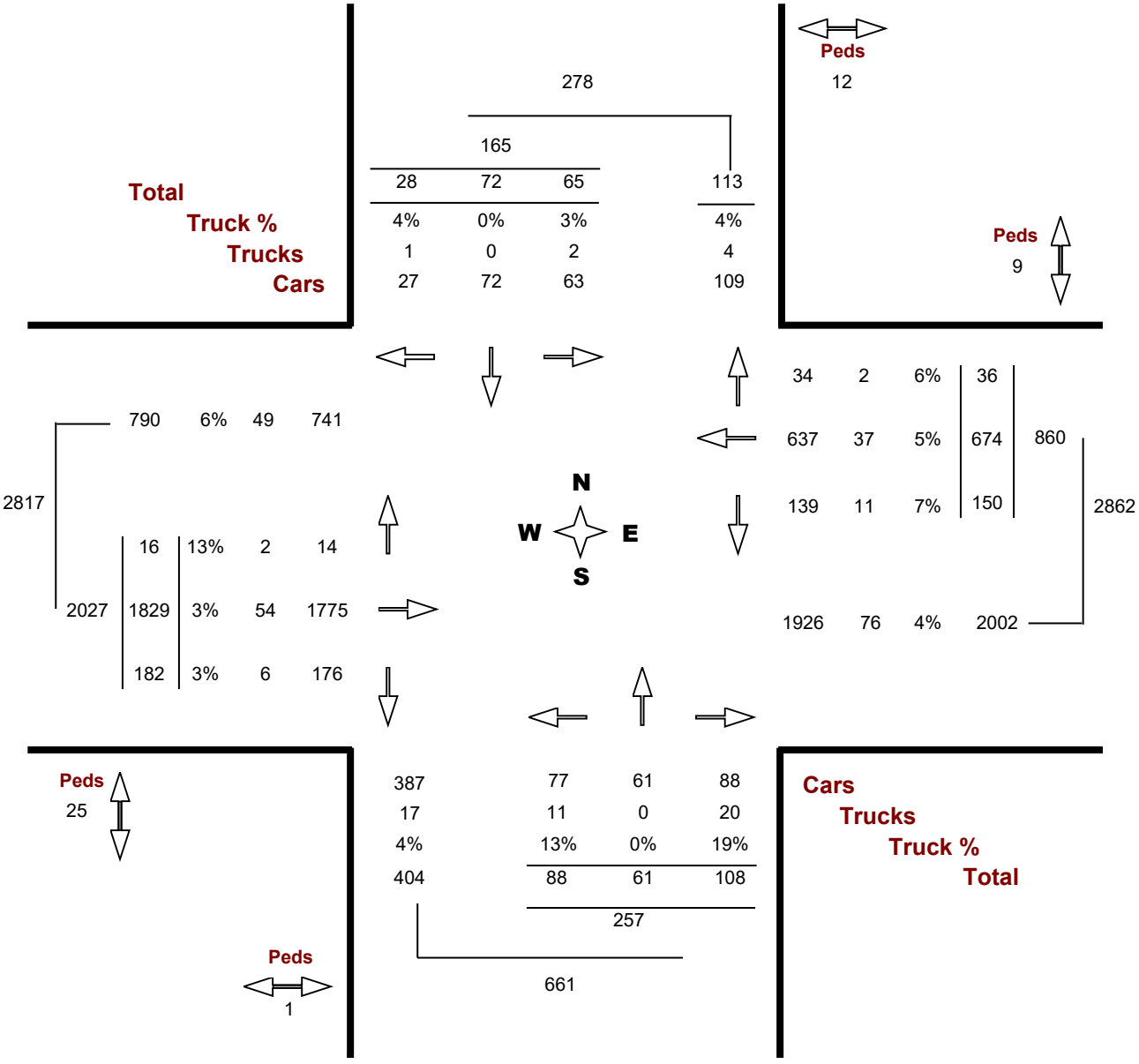
Turning Movements Report - AM Period

Location..... CONSTITUTION BLVD @ DUNDAS ST E / STANFIELD RD

Municipality..... Mississauga **GeoID.....** 350932

Count Date..... Tuesday, 04 December, 200 **Peak Hour.....** 07:30 AM — 08:30 AM

Road 1 CONSTITUTION BLVD **Road 2** DUNDAS ST E / STANFIELD RD



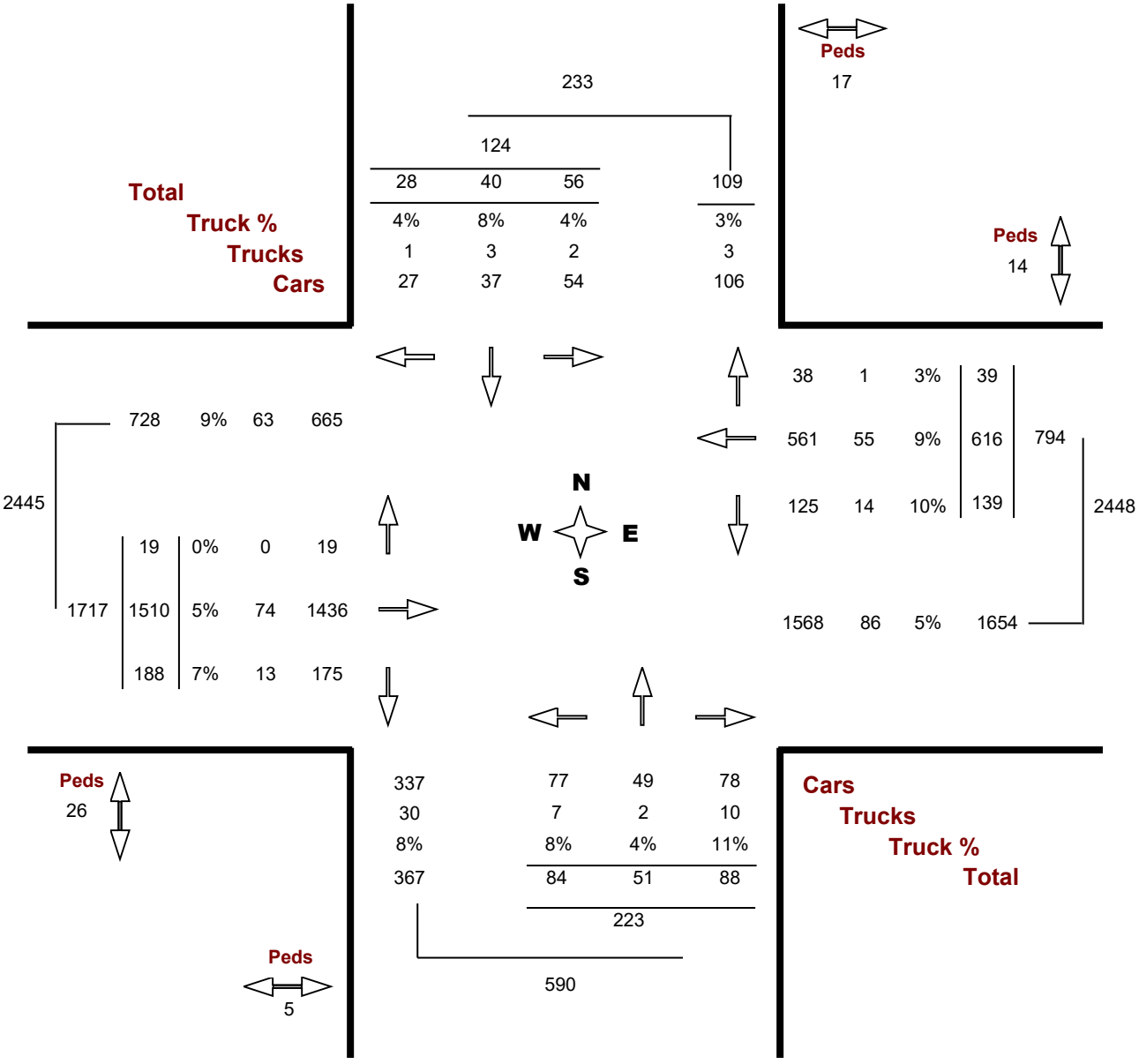
Turning Movements Report - AM Period

Location..... CONSTITUTION BLVD @ DUNDAS ST E / STANFIELD RD

Municipality..... Mississauga **GeoID.....** 350932

Count Date..... Thursday, 13 February, 2014 **Peak Hour.....** 07:45 AM — 08:45 AM

Road 1 CONSTITUTION BLVD **Road 2** DUNDAS ST E / STANFIELD RD



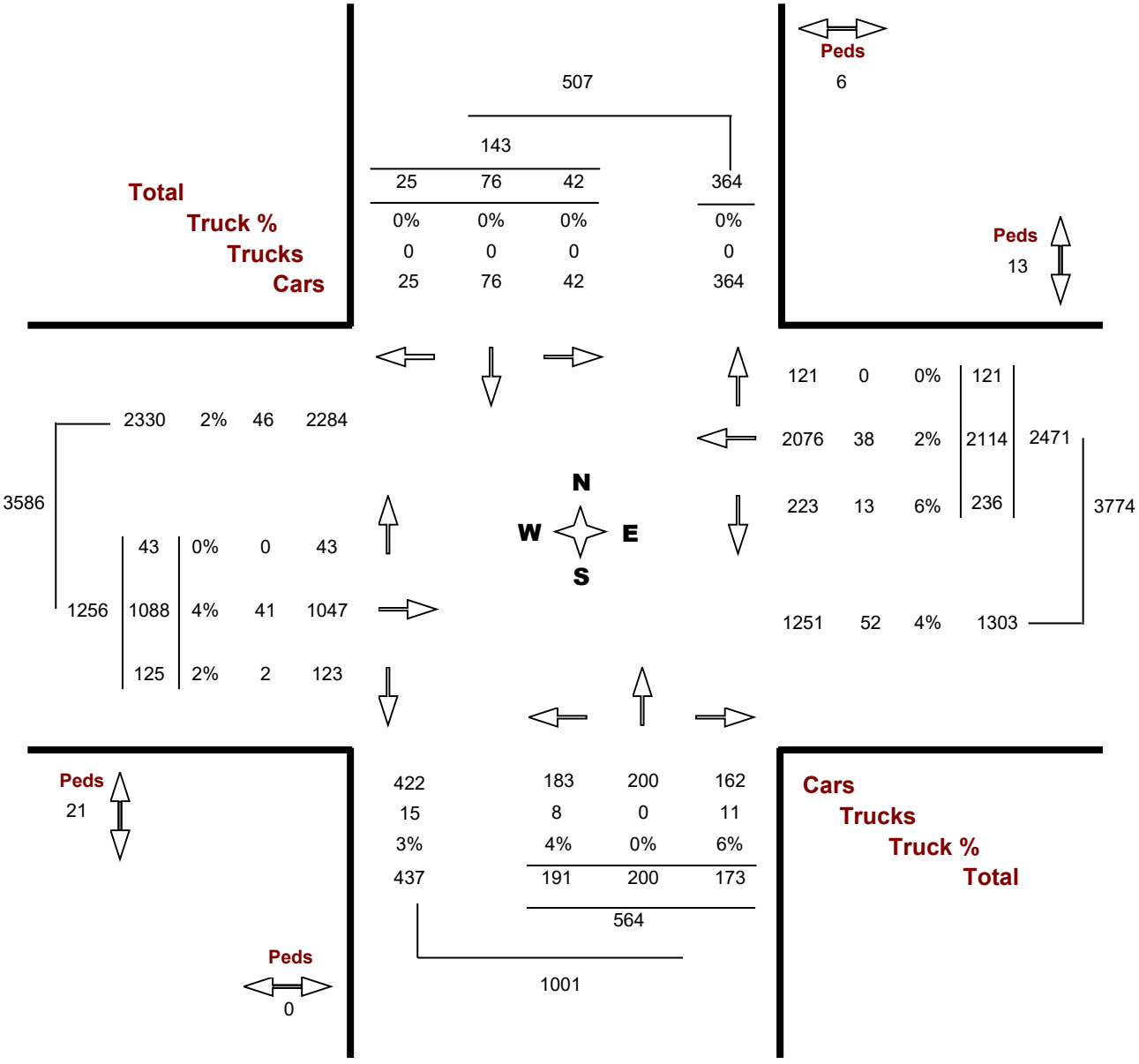
Turning Movements Report - PM Period

Location..... CONSTITUTION BLVD @ DUNDAS ST E / STANFIELD RD

Municipality..... Mississauga **GeoID.....** 350932

Count Date..... Tuesday, 04 December, 200 **Peak Hour.....** 04:30 PM — 05:30 PM

Road 1 CONSTITUTION BLVD **Road 2** DUNDAS ST E / STANFIELD RD



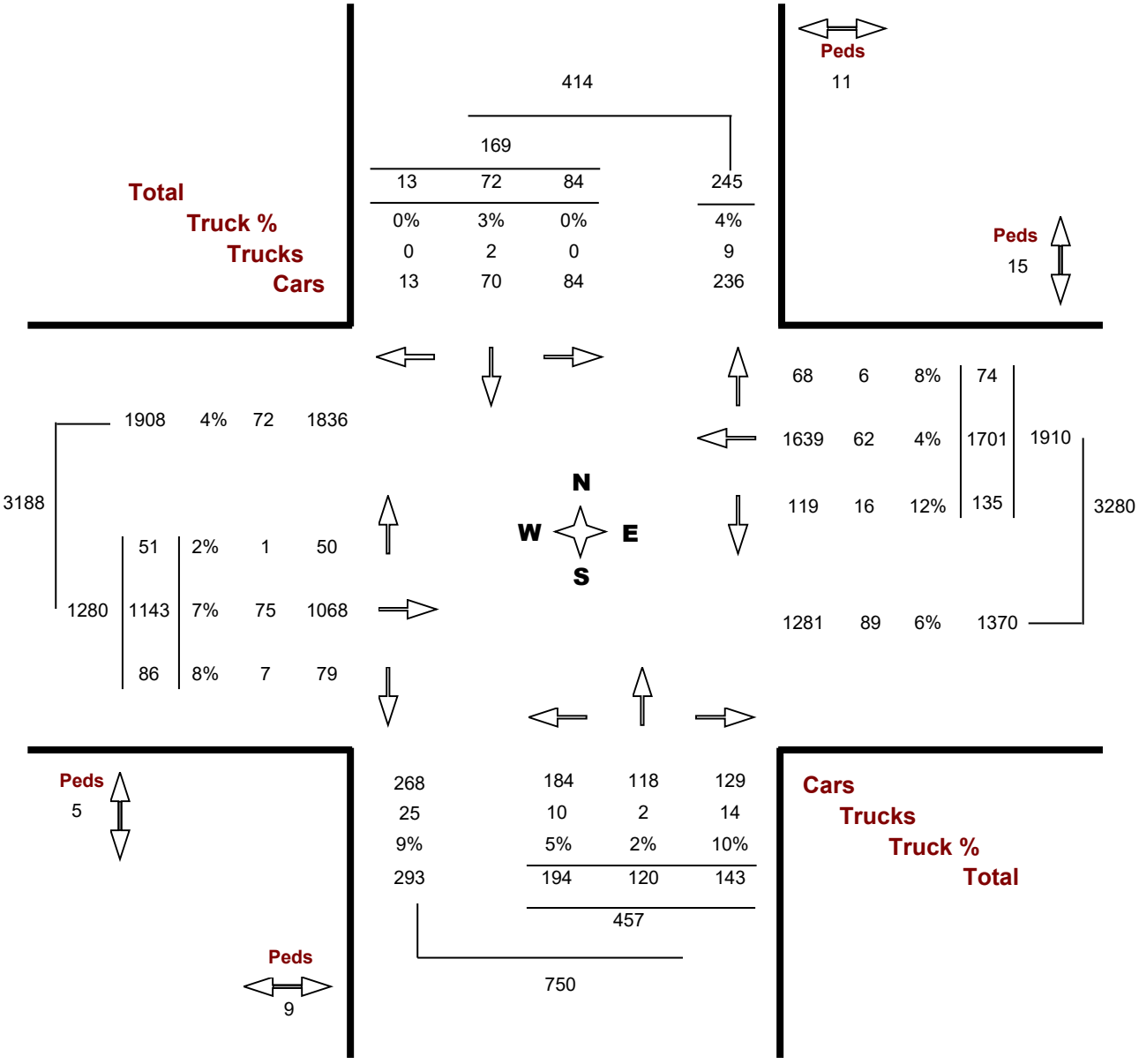
Turning Movements Report - PM Period

Location..... CONSTITUTION BLVD @ DUNDAS ST E / STANFIELD RD

Municipality..... Mississauga **GeoID.....** 350932

Count Date..... Thursday, 13 February, 2014 **Peak Hour.....** 04:00 PM — 05:00 PM

Road 1 CONSTITUTION BLVD **Road 2** DUNDAS ST E / STANFIELD RD



Turning Movement Count - Details Report

Location..... DUNDAS ST E @ TOMKEN RD

Municipality..... Mississauga

Road 1 TOMKEN RD **Road 2** DUNDAS ST E

Count Date..... Tuesday, June 24, 2008

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT
07:00	07:15	47	4	23	3	74	0	0	0	0	0	1	112	31	16	144	29	394	2	17	425
07:15	07:30	52	2	15	2	69	0	0	0	0	0	2	139	29	14	170	57	407	6	18	470
07:30	07:45	71	3	33	4	107	1	1	1	0	3	0	145	32	14	177	65	465	2	16	532
07:45	08:00	63	9	14	4	86	0	0	3	0	3	0	165	35	12	200	51	486	2	18	539
08:00	08:15	58	7	24	1	89	3	7	6	0	16	2	181	34	25	217	59	415	9	26	483
08:15	08:30	65	6	37	10	108	1	1	2	0	4	0	201	26	21	227	95	453	6	17	554
08:30	08:45	62	1	21	4	84	3	4	8	0	15	2	153	29	16	184	47	393	4	25	444
08:45	09:00	65	7	25	4	97	3	1	2	0	6	4	166	29	21	199	55	397	5	26	457
11:00	11:15	55	8	29	1	92	1	3	3	0	7	8	188	29	16	225	45	235	8	19	288
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11:30	11:45	99	6	47	5	152	10	3	9	4	22	14	270	39	17	323	64	320	8	28	392
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12:00	12:15	95	3	43	5	141	6	3	7	0	16	10	336	40	21	386	55	352	8	30	415
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12:30	12:45	71	5	16	2	92	15	12	6	1	33	9	245	27	16	281	61	309	11	16	381
12:45	13:00	82	5	27	7	114	7	4	7	0	18	5	237	24	13	266	59	299	7	15	365
13:00	13:15	65	7	21	2	93	6	1	8	0	15	12	322	40	23	374	48	334	6	21	388
13:15	13:30	59	4	18	1	81	6	3	9	0	18	11	227	25	15	263	44	231	6	19	281
13:30	13:45	57	4	16	4	77	8	8	5	1	21	5	232	33	21	270	46	260	9	28	315
13:45	14:00	65	8	23	2	96	7	8	9	0	24	5	262	38	16	305	47	287	8	24	342
15:00	15:15	112	12	52	6	176	6	8	4	2	18	44	385	14	7	443	114	261	5	20	380
15:15	15:30	105	13	84	14	202	7	5	5	0	17	43	466	15	19	524	107	317	4	23	428
15:30	15:45	111	6	63	3	180	10	4	7	2	21	11	496	14	18	521	130	338	12	30	480
15:45	16:00	105	5	74	6	184	10	5	7	0	22	12	528	66	10	606	130	353	9	11	492
16:00	16:15	84	8	54	8	146	8	6	9	1	23	26	479	6	23	511	115	304	4	20	423
16:15	16:30	117	4	75	5	196	4	1	8	0	13	13	453	4	20	470	79	215	6	10	300
16:30	16:45	95	12	64	5	171	5	6	8	0	19	23	537	17	24	577	87	227	3	9	317
16:45	17:00	79	12	86	9	177	3	5	1	1	9	26	463	8	20	497	51	194	5	12	250
17:00	17:15	101	2	62	8	165	5	5	5	0	15	15	484	20	12	519	83	222	6	17	311
17:15	17:30	103	12	85	4	200	10	7	12	3	29	22	539	28	18	589	48	226	10	24	284
17:30	17:45	88	9	68	4	165	8	5	7	0	20	17	468	18	14	503	61	190	7	12	258
17:45	18:00	91	9	75	3	175	13	8	14	1	35	1	494	18	22	513	63	212	11	14	286
Total	.....	2506	206	1368	145	4080	189	135	192	17	516	367	10152	867	554	11386	2142	9973	212	625	12327

Turning Movement Count - Details Report

Location..... DUNDAS ST E @ TOMKEN RD

Municipality..... Mississauga

Road 1 TOMKEN RD **Road 2** DUNDAS ST E

Count Date..... Thursday, February 06, 2014

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT
07:00	07:15	63	2	44	3	109	0	0	0	0	0	2	88	27	5	117	38	238	2	12	278
07:15	07:30	67	1	36	5	104	0	0	0	0	0	5	99	39	7	143	39	302	1	15	342
07:30	07:45	80	2	69	6	151	0	0	1	0	1	0	115	70	14	185	65	354	1	10	420
07:45	08:00	88	2	49	7	139	0	0	1	1	1	1	109	44	11	154	55	389	0	13	444
08:00	08:15	78	2	63	8	143	0	2	2	0	4	0	123	50	9	173	80	403	0	14	483
08:15	08:30	86	4	73	2	163	3	1	2	0	6	0	139	55	12	194	75	378	2	13	455
08:30	08:45	69	0	64	5	133	0	1	9	0	10	4	172	49	15	225	47	414	3	23	464
08:45	09:00	86	4	56	8	146	0	0	3	0	3	2	188	49	21	239	67	397	2	19	466
11:00	11:15	45	4	28	0	77	6	7	12	1	25	5	189	26	19	220	24	232	5	6	261
11:15	11:30	50	0	55	7	105	4	3	11	0	18	5	198	44	18	247	42	264	8	16	314
11:30	11:45	62	2	40	5	104	1	3	6	0	10	10	253	37	13	300	50	219	4	13	273
11:45	12:00	71	4	41	7	116	2	2	4	0	8	8	253	42	12	303	53	228	4	16	285
12:00	12:15	82	5	73	3	160	4	3	7	0	14	5	258	60	9	323	47	271	4	16	322
12:15	12:30	52	7	55	2	114	0	3	8	0	11	7	251	59	20	317	50	317	3	21	370
12:30	12:45	95	3	78	2	176	6	5	7	0	18	7	311	62	16	380	44	300	4	16	348
12:45	13:00	85	7	46	8	138	2	1	4	0	7	4	257	50	9	311	35	289	5	22	329
13:00	13:15	51	2	57	0	110	11	4	10	0	25	7	282	49	21	338	39	252	11	19	302
13:15	13:30	68	3	56	2	127	5	2	8	0	15	0	283	54	17	337	45	262	11	18	318
13:30	13:45	73	4	55	4	132	10	2	7	0	19	3	267	57	13	327	43	278	4	16	325
13:45	14:00	75	3	54	9	132	8	4	9	0	21	5	298	46	19	349	38	271	5	17	314
15:00	15:15	80	7	65	6	152	10	4	17	2	31	8	309	72	21	389	51	300	6	24	357
15:15	15:30	90	2	60	5	152	11	6	9	0	26	8	293	72	14	373	56	254	11	15	321
15:30	15:45	76	5	48	8	129	14	6	12	0	32	6	315	57	15	378	55	258	13	19	326
15:45	16:00	71	2	65	5	138	3	1	4	0	8	7	335	62	20	404	67	243	6	18	316
16:00	16:15	86	3	65	5	154	11	7	12	0	30	11	356	77	15	444	65	259	9	19	333
16:15	16:30	66	3	49	5	118	9	6	17	3	32	8	337	67	17	412	68	246	7	4	321
16:30	16:45	81	4	65	4	150	6	2	10	1	18	4	402	96	18	502	79	285	10	19	374
16:45	17:00	81	3	59	7	143	6	3	10	0	19	11	369	94	16	474	77	261	7	14	345
17:00	17:15	74	6	70	5	150	14	8	18	2	40	8	414	89	13	511	64	271	20	10	355
17:15	17:30	78	9	72	7	159	11	4	16	3	31	9	393	98	15	500	62	251	8	6	321
17:30	17:45	73	2	64	6	139	0	0	0	0	0	10	412	81	18	503	63	240	18	9	321
17:45	18:00	59	4	50	5	113	3	1	8	0	12	6	384	68	14	458	57	231	4	10	292
Total	.....	2341	111	1824	161	4276	160	91	244	13	495	176	8452	1902	476	10530	1740	9157	198	482	11095

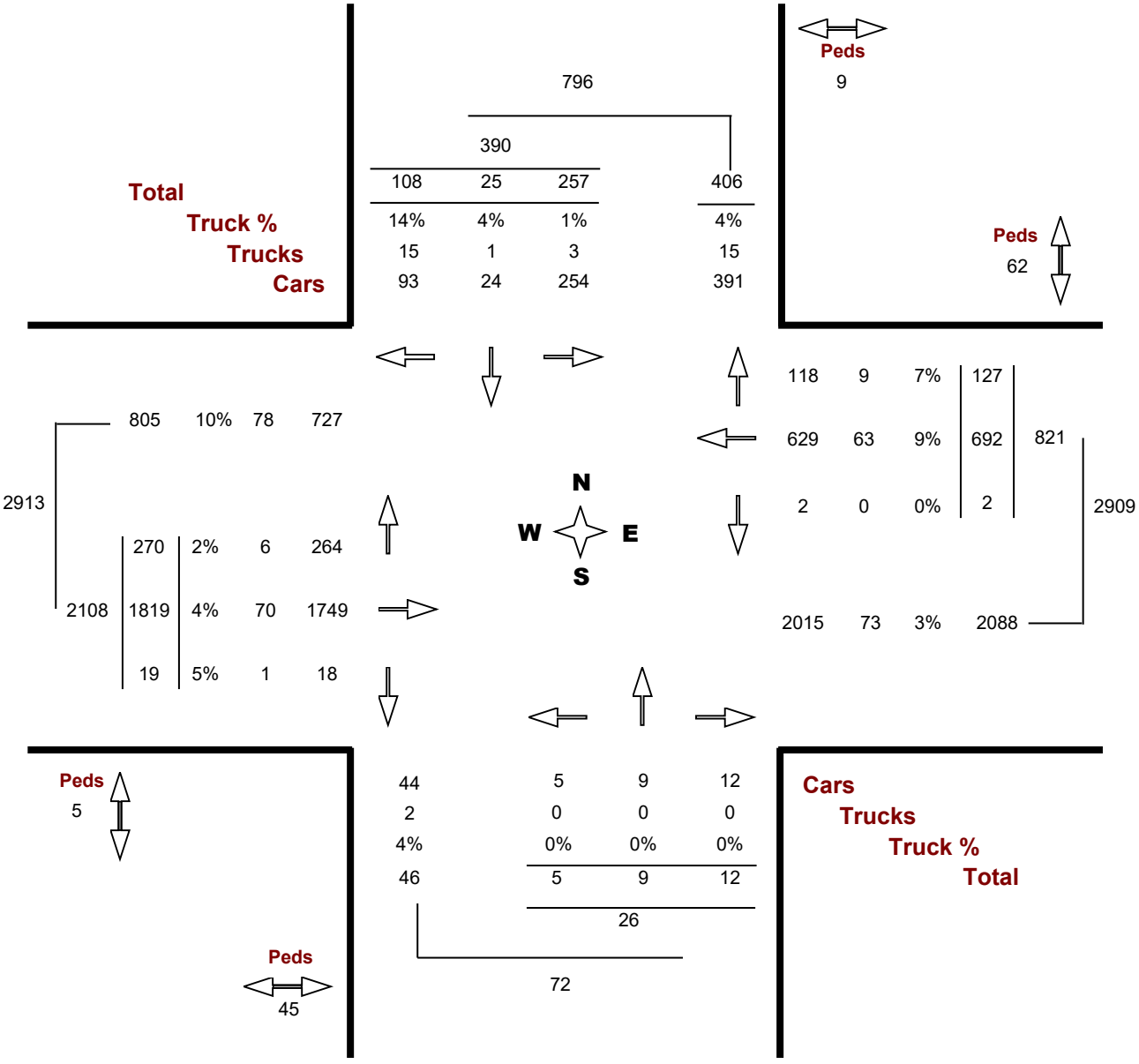
Turning Movements Report - AM Period

Location..... DUNDAS ST E @ TOMKEN RD

Municipality..... Mississauga **GeoID.....** 350812

Count Date..... Tuesday, 24 June, 2008 **Peak Hour.....** 07:30 AM — 08:30 AM

Road 1 TOMKEN RD **Road 2** DUNDAS ST E



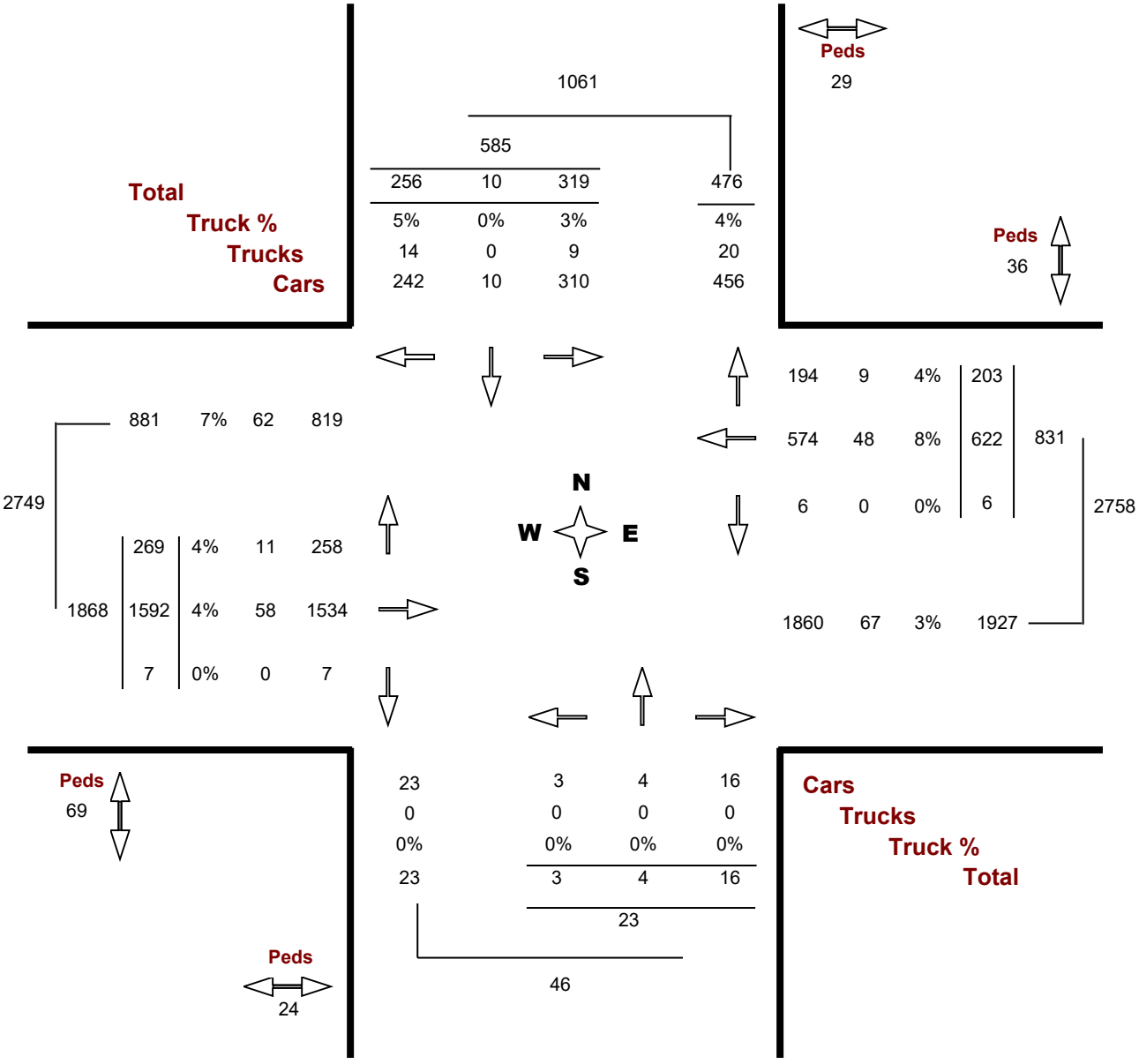
Turning Movements Report - AM Period

Location..... DUNDAS ST E @ TOMKEN RD

Municipality..... Mississauga **GeoID.....** 350812

Count Date..... Thursday, 06 February, 2014 **Peak Hour.....** 08:00 AM — 09:00 AM

Road 1 TOMKEN RD **Road 2** DUNDAS ST E



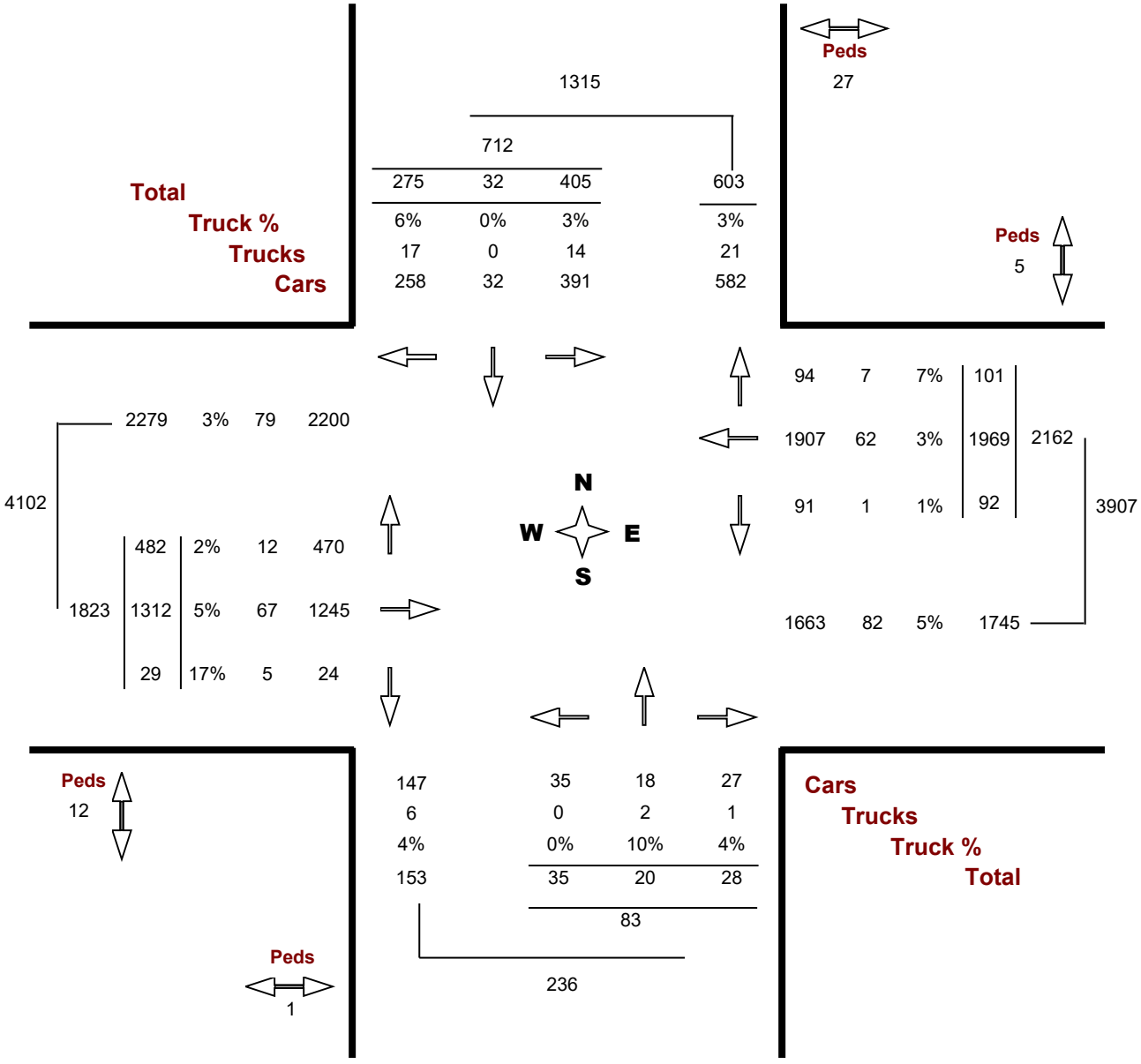
Turning Movements Report - PM Period

Location..... DUNDAS ST E @ TOMKEN RD

Municipality..... Mississauga **GeoID.....** 350812

Count Date..... Tuesday, 24 June, 2008 **Peak Hour.....** 03:15 PM — 04:15 PM

Road 1 TOMKEN RD **Road 2** DUNDAS ST E



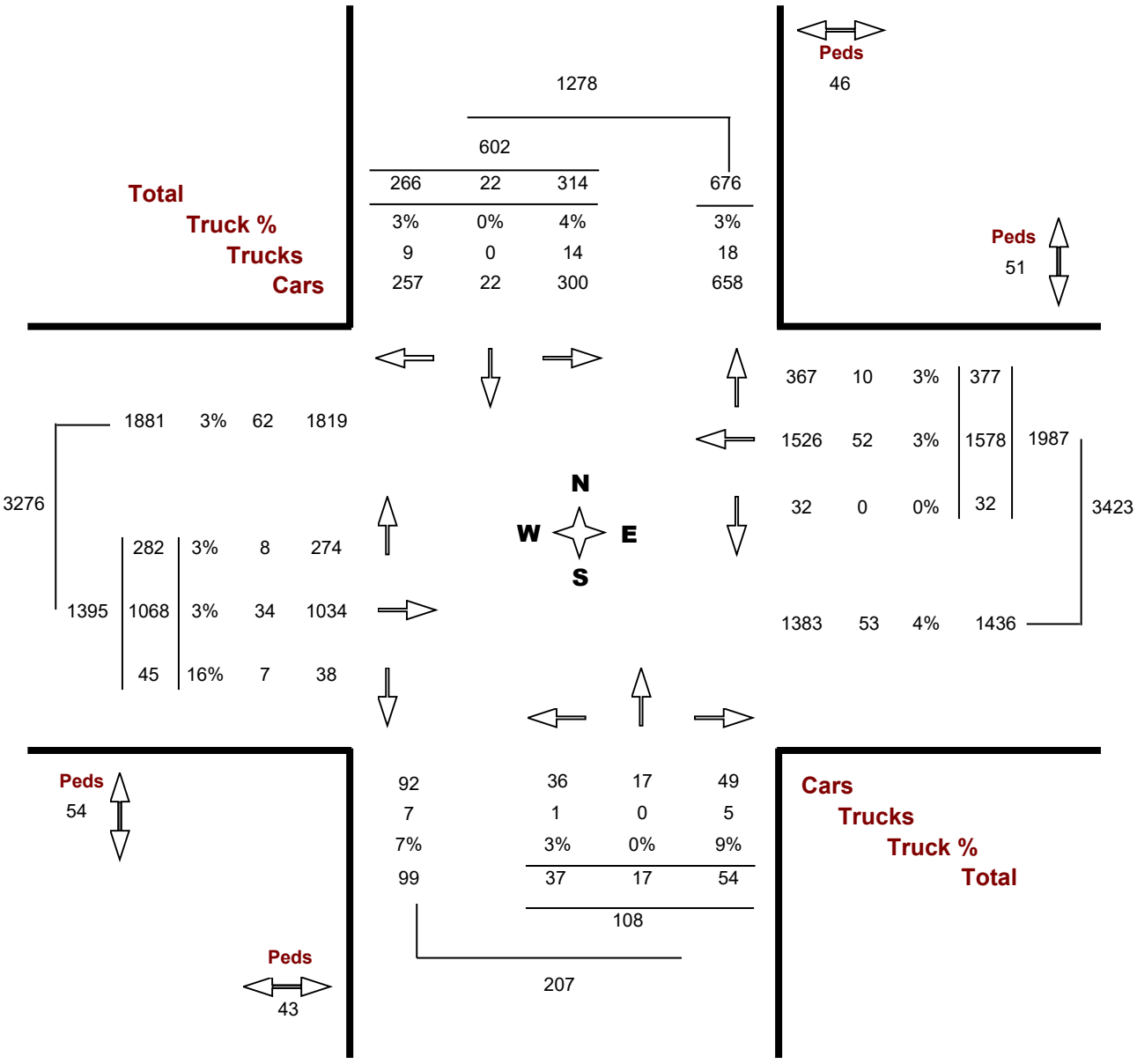
Turning Movements Report - PM Period

Location..... DUNDAS ST E @ TOMKEN RD

Municipality..... Mississauga **GeoID.....** 350812

Count Date..... Thursday, 06 February, 2014 **Peak Hour.....** 04:30 PM — 05:30 PM

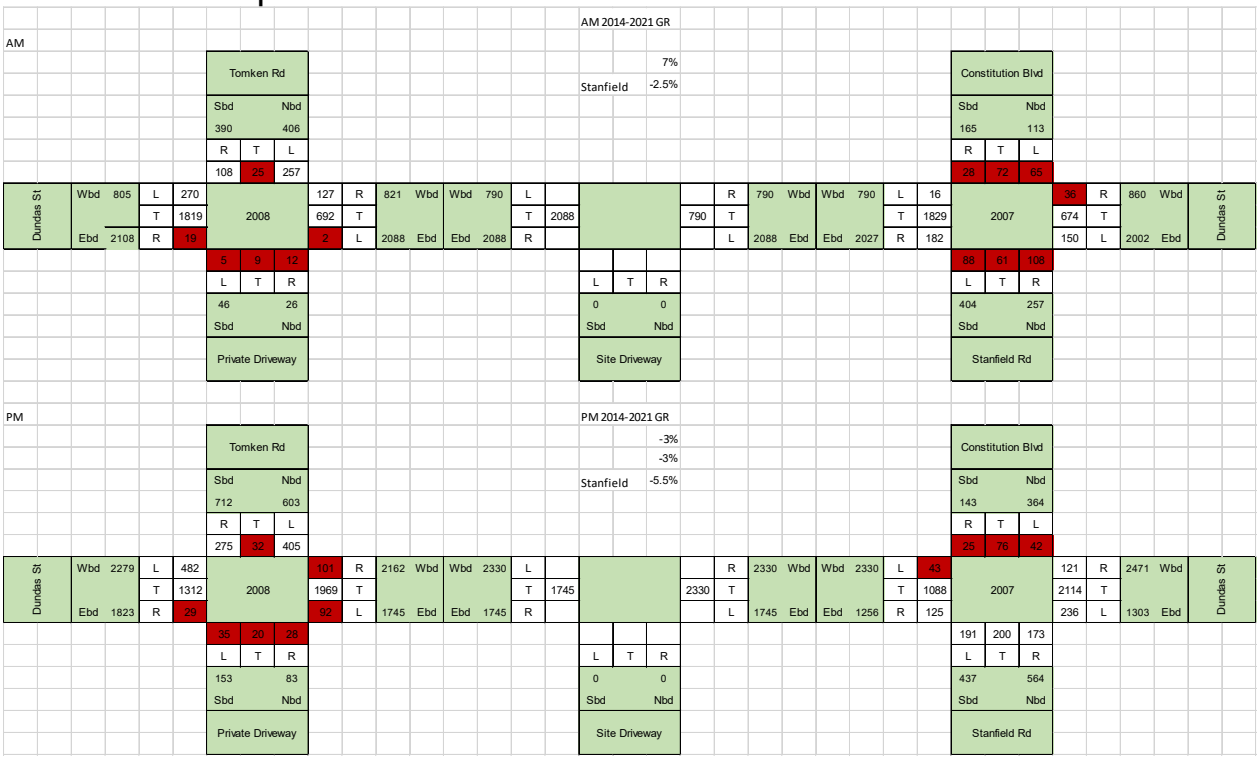
Road 1 TOMKEN RD **Road 2** DUNDAS ST E



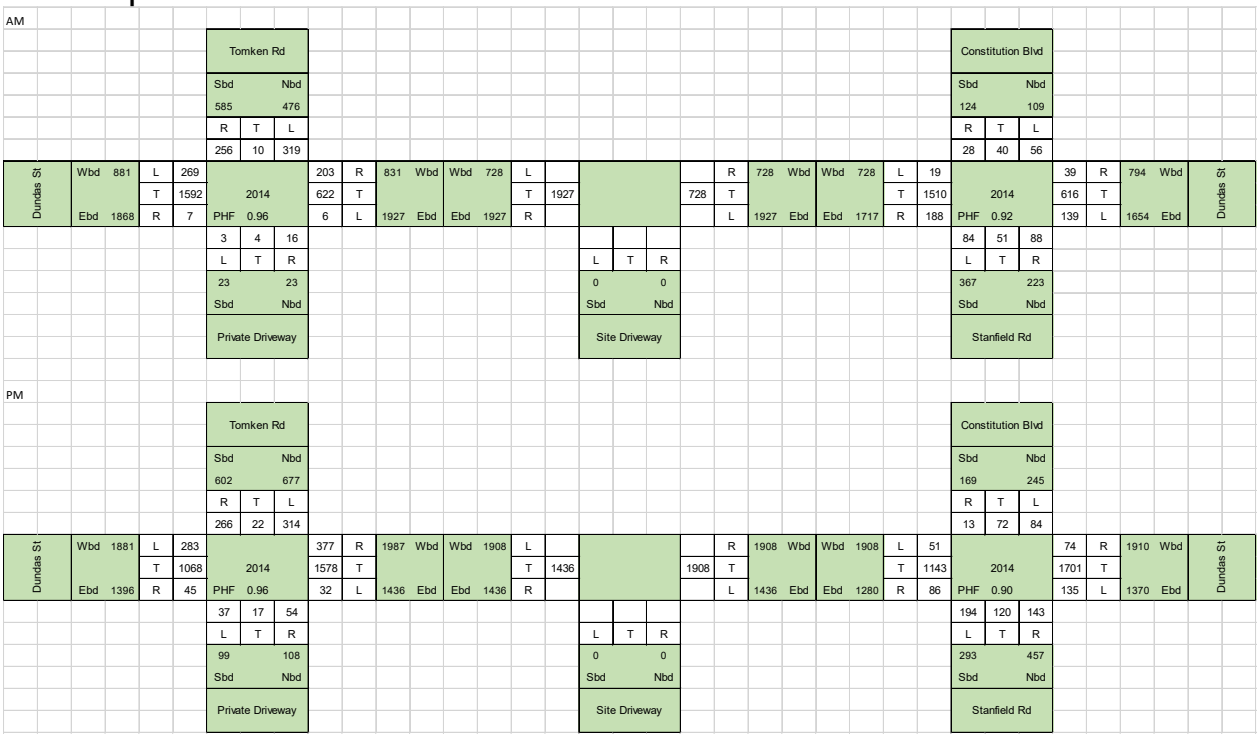
Existing Growth rate Calculations:

The values for the study intersections for years 2007,2008, &2014 were used to calculate a growth rate to grow the 2014 data to existing 2021 values used in the report.
The following images detail the used values and applied growth rate percentages that resulted in the used 2021 data:

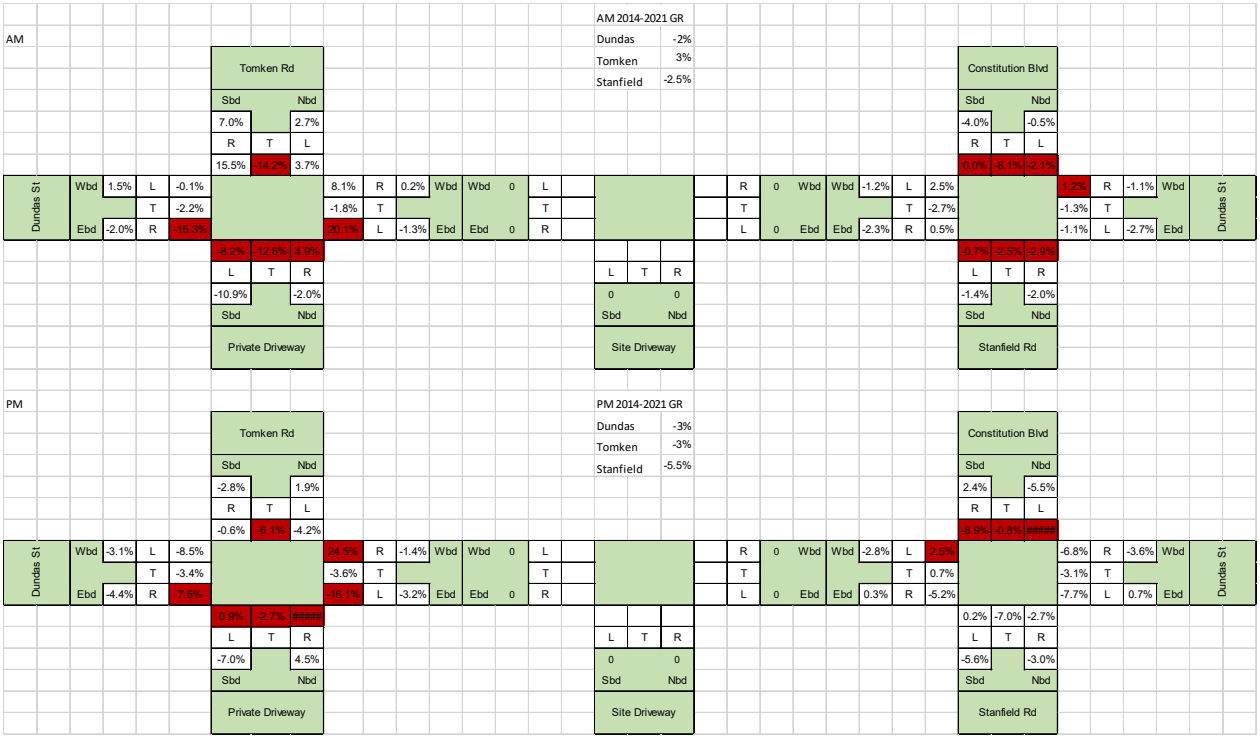
2007 & 2008 trip data:



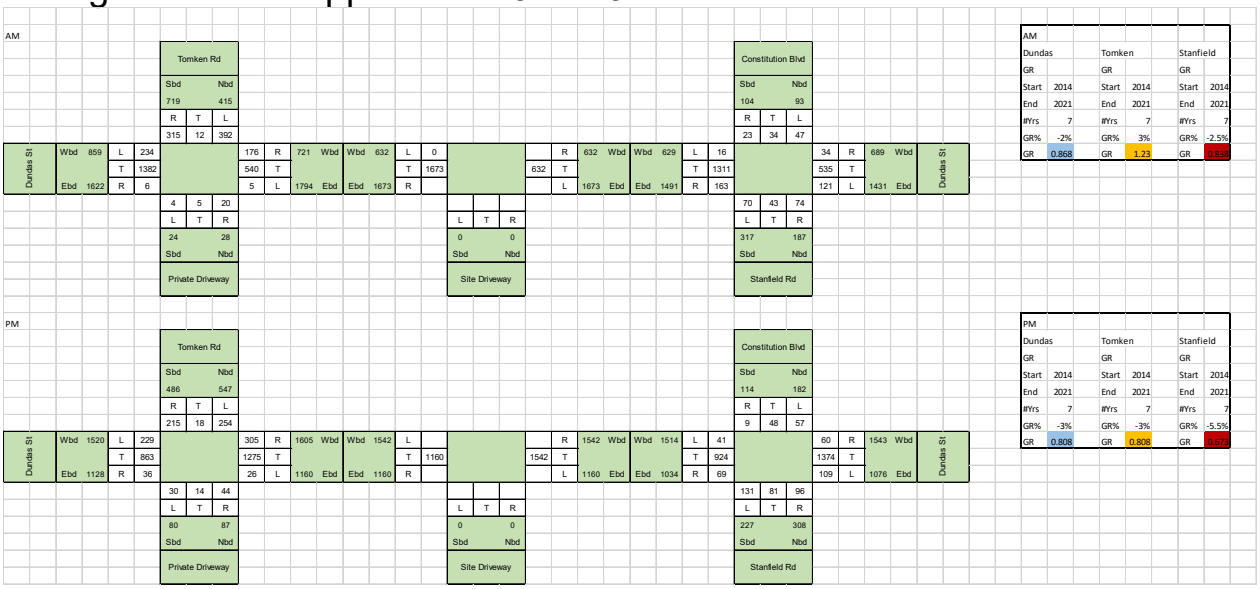
2014 trip data:



Resultant Growth % per year from 2007/2008 to 2014 per movement:



The growth rates found were then considered for the following individual road growth rates applied for 2014-2021:



AM					
Dundas		Tomken		Stanfield	
GR		GR		GR	
Start	2014	Start	2014	Start	2014
End	2021	End	2021	End	2021
#Yrs	7	#Yrs	7	#Yrs	7
GR%	-2%	GR%	3%	GR%	-2.5%
GR	0.868	GR	1.23	GR	0.838

PM					
Dundas		Tomken		Stanfield	
GR		GR		GR	
Start	2014	Start	2014	Start	2014
End	2021	End	2021	End	2021
#Yrs	7	#Yrs	7	#Yrs	7
GR%	-3%	GR%	-3%	GR%	-5.5%
GR	0.808	GR	0.808	GR	0.708

District: Mississauga **ID:** 1303 **Location:** DUNDAS STREET E @ Tomken Road

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	8	0	13	0	0	0	0
Ped Clear	Sec	0	9	0	19	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	15	23	0	35	0	0	0	0
Maximum 2	Sec	15	23	0	35	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	3.0	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 Non Lock Det	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	160	160	160	120	0	0	0	0
Offset	Sec	138	46	0	52	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	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	29	83	0	48	0	0	0	0
Split 1 - Coord	Enum	false	true	false	false	false	false	false	false
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	27	77	0	56	0	0	0	0
Split 2 - Coord	Enum	false	true	false	false	false	false	false	false
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	26	86	0	48	0	0	0	0
Split 3 - Coord	Enum	false	true	false	false	false	false	false	false
Split 4 - Mode	Enum	none	none	none	none	none	none	none	none
Split 4 - Time	Sec	23	55	0	42	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	12345678901234 56789012345678 901	12345678901234 56789012345678 901	12345678901234 56789012345678 901	1---------- -------	----------5--------- -------	-2---------- ---------	---------- 4-------	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	-2---------- -------	-----6---------- -------	---------1---------- -------	---------- -7----	---------- --8---	---------- 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	19	3	0	0
Plan 1 Minute	Min	0	0	30	0	30	0	0	0
Plan 1 Action	Number	8	1	2	3	2	7	0	0
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	4	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	4	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: 11/22/2021 13:01

Device: 1304

District: Mississauga **ID:** 1304 **Location:** DUNDAS STREET E @ Consitution Boulevard / Stanfield Road

Phase	Units	1	2	3	4	5	6	7	8
Walk	Sec	0	11	0	12	0	11	0	12
Ped Clear	Sec	0	16	0	18	0	16	0	18
Min Green	Sec	5	8	5	8	0	8	0	8
Passage	Sec	2.0	3.0	2.0	3.0	0.0	3.0	0.0	3.0
Maximum 1	Sec	10	34	10	25	0	34	0	25
Maximum 2	Sec	10	34	10	25	0	34	0	25
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	3.0	0.0	2.0	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	phaseNotOn	redClear	phaseNotOn	phaseNotOn	other	redClear	other	phaseNotOn
[P2] Options	Bit	Enabled Non Lock Det	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Dual Entry Act Rest In Walk	Enabled Non Lock Det	Enabled Non Lock Det Dual Entry	0	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	1	1	1	1	0	2	0	2
[P2] Concurrency	Phase (,)	(6)	(6)	(8)	(8)	()	(1,2)	()	(3,4)

Coord Pattern	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	160	160	160	0	0	0	0	0
Offset	Sec	155	93	125	0	0	0	0	0
Split	Split	1	2	3	4	5	6	7	8
Sequence	Sequence	1	1	1	1	1	1	1	1

Coord Split	Units	1	2	3	4	5	6	7	8
Split 1 - Mode	Enum	none	none	phaseOmitted	none	none	none	none	none
Split 1 - Time	Sec	13	101	0	46	0	114	0	46
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	none	none	phaseOmitted	none	none	none	none	none
Split 2 - Time	Sec	14	92	0	54	0	106	0	54
Split 2 - Coord	Enum	false	true	false	false	false	true	false	false
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	13	86	15	46	0	99	0	61
Split 3 - 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	123456789012345678901234567890 1	123456789012345678901234567890 1	123456789012345678901234567890 1	1---------- -------	----------5-------- -------	-2---------- --------	---------- 4-------	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	-2---------- -------	-----6---------- -------	----------1---------- ------	---------- -7----	---------- --8---	---------- 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	3	6	9	15	19	0	0
Plan 1 Minute	Min	0	0	0	30	0	30	0	0
Plan 1 Action	Number	8	7	1	2	3	2	0	0
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	Special Func 1 Special Func 2

Appendix C

TTS Summary

Fri Jul 22 2022 14:30:49 GMT-0400 (Eastern Daylight Time) - Run Time: 510ms

Cross Tabulation Query Form - Household - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld
Column: No. of vehicles in household - n_vehicle

RowG:(3660 3669)
ColG:
TblG:

Filters:
Type of dwelling u

Household 2016
Table:

	0	1	2	
	483	995	337	1815

AM OUTBOUND	AM INBOUND	PM OUTBOUND	PM INBOUND	x
Tue Nov 23 2021 10:43:09 GMT-0500 (E	Mon Nov 22 2021 17:09:30 GMT-0500 (Eastern S	Tue Nov 23 2021 10:42:31 GMT-0500 (Easte	Tue Nov 23 2021 10:41:18 GMT-0500 (Eastern Standar	
Cross Tabulation Query Form - Trip - 201	Cross Tabulation Query Form - Trip - 2016 v1.1	Cross Tabulation Query Form - Trip - 2016 v	Cross Tabulation Query Form - Trip - 2016 v1.1	
Row: Planning district of destination - pd_	Row: Planning district of origin - pd_orig	Row: Planning district of destination - pd_des	Row: Planning district of origin - pd_orig	
Column: 2006 GTA zone of origin - gta06	Column: 2006 GTA zone of destination - gta06_d	Column: 2006 GTA zone of origin - gta06_ori	Column: 2006 GTA zone of destination - gta06_dest	
RowG:	RowG:	RowG:	RowG:	
ColG:(3660 3669)	ColG:(3660 3669)	ColG:(3660 3669)	ColG:(3660 3669)	
TblG:	TblG:	TblG:	TblG:	
Filters:	Filters:	Filters:	Filters:	
(Start time of trip - start_time In 600-900)	(Start time of trip - start_time In 600-900)	(Start time of trip - start_time In 1600-1900)	(Start time of trip - start_time In 1600-1900)	
Trip 2016 Table:	Trip 2016 Table:	Trip 2016 Table:	Trip 2016 Table:	

PD 1 of Toronto	553	PD 1 of Toronto	48	PD 1 of Toronto	64	PD 1 of Toronto	480
PD 2 of Toronto	57	PD 2 of Toronto	133	PD 2 of Toronto	47	PD 2 of Toronto	62
PD 3 of Toronto	31	PD 3 of Toronto	111	PD 3 of Toronto	130	PD 3 of Toronto	14
PD 4 of Toronto	46	PD 4 of Toronto	63	PD 4 of Toronto	111	PD 4 of Toronto	69
PD 6 of Toronto	28	PD 5 of Toronto	12	PD 5 of Toronto	12	PD 6 of Toronto	19
PD 7 of Toronto	143	PD 6 of Toronto	92	PD 6 of Toronto	124	PD 7 of Toronto	156
PD 8 of Toronto	481	PD 7 of Toronto	123	PD 7 of Toronto	70	PD 8 of Toronto	455
PD 9 of Toronto	105	PD 8 of Toronto	206	PD 8 of Toronto	355	PD 9 of Toronto	93
PD 10 of Toronto	167	PD 9 of Toronto	40	PD 9 of Toronto	28	PD 10 of Toronto	125
PD 11 of Toronto	39	PD 10 of Toronto	15	PD 10 of Toronto	15	PD 11 of Toronto	26
East Gwillimbury	12	PD 11 of Toronto	39	PD 11 of Toronto	47	East Gwillimbury	12
Aurora	10	PD 13 of Toronto	52	PD 12 of Toronto	13	Aurora	10
Richmond Hill	46	Uxbridge	11	PD 13 of Toronto	52	Richmond Hill	46
Whitchurch-Stouffville	28	Whitby	54	Whitby	54	Whitchurch-Stouffville	28
Markham	69	Richmond Hill	192	Oshawa	14	Markham	55
King	22	Markham	29	Richmond Hill	74	King	22
Vaughan	37	Vaughan	147	Markham	5	Vaughan	49
Brampton	128	Brampton	858	Vaughan	83	Brampton	261
Mississauga	3932	Mississauga	5007	Caledon	11	Mississauga	3371
Milton	22	Milton	119	Brampton	594	Halton Hills	51
Oakville	158	Oakville	124	Mississauga	3694	Milton	53
Hamilton	58	Burlington	117	Halton Hills	10	Oakville	147
Grimsby	45	Hamilton	22	Milton	100	Burlington	11
St. Catharines	14	Niagara Falls	59	Oakville	134	Ancaster	12
Welland	46	Waterloo	40	Burlington	117	Hamilton	47
Waterloo	27	Cambridge	77	Cambridge	101	Welland	46
Cambridge	14	City of Guelph	51	City of Guelph	51	Cambridge	14
		Barrie	24	Barrie	24		
	6318	Shelburne	17	Innisfil	23		5734
		Brantford	11	Bradford-West Gwillimbury	6		
				New Tecumseth	25		
			7893	Shelburne	17		
				Brantford	17		
				External	10		
					6232		

AM
OUTBOUND

Mon Nov 29 2021 15:53:28 GMT-0500 (Eastern Standard Time) -

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:(3660 3669)
TblG:

Filters:
Start time of trip - start_time In 600-900

Trip 2016
Table:

Transit excluding GO rail	786	12%
cycle		0%
Auto driver	3983	63%
GO rail only	222	4%
motorcycle		0%
Joint GO rail and local trans	75	1%
Auto passenger	665	11%
School bus	65	1%
Taxi passenger	29	0%
Paid rideshare		0%
Walk	494	8%
	6319	100%

AM
INBOUND

Mon Nov 29 2021 15:54:48 GMT-0500 (Eastern Standard Time) -

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:(3660 3669)
TblG:

Filters:
Start time of trip - start_time In 600-900

Trip 2016
Table:

Transit excluding GO rail	465	6%
Cycle	14	0%
Auto driver	5349	68%
GO rail only	11	0%
Motorcycle	27	0%
Joint GO rail and local transit		0%
Auto passenger	821	10%
School bus	555	7%
Taxi passenger	64	1%
Paid rideshare	28	0%
Walk	559	7%
	7893	100%

PM
OUTBOUND

Mon Nov 29 2021 15:54:01 GMT-0500 (Eastern Standard Time) - Rur

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:(3660 3669)
TblG:

Filters:
Start time of trip - start_time In 1600-1900

Trip 2016
Table:

Transit excluding GO rail	405	7%
Cycle	29	0%
Auto driver	5008	80%
GO rail only		0%
Motorcycle	27	0%
Joint GO rail and local transit		0%
Auto passenger	700	11%
School bus		0%
Taxi passenger	15	0%
Paid rideshare		0%
Walk	45	1%
	6229	100%

PM
INBOUND

Mon Nov 29 2021 15:54:29 GMT-0500 (Eastern Standard Time) - Run Time: 2462ms

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:(3660 3669)
TblG:

Filters:
Start time of trip - start_time In 1600-1900

Trip 2016
Table:

Transit excluding GO rail	624	11%
cycle		0%
Auto driver	3897	68%
GO rail only	206	4%
motorcycle		0%
Joint GO rail and local transit	64	1%
Auto passenger	833	15%
School bus		0%
Taxi passenger	9	0%
Paid rideshare		0%
Walk	101	2%
	5734	100%

AM TOTAL

Transit excluding GO rail	1251	9%
cycle	14	0%
Auto driver	9332	66%
GO rail only	233	2%
motorcycle	27	0%
Joint GO rail and local trans	75	1%
Auto passenger	1486	10%
School bus	620	4%
Taxi passenger	93	1%
Paid rideshare	28	0%
Walk	1053	7%
TOTAL	14212	100%

PM TOTAL

Transit excluding GO rail	1029	9%
cycle	29	0%
Auto driver	8905	74%
GO rail only	206	2%
motorcycle	27	0%
Joint GO rail and local transit	64	1%
Auto passenger	1533	13%
School bus	0	0%
Taxi passenger	24	0%
Paid rideshare	0	0%
Walk	146	1%
	11963	100%

Transportation Mode	Percentage Split AM	PM
Transit	15%	11%
Auto driver	66%	75%
Auto passenger	11%	13%
Walk	7%	1%
TOTAL	100%	100%

Appendix D

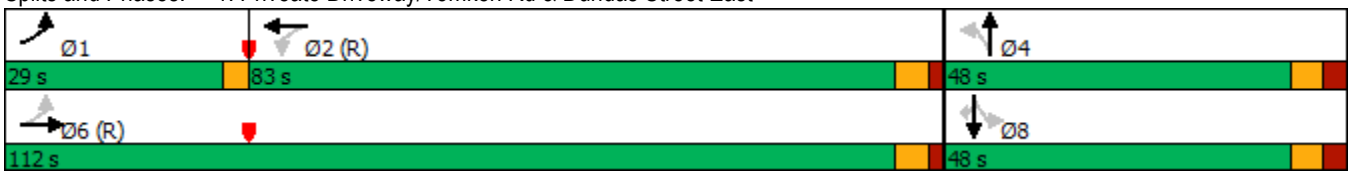
Synchro Reports

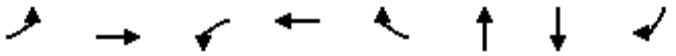
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	862	36	25	1274	304	29	13	43	253	17	214
Future Volume (vph)	228	862	36	25	1274	304	29	13	43	253	17	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	20.0		35.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	35.0			40.0			2.5			2.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.932				0.850
Flt Protected	0.950			0.950				0.983			0.955	
Satd. Flow (prot)	1789	5111	0	1789	5142	1601	0	1726	0	0	1799	1601
Flt Permitted	0.144			0.293				0.600			0.678	
Satd. Flow (perm)	271	5111	0	552	5142	1601	0	1053	0	0	1277	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				89		31				223
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		68.4			140.0			67.8			105.1	
Travel Time (s)		5.1			10.5			5.1			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	238	898	38	26	1327	317	30	14	45	264	18	223
Shared Lane Traffic (%)												
Lane Group Flow (vph)	238	936	0	26	1327	317	0	89	0	0	282	223
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)		1.6			4.9			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
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	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		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	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		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	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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	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	
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	8.0	23.0		23.0	23.0		39.0	39.0		39.0	39.0	39.0
Total Split (s)	29.0	112.0		83.0	83.0		48.0	48.0		48.0	48.0	48.0
Total Split (%)	18.1%	70.0%		51.9%	51.9%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	26.0	106.0		77.0	77.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			-5.0	0.0
Total Lost Time (s)	3.0	6.0		6.0	6.0			7.0			2.0	7.0
Lead/Lag	Lead			Lag	Lag							
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	3.0
Recall Mode	None	C-Max		C-Max	C-Max		Max	Max		Max	Max	Max
Walk Time (s)		8.0		8.0	8.0		13.0	13.0		13.0	13.0	13.0
Flash Dont Walk (s)		9.0		9.0	9.0		19.0	19.0		19.0	19.0	19.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	109.0	106.0		88.0	88.0	160.0		41.0			46.0	41.0
Actuated g/C Ratio	0.68	0.66		0.55	0.55	1.00		0.26			0.29	0.26
v/c Ratio	0.73	0.28		0.09	0.47	0.20		0.30			0.77	0.39
Control Delay	26.1	11.3		17.8	19.2	0.3		34.1			67.3	7.3
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	26.1	11.3		17.8	19.2	0.3		34.1			67.3	7.3
LOS	C	B		B	B	A		C			E	A
Approach Delay		14.3			15.6			34.1			40.8	
Approach LOS		B			B			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 138 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 19.4		Intersection LOS: B	
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East

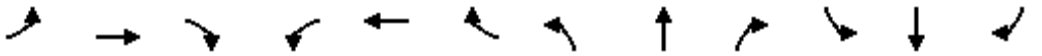




Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	238	936	26	1327	317	89	282	223
v/c Ratio	0.73	0.28	0.09	0.47	0.20	0.30	0.77	0.39
Control Delay	26.1	11.3	17.8	19.2	0.3	34.1	67.3	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	11.3	17.8	19.2	0.3	34.1	67.3	7.3
Queue Length 50th (m)	26.1	42.1	3.3	70.9	0.0	14.7	82.6	0.0
Queue Length 95th (m)	48.6	49.1	8.1	81.8	0.0	31.7	#122.0	21.0
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	431	3388	303	2828	1601	292	367	576
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	0.55	0.28	0.09	0.47	0.20	0.30	0.77	0.39

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)	228	862	36	25	1274	304	29	13	43	253	17	214
Future Volume (vph)	228	862	36	25	1274	304	29	13	43	253	17	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	4.0		7.0			2.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98			0.96	1.00
Satd. Flow (prot)	1789	5110		1789	5142	1601		1726			1799	1601
Flt Permitted	0.14	1.00		0.29	1.00	1.00		0.60			0.68	1.00
Satd. Flow (perm)	272	5110		552	5142	1601		1053			1276	1601
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	238	898	38	26	1327	317	30	14	45	264	18	223
RTOR Reduction (vph)	0	3	0	0	0	0	0	23	0	0	0	166
Lane Group Flow (vph)	238	933	0	26	1327	317	0	66	0	0	282	57
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	106.0	106.0		88.0	88.0	160.0		41.0			41.0	41.0
Effective Green, g (s)	106.0	106.0		88.0	88.0	160.0		41.0			46.0	41.0
Actuated g/C Ratio	0.66	0.66		0.55	0.55	1.00		0.26			0.29	0.26
Clearance Time (s)	3.0	6.0		6.0	6.0			7.0			7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	322	3385		303	2828	1601		269			366	410
v/s Ratio Prot	c0.07	0.18			0.26							
v/s Ratio Perm	c0.42			0.05		0.20		0.06			c0.22	0.04
v/c Ratio	0.74	0.28		0.09	0.47	0.20		0.25			0.77	0.14
Uniform Delay, d1	15.5	11.1		17.0	21.8	0.0		47.2			52.2	45.9
Progression Factor	1.00	1.00		0.90	0.83	1.00		1.00			1.00	1.00
Incremental Delay, d2	8.6	0.2		0.5	0.5	0.3		2.2			14.5	0.7
Delay (s)	24.1	11.4		15.7	18.7	0.3		49.4			66.6	46.6
Level of Service	C	B		B	B	A		D			E	D
Approach Delay (s)		13.9			15.2			49.4			57.8	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

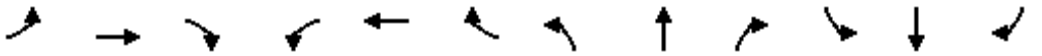
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1160	0	0	1541	0	0
Future Volume (vph)	1160	0	0	1541	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	5142	0	0	5142	1883	0
Flt Permitted						
Satd. Flow (perm)	5142	0	0	5142	1883	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1261	0	0	1675	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1261	0	0	1675	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1160	0	0	1541	0	0
Future Volume (Veh/h)	1160	0	0	1541	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1261	0	0	1675	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	140			260		
pX, platoon unblocked			0.93		0.92	0.93
vC, conflicting volume			1261		1819	420
vC1, stage 1 conf vol					1261	
vC2, stage 2 conf vol					558	
vCu, unblocked vol			1021		1085	118
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			629		279	849

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	504	504	252	558	558	558	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.30	0.15	0.33	0.33	0.33	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							A
Approach Delay (s)	0.0			0.0			0.0
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

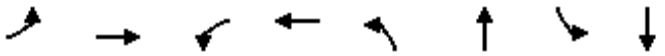


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	923	69	109	1374	59	130	80	96	56	48	8
Future Volume (vph)	41	923	69	109	1374	59	130	80	96	56	48	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	45.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			35.0			50.0			30.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.994			0.918			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5090	0	1789	5111	0	1789	1729	0	1789	1842	0
Flt Permitted	0.131			0.253			0.717			0.369		
Satd. Flow (perm)	247	5090	0	477	5111	0	1350	1729	0	695	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			7			36			5	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		260.0			79.3			97.0			129.7	
Travel Time (s)		19.5			5.9			7.3			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	1003	75	118	1493	64	141	87	104	61	52	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	1078	0	118	1557	0	141	191	0	61	61	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			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes				
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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	8.0	33.0		33.0	33.0		37.0	37.0		37.0	37.0	
Total Split (s)	13.0	114.0		101.0	101.0		46.0	46.0		46.0	46.0	
Total Split (%)	8.1%	71.3%		63.1%	63.1%		28.8%	28.8%		28.8%	28.8%	
Maximum Green (s)	10.0	108.0		95.0	95.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		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)	3.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
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	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		11.0		11.0	11.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)		16.0		16.0	16.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	127.8	124.8		117.1	117.1		22.2	22.2		22.2	22.2	
Actuated g/C Ratio	0.80	0.78		0.73	0.73		0.14	0.14		0.14	0.14	
v/c Ratio	0.17	0.27		0.34	0.42		0.75	0.71		0.64	0.23	
Control Delay	5.9	5.7		12.8	9.5		89.2	66.4		91.7	56.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	5.9	5.7		12.8	9.5		89.2	66.4		91.7	56.1	
LOS	A	A		B	A		F	E		F	E	
Approach Delay		5.8			9.8			76.1			73.9	
Approach LOS		A			A			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 155 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 68.8%		ICU Level of Service C	
Analysis Period (min) 15			

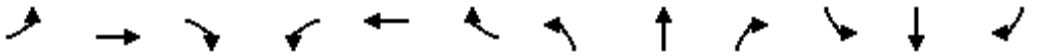
Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	1078	118	1557	141	191	61	61
v/c Ratio	0.17	0.27	0.34	0.42	0.75	0.71	0.64	0.23
Control Delay	5.9	5.7	12.8	9.5	89.2	66.4	91.7	56.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	5.7	12.8	9.5	89.2	66.4	91.7	56.1
Queue Length 50th (m)	2.9	30.7	12.7	66.1	43.8	48.0	18.6	16.1
Queue Length 95th (m)	m5.5	37.2	30.6	93.9	64.8	71.0	33.9	28.9
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	293	3973	349	3742	329	448	169	452
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	0.15	0.27	0.34	0.42	0.43	0.43	0.36	0.13

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	923	69	109	1374	59	130	80	96	56	48	8
Future Volume (vph)	41	923	69	109	1374	59	130	80	96	56	48	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	5088		1789	5110		1789	1730		1789	1842	
Flt Permitted	0.13	1.00		0.25	1.00		0.72	1.00		0.37	1.00	
Satd. Flow (perm)	246	5088		476	5110		1351	1730		694	1842	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	1003	75	118	1493	64	141	87	104	61	52	9
RTOR Reduction (vph)	0	4	0	0	2	0	0	31	0	0	4	0
Lane Group Flow (vph)	45	1074	0	118	1555	0	141	160	0	61	57	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	124.8	124.8		116.5	116.5		22.2	22.2		22.2	22.2	
Effective Green, g (s)	124.8	124.8		116.5	116.5		22.2	22.2		22.2	22.2	
Actuated g/C Ratio	0.78	0.78		0.73	0.73		0.14	0.14		0.14	0.14	
Clearance Time (s)	3.0	6.0		6.0	6.0		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)	242	3968		346	3720		187	240		96	255	
v/s Ratio Prot	0.01	c0.21			c0.30			0.09			0.03	
v/s Ratio Perm	0.14			0.25			c0.10			0.09		
v/c Ratio	0.19	0.27		0.34	0.42		0.75	0.67		0.64	0.22	
Uniform Delay, d1	5.1	4.9		7.9	8.5		66.3	65.4		65.1	61.2	
Progression Factor	1.04	1.06		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		2.7	0.3		15.8	6.8		13.0	0.4	
Delay (s)	5.6	5.4		10.5	8.8		82.0	72.2		78.0	61.7	
Level of Service	A	A		B	A		F	E		E	E	
Approach Delay (s)		5.4			9.0			76.4			69.9	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

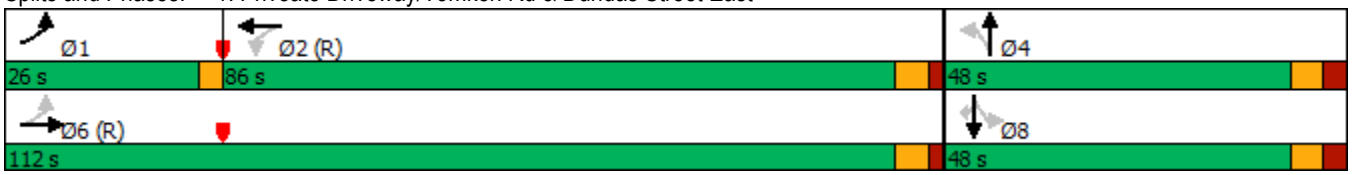
c Critical Lane Group

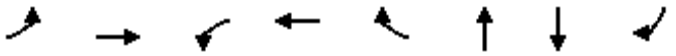
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	862	36	25	1274	304	29	13	43	253	17	214
Future Volume (vph)	228	862	36	25	1274	304	29	13	43	253	17	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	20.0		35.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	35.0			40.0			2.5			2.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.932				0.850
Flt Protected	0.950			0.950				0.983			0.955	
Satd. Flow (prot)	1789	5111	0	1789	5142	1601	0	1726	0	0	1799	1601
Flt Permitted	0.144			0.293				0.600			0.678	
Satd. Flow (perm)	271	5111	0	552	5142	1601	0	1053	0	0	1277	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				89		31				223
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		68.4			140.0			67.8			105.1	
Travel Time (s)		5.1			10.5			5.1			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	238	898	38	26	1327	317	30	14	45	264	18	223
Shared Lane Traffic (%)												
Lane Group Flow (vph)	238	936	0	26	1327	317	0	89	0	0	282	223
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)		1.6			4.9			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
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	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		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	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		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	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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	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	
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	25.0		25.0	25.0		39.0	39.0		39.0	39.0	39.0
Total Split (s)	26.0	112.0		86.0	86.0		48.0	48.0		48.0	48.0	48.0
Total Split (%)	16.3%	70.0%		53.8%	53.8%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	23.0	106.0		80.0	80.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			-5.0	0.0
Total Lost Time (s)	3.0	6.0		6.0	6.0			7.0			2.0	7.0
Lead/Lag	Lead			Lag	Lag							
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	3.0
Recall Mode	None	C-Max		C-Max	C-Max		Max	Max		Max	Max	Max
Walk Time (s)		8.0		8.0	8.0		13.0	13.0		13.0	13.0	13.0
Flash Dont Walk (s)		9.0		9.0	9.0		19.0	19.0		19.0	19.0	19.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	109.0	106.0		88.2	88.2	160.0		41.0			46.0	41.0
Actuated g/C Ratio	0.68	0.66		0.55	0.55	1.00		0.26			0.29	0.26
v/c Ratio	0.73	0.28		0.09	0.47	0.20		0.30			0.77	0.39
Control Delay	26.5	11.3		12.6	13.9	0.2		34.1			67.3	7.3
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	26.5	11.3		12.6	13.9	0.2		34.1			67.3	7.3
LOS	C	B		B	B	A		C			E	A
Approach Delay		14.4			11.3			34.1			40.8	
Approach LOS		B			B			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East

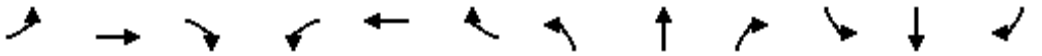




Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	238	936	26	1327	317	89	282	223
v/c Ratio	0.73	0.28	0.09	0.47	0.20	0.30	0.77	0.39
Control Delay	26.5	11.3	12.6	13.9	0.2	34.1	67.3	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	11.3	12.6	13.9	0.2	34.1	67.3	7.3
Queue Length 50th (m)	26.1	42.1	2.2	42.7	0.0	14.7	82.6	0.0
Queue Length 95th (m)	48.7	49.1	m4.7	46.7	0.0	31.7	#122.0	21.0
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	402	3388	304	2835	1601	292	367	576
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	0.59	0.28	0.09	0.47	0.20	0.30	0.77	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	862	36	25	1274	304	29	13	43	253	17	214
Future Volume (vph)	228	862	36	25	1274	304	29	13	43	253	17	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	4.0		7.0			2.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98			0.96	1.00
Satd. Flow (prot)	1789	5110		1789	5142	1601		1726			1799	1601
Flt Permitted	0.14	1.00		0.29	1.00	1.00		0.60			0.68	1.00
Satd. Flow (perm)	272	5110		552	5142	1601		1053			1276	1601
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	238	898	38	26	1327	317	30	14	45	264	18	223
RTOR Reduction (vph)	0	3	0	0	0	0	0	23	0	0	0	166
Lane Group Flow (vph)	238	933	0	26	1327	317	0	66	0	0	282	57
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	106.0	106.0		88.2	88.2	160.0		41.0			41.0	41.0
Effective Green, g (s)	106.0	106.0		88.2	88.2	160.0		41.0			46.0	41.0
Actuated g/C Ratio	0.66	0.66		0.55	0.55	1.00		0.26			0.29	0.26
Clearance Time (s)	3.0	6.0		6.0	6.0			7.0			7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	320	3385		304	2834	1601		269			366	410
v/s Ratio Prot	c0.07	0.18			0.26							
v/s Ratio Perm	c0.42			0.05		0.20		0.06			c0.22	0.04
v/c Ratio	0.74	0.28		0.09	0.47	0.20		0.25			0.77	0.14
Uniform Delay, d1	15.5	11.1		16.9	21.7	0.0		47.2			52.2	45.9
Progression Factor	1.00	1.00		0.63	0.60	1.00		1.00			1.00	1.00
Incremental Delay, d2	9.0	0.2		0.5	0.5	0.2		2.2			14.5	0.7
Delay (s)	24.5	11.4		11.2	13.5	0.2		49.4			66.6	46.6
Level of Service	C	B		B	B	A		D			E	D
Approach Delay (s)		14.0			11.0			49.4			57.8	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1160	0	0	1541	0	0
Future Volume (vph)	1160	0	0	1541	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	5142	0	0	5142	1883	0
Flt Permitted						
Satd. Flow (perm)	5142	0	0	5142	1883	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1261	0	0	1675	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1261	0	0	1675	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1160	0	0	1541	0	0
Future Volume (Veh/h)	1160	0	0	1541	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1261	0	0	1675	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	140			260		
pX, platoon unblocked			0.93		0.88	0.93
vC, conflicting volume			1261		1819	420
vC1, stage 1 conf vol					1261	
vC2, stage 2 conf vol					558	
vCu, unblocked vol			1021		924	118
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			629		280	849

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	504	504	252	558	558	558	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.30	0.15	0.33	0.33	0.33	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							A
Approach Delay (s)	0.0			0.0			0.0
Approach LOS							A

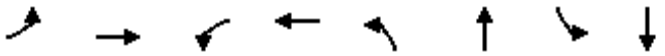
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	923	69	109	1374	59	130	80	96	56	48	8
Future Volume (vph)	41	923	69	109	1374	59	130	80	96	56	48	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	45.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			35.0			50.0			30.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.994			0.918			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5090	0	1789	5111	0	1789	1729	0	1789	1842	0
Flt Permitted	0.114			0.246			0.717			0.306		
Satd. Flow (perm)	215	5090	0	463	5111	0	1350	1729	0	576	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			6			36			6	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		260.0			79.3			97.0			129.7	
Travel Time (s)		19.5			5.9			7.3			9.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	1026	77	121	1527	66	144	89	107	62	53	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	1103	0	121	1593	0	144	196	0	62	62	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			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes				
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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	1	6			2			4		3	8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		4.0	8.0	
Minimum Split (s)	8.0	33.0		33.0	33.0		37.0	37.0		8.0	37.0	
Total Split (s)	13.0	99.0		86.0	86.0		46.0	46.0		15.0	61.0	
Total Split (%)	8.1%	61.9%		53.8%	53.8%		28.8%	28.8%		9.4%	38.1%	
Maximum Green (s)	10.0	93.0		80.0	80.0		39.0	39.0		11.0	54.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		0.5	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	6.0		6.0	6.0		7.0	7.0		4.0	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	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		11.0		11.0	11.0		12.0	12.0			12.0	
Flash Dont Walk (s)		16.0		16.0	16.0		18.0	18.0			18.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	116.1	113.1		105.0	105.0		22.6	22.6		36.9	33.9	
Actuated g/C Ratio	0.73	0.71		0.66	0.66		0.14	0.14		0.23	0.21	
v/c Ratio	0.21	0.31		0.40	0.47		0.76	0.71		0.31	0.16	
Control Delay	8.7	7.2		21.7	16.3		89.1	66.9		49.0	43.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.7	7.2		21.7	16.3		89.1	66.9		49.0	43.1	
LOS	A	A		C	B		F	E		D	D	
Approach Delay		7.2			16.6			76.3			46.1	
Approach LOS		A			B			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	46	1103	121	1593	144	196	62	62
v/c Ratio	0.21	0.31	0.40	0.47	0.76	0.71	0.31	0.16
Control Delay	8.7	7.2	21.7	16.3	89.1	66.9	49.0	43.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	7.2	21.7	16.3	89.1	66.9	49.0	43.1
Queue Length 50th (m)	3.2	36.5	18.3	94.5	44.8	49.6	15.6	14.4
Queue Length 95th (m)	m7.2	47.7	42.8	129.4	65.6	72.8	26.0	25.2
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	254	3603	303	3357	329	448	215	625
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	0.18	0.31	0.40	0.47	0.44	0.44	0.29	0.10

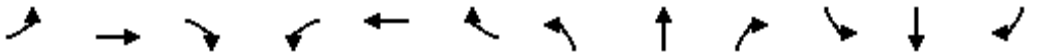
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	923	69	109	1374	59	130	80	96	56	48	8
Future Volume (vph)	41	923	69	109	1374	59	130	80	96	56	48	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0		7.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	5088		1789	5110		1789	1729		1789	1842	
Flt Permitted	0.11	1.00		0.25	1.00		0.72	1.00		0.31	1.00	
Satd. Flow (perm)	214	5088		464	5110		1350	1729		576	1842	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	1026	77	121	1527	66	144	89	107	62	53	9
RTOR Reduction (vph)	0	4	0	0	2	0	0	31	0	0	5	0
Lane Group Flow (vph)	46	1099	0	121	1591	0	144	165	0	62	57	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	1	6			2			4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	112.3	112.3		103.6	103.6		22.6	22.6		34.7	34.7	
Effective Green, g (s)	112.3	112.3		103.6	103.6		22.6	22.6		34.7	34.7	
Actuated g/C Ratio	0.70	0.70		0.65	0.65		0.14	0.14		0.22	0.22	
Clearance Time (s)	3.0	6.0		6.0	6.0		7.0	7.0		4.0	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)	206	3571		300	3308		190	244		186	399	
v/s Ratio Prot	0.01	c0.22			c0.31			0.10		c0.02	0.03	
v/s Ratio Perm	0.15			0.26			c0.11			0.06		
v/c Ratio	0.22	0.31		0.40	0.48		0.76	0.68		0.33	0.14	
Uniform Delay, d1	9.5	9.1		13.5	14.4		66.1	65.2		51.5	50.6	
Progression Factor	0.79	0.71		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		4.0	0.5		15.8	7.2		1.1	0.2	
Delay (s)	8.0	6.7		17.5	14.9		81.9	72.5		52.5	50.8	
Level of Service	A	A		B	B		F	E		D	D	
Approach Delay (s)		6.7			15.1			76.4			51.7	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

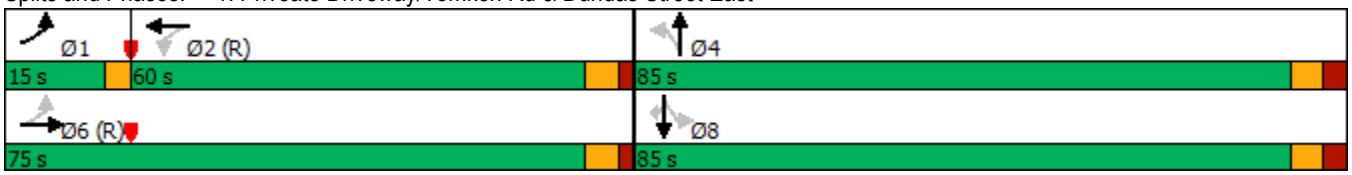


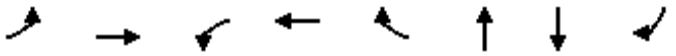
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	1416	6	5	581	189	4	5	21	454	14	364
Future Volume (vph)	239	1416	6	5	581	189	4	5	21	454	14	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	20.0		35.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	35.0			40.0			2.5			2.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.904				0.850
Flt Protected	0.950			0.950				0.994			0.954	
Satd. Flow (prot)	1789	5137	0	1789	5142	1601	0	1692	0	0	1797	1601
Flt Permitted	0.326			0.110				0.952			0.710	
Satd. Flow (perm)	614	5137	0	207	5142	1601	0	1621	0	0	1337	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						112		10				281
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		68.4			140.0			67.8			105.1	
Travel Time (s)		5.1			10.5			5.1			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	249	1475	6	5	605	197	4	5	22	473	15	379
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	1481	0	5	605	197	0	31	0	0	488	379
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)		1.6			4.9			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
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	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		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	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		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	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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	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	
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	8.0	23.0		23.0	23.0		39.0	39.0		39.0	39.0	39.0
Total Split (s)	15.0	75.0		60.0	60.0		85.0	85.0		85.0	85.0	85.0
Total Split (%)	9.4%	46.9%		37.5%	37.5%		53.1%	53.1%		53.1%	53.1%	53.1%
Maximum Green (s)	12.0	69.0		54.0	54.0		78.0	78.0		78.0	78.0	78.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			-5.0	0.0
Total Lost Time (s)	3.0	6.0		6.0	6.0			7.0			2.0	7.0
Lead/Lag	Lead			Lag	Lag							
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	3.0
Recall Mode	None	C-Max		C-Max	C-Max		Max	Max		Max	Max	Max
Walk Time (s)		8.0		8.0	8.0		13.0	13.0		13.0	13.0	13.0
Flash Dont Walk (s)		9.0		9.0	9.0		19.0	19.0		19.0	19.0	19.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	72.0	69.0		54.0	54.0	160.0		78.0			83.0	78.0
Actuated g/C Ratio	0.45	0.43		0.34	0.34	1.00		0.49			0.52	0.49
v/c Ratio	0.68	0.67		0.07	0.35	0.12		0.04			0.70	0.41
Control Delay	40.2	38.2		36.2	35.3	0.2		16.2			36.0	7.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	40.2	38.2		36.2	35.3	0.2		16.2			36.0	7.8
LOS	D	D		D	D	A		B			D	A
Approach Delay		38.5			26.7			16.2			23.7	
Approach LOS		D			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 138 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 31.8		Intersection LOS: C	
Intersection Capacity Utilization 80.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East

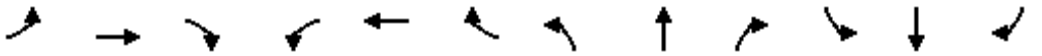




Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	249	1481	5	605	197	31	488	379
v/c Ratio	0.68	0.67	0.07	0.35	0.12	0.04	0.70	0.41
Control Delay	40.2	38.2	36.2	35.3	0.2	16.2	36.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.2	38.2	36.2	35.3	0.2	16.2	36.0	7.8
Queue Length 50th (m)	50.1	136.8	0.9	46.9	0.0	3.4	115.2	16.8
Queue Length 95th (m)	71.3	153.1	m4.4	55.5	0.0	9.5	160.3	40.0
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	364	2215	69	1735	1601	795	693	924
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	0.67	0.07	0.35	0.12	0.04	0.70	0.41

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	1416	6	5	581	189	4	5	21	454	14	364
Future Volume (vph)	239	1416	6	5	581	189	4	5	21	454	14	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	4.0		7.0			2.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.90			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1789	5139		1789	5142	1601		1692			1796	1601
Flt Permitted	0.33	1.00		0.11	1.00	1.00		0.95			0.71	1.00
Satd. Flow (perm)	614	5139		206	5142	1601		1621			1337	1601
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	249	1475	6	5	605	197	4	5	22	473	15	379
RTOR Reduction (vph)	0	0	0	0	0	0	0	5	0	0	0	144
Lane Group Flow (vph)	249	1481	0	5	605	197	0	26	0	0	488	235
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	69.0	69.0		54.0	54.0	160.0		78.0			78.0	78.0
Effective Green, g (s)	69.0	69.0		54.0	54.0	160.0		78.0			83.0	78.0
Actuated g/C Ratio	0.43	0.43		0.34	0.34	1.00		0.49			0.52	0.49
Clearance Time (s)	3.0	6.0		6.0	6.0			7.0			7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	352	2216		69	1735	1601		790			693	780
v/s Ratio Prot	c0.05	0.29			0.12							
v/s Ratio Perm	c0.25			0.02		0.12		0.02			c0.36	0.15
v/c Ratio	0.71	0.67		0.07	0.35	0.12		0.03			0.70	0.30
Uniform Delay, d1	32.8	36.4		36.0	39.8	0.0		21.4			29.2	24.6
Progression Factor	1.00	1.00		0.91	0.87	1.00		1.00			1.00	1.00
Incremental Delay, d2	6.4	1.6		2.0	0.6	0.2		0.1			5.9	1.0
Delay (s)	39.2	38.0		34.6	35.2	0.2		21.4			35.1	25.6
Level of Service	D	D		C	D	A		C			D	C
Approach Delay (s)		38.1			26.6			21.4			31.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

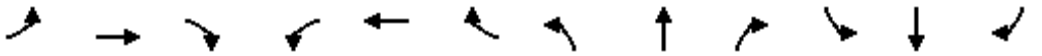
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1715	0	0	680	0	0
Future Volume (vph)	1715	0	0	680	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	5142	0	0	5142	1883	0
Flt Permitted						
Satd. Flow (perm)	5142	0	0	5142	1883	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1864	0	0	739	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1864	0	0	739	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1715	0	0	680	0	0
Future Volume (Veh/h)	1715	0	0	680	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1864	0	0	739	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	140			260		
pX, platoon unblocked			0.77		0.77	0.77
vC, conflicting volume			1864		2110	621
vC1, stage 1 conf vol					1864	
vC2, stage 2 conf vol					246	
vCu, unblocked vol			1093		1411	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			491		211	839

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	746	746	373	246	246	246	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.44	0.44	0.22	0.14	0.14	0.14	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							A
Approach Delay (s)	0.0			0.0			0.0
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

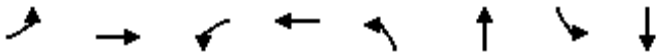


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1343	167	129	576	36	77	47	81	54	38	27
Future Volume (vph)	16	1343	167	129	576	36	77	47	81	54	38	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	45.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			35.0			50.0			30.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.991			0.905			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5054	0	1789	5096	0	1789	1705	0	1789	1767	0
Flt Permitted	0.379			0.138			0.711			0.447		
Satd. Flow (perm)	714	5054	0	260	5096	0	1339	1705	0	842	1767	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			11			51			21	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		260.0			79.3			97.0			129.7	
Travel Time (s)		19.5			5.9			7.3			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1460	182	140	626	39	84	51	88	59	41	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1642	0	140	665	0	84	139	0	59	70	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			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes				
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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	8.0	33.0		33.0	33.0		37.0	37.0		37.0	37.0	
Total Split (s)	13.0	114.0		101.0	101.0		46.0	46.0		46.0	46.0	
Total Split (%)	8.1%	71.3%		63.1%	63.1%		28.8%	28.8%		28.8%	28.8%	
Maximum Green (s)	10.0	108.0		95.0	95.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		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)	3.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
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	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		11.0		11.0	11.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)		16.0		16.0	16.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	134.6	131.6		126.2	126.2		15.4	15.4		15.4	15.4	
Actuated g/C Ratio	0.84	0.82		0.79	0.79		0.10	0.10		0.10	0.10	
v/c Ratio	0.03	0.39		0.68	0.17		0.66	0.66		0.73	0.37	
Control Delay	1.6	2.0		31.1	4.8		91.7	58.1		113.9	51.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	1.6	2.0		31.1	4.8		91.7	58.1		113.9	51.5	
LOS	A	A		C	A		F	E		F	D	
Approach Delay		2.0			9.3			70.8			80.1	
Approach LOS		A			A			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 155 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			

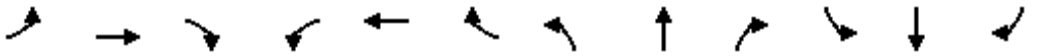
Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	1642	140	665	84	139	59	70
v/c Ratio	0.03	0.39	0.68	0.17	0.66	0.66	0.73	0.37
Control Delay	1.6	2.0	31.1	4.8	91.7	58.1	113.9	51.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.6	2.0	31.1	4.8	91.7	58.1	113.9	51.5
Queue Length 50th (m)	0.5	19.9	20.0	18.0	26.2	27.4	18.6	14.8
Queue Length 95th (m)	m0.7	24.7	#75.8	26.7	43.6	49.1	34.1	29.9
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	667	4161	205	4022	326	454	205	446
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	0.03	0.39	0.68	0.17	0.26	0.31	0.29	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1343	167	129	576	36	77	47	81	54	38	27
Future Volume (vph)	16	1343	167	129	576	36	77	47	81	54	38	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.91		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)	1789	5056		1789	5097		1789	1705		1789	1766	
Flt Permitted	0.38	1.00		0.14	1.00		0.71	1.00		0.45	1.00	
Satd. Flow (perm)	713	5056		259	5097		1340	1705		842	1766	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1460	182	140	626	39	84	51	88	59	41	29
RTOR Reduction (vph)	0	5	0	0	2	0	0	46	0	0	19	0
Lane Group Flow (vph)	17	1637	0	140	663	0	84	93	0	59	51	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	131.6	131.6		125.0	125.0		15.4	15.4		15.4	15.4	
Effective Green, g (s)	131.6	131.6		125.0	125.0		15.4	15.4		15.4	15.4	
Actuated g/C Ratio	0.82	0.82		0.78	0.78		0.10	0.10		0.10	0.10	
Clearance Time (s)	3.0	6.0		6.0	6.0		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)	610	4158		202	3982		128	164		81	169	
v/s Ratio Prot	0.00	c0.32			0.13			0.05			0.03	
v/s Ratio Perm	0.02			c0.54			0.06			c0.07		
v/c Ratio	0.03	0.39		0.69	0.17		0.66	0.57		0.73	0.30	
Uniform Delay, d1	2.6	3.7		8.3	4.4		69.7	69.1		70.3	67.3	
Progression Factor	0.58	0.46		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.2		17.8	0.1		11.5	4.4		27.6	1.0	
Delay (s)	1.5	1.9		26.2	4.5		81.2	73.5		97.9	68.3	
Level of Service	A	A		C	A		F	E		F	E	
Approach Delay (s)		1.9			8.3			76.4			81.8	
Approach LOS		A			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

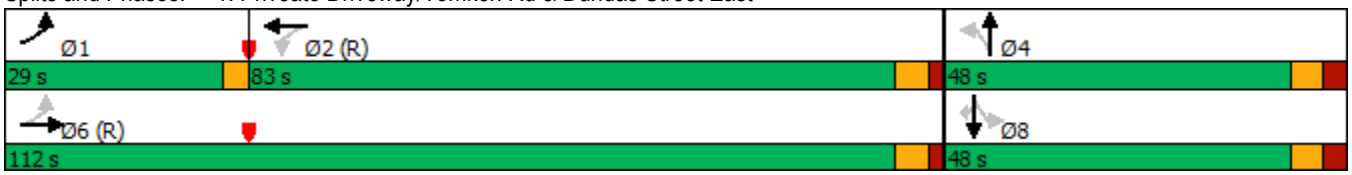
c Critical Lane Group

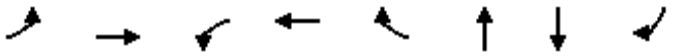
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	884	37	27	1340	320	34	15	50	280	19	237
Future Volume (vph)	234	884	37	27	1340	320	34	15	50	280	19	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	20.0		35.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	35.0			40.0			2.5			2.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.932				0.850
Flt Protected	0.950			0.950				0.983			0.955	
Satd. Flow (prot)	1789	5111	0	1789	5142	1601	0	1726	0	0	1799	1601
Flt Permitted	0.128			0.286				0.507			0.658	
Satd. Flow (perm)	241	5111	0	539	5142	1601	0	890	0	0	1239	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				89		31				247
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		68.4			140.0			67.8			105.1	
Travel Time (s)		5.1			10.5			5.1			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	244	921	39	28	1396	333	35	16	52	292	20	247
Shared Lane Traffic (%)												
Lane Group Flow (vph)	244	960	0	28	1396	333	0	103	0	0	312	247
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)		1.6			4.9			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
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	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		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	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		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	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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	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	
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	25.0		25.0	25.0		39.0	39.0		39.0	39.0	39.0
Total Split (s)	29.0	112.0		83.0	83.0		48.0	48.0		48.0	48.0	48.0
Total Split (%)	18.1%	70.0%		51.9%	51.9%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	26.0	106.0		77.0	77.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			-5.0	0.0
Total Lost Time (s)	3.0	6.0		6.0	6.0			7.0			2.0	7.0
Lead/Lag	Lead			Lag	Lag							
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	3.0
Recall Mode	None	C-Max		C-Max	C-Max		Max	Max		Max	Max	Max
Walk Time (s)		8.0		8.0	8.0		13.0	13.0		13.0	13.0	13.0
Flash Dont Walk (s)		9.0		9.0	9.0		19.0	19.0		19.0	19.0	19.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	109.0	106.0		86.6	86.6	160.0		41.0			46.0	41.0
Actuated g/C Ratio	0.68	0.66		0.54	0.54	1.00		0.26			0.29	0.26
v/c Ratio	0.76	0.28		0.10	0.50	0.21		0.41			0.88	0.42
Control Delay	31.6	11.4		13.7	14.3	0.3		39.8			79.4	7.3
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	31.6	11.4		13.7	14.3	0.3		39.8			79.4	7.3
LOS	C	B		B	B	A		D			E	A
Approach Delay		15.5			11.6			39.8			47.5	
Approach LOS		B			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 19.2		Intersection LOS: B	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East



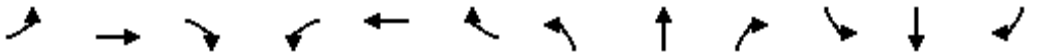


Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	244	960	28	1396	333	103	312	247
v/c Ratio	0.76	0.28	0.10	0.50	0.21	0.41	0.88	0.42
Control Delay	31.6	11.4	13.7	14.3	0.3	39.8	79.4	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	11.4	13.7	14.3	0.3	39.8	79.4	7.3
Queue Length 50th (m)	27.6	43.4	2.4	49.0	0.0	19.0	95.1	0.0
Queue Length 95th (m)	57.5	50.5	m4.8	53.5	0.0	38.5	#149.5	21.9
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	415	3388	291	2784	1601	251	356	593
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	0.59	0.28	0.10	0.50	0.21	0.41	0.88	0.42

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	884	37	27	1340	320	34	15	50	280	19	237
Future Volume (vph)	234	884	37	27	1340	320	34	15	50	280	19	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	4.0		7.0			2.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98			0.96	1.00
Satd. Flow (prot)	1789	5110		1789	5142	1601		1726			1799	1601
Flt Permitted	0.13	1.00		0.29	1.00	1.00		0.51			0.66	1.00
Satd. Flow (perm)	242	5110		539	5142	1601		889			1238	1601
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	244	921	39	28	1396	333	35	16	52	292	20	247
RTOR Reduction (vph)	0	3	0	0	0	0	0	23	0	0	0	184
Lane Group Flow (vph)	244	957	0	28	1396	333	0	80	0	0	312	63
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	106.0	106.0		86.6	86.6	160.0		41.0			41.0	41.0
Effective Green, g (s)	106.0	106.0		86.6	86.6	160.0		41.0			46.0	41.0
Actuated g/C Ratio	0.66	0.66		0.54	0.54	1.00		0.26			0.29	0.26
Clearance Time (s)	3.0	6.0		6.0	6.0			7.0			7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	318	3385		291	2783	1601		227			355	410
v/s Ratio Prot	c0.08	0.19			0.27							
v/s Ratio Perm	c0.43			0.05		0.21		0.09			c0.25	0.04
v/c Ratio	0.77	0.28		0.10	0.50	0.21		0.35			0.88	0.15
Uniform Delay, d1	18.4	11.2		17.8	23.1	0.0		48.6			54.3	46.1
Progression Factor	1.00	1.00		0.64	0.57	1.00		1.00			1.00	1.00
Incremental Delay, d2	10.6	0.2		0.6	0.6	0.3		4.2			25.2	0.8
Delay (s)	29.0	11.4		12.0	13.8	0.3		52.9			79.5	46.9
Level of Service	C	B		B	B	A		D			E	D
Approach Delay (s)		15.0			11.2			52.9			65.1	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

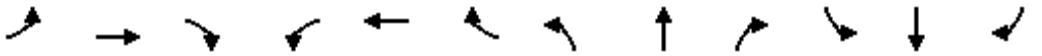
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1189	0	0	1620	0	0
Future Volume (vph)	1189	0	0	1620	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	0.91	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	5142	0	0	5142	1883	0
Flt Permitted						
Satd. Flow (perm)	5142	0	0	5142	1883	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1292	0	0	1761	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1292	0	0	1761	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1189	0	0	1620	0	0
Future Volume (Veh/h)	1189	0	0	1620	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1292	0	0	1761	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	140			260		
pX, platoon unblocked			0.93		0.86	0.93
vC, conflicting volume			1292		1879	431
vC1, stage 1 conf vol					1292	
vC2, stage 2 conf vol					587	
vCu, unblocked vol			1044		871	117
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			614		272	848

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	517	517	258	587	587	587	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.30	0.15	0.35	0.35	0.35	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							A
Approach Delay (s)	0.0			0.0			0.0
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

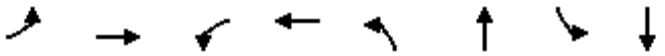


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	946	71	114	1444	62	151	93	111	62	53	9
Future Volume (vph)	42	946	71	114	1444	62	151	93	111	62	53	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	45.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			35.0			50.0			30.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.994			0.918			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5090	0	1789	5111	0	1789	1729	0	1789	1842	0
Flt Permitted	0.097			0.238			0.712			0.276		
Satd. Flow (perm)	183	5090	0	448	5111	0	1341	1729	0	520	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			6			36			6	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		260.0			79.3			97.0			129.7	
Travel Time (s)		19.5			5.9			7.3			9.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	1051	79	127	1604	69	168	103	123	69	59	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	1130	0	127	1673	0	168	226	0	69	69	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			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes				
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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	1	6			2			4		3	8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		4.0	8.0	
Minimum Split (s)	8.0	33.0		33.0	33.0		37.0	37.0		8.0	37.0	
Total Split (s)	13.0	99.0		86.0	86.0		46.0	46.0		15.0	61.0	
Total Split (%)	8.1%	61.9%		53.8%	53.8%		28.8%	28.8%		9.4%	38.1%	
Maximum Green (s)	10.0	93.0		80.0	80.0		39.0	39.0		11.0	54.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		0.5	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	6.0		6.0	6.0		7.0	7.0		4.0	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	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		11.0		11.0	11.0		12.0	12.0			12.0	
Flash Dont Walk (s)		16.0		16.0	16.0		18.0	18.0			18.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	110.9	107.9		99.7	99.7		25.5	25.5		42.1	39.1	
Actuated g/C Ratio	0.69	0.67		0.62	0.62		0.16	0.16		0.26	0.24	
v/c Ratio	0.24	0.33		0.46	0.53		0.79	0.74		0.33	0.15	
Control Delay	10.5	8.5		26.2	19.2		88.3	67.4		46.6	41.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.5	8.5		26.2	19.2		88.3	67.4		46.6	41.2	
LOS	B	A		C	B		F	E		D	D	
Approach Delay		8.5			19.7			76.3			43.9	
Approach LOS		A			B			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 23.3		Intersection LOS: C	
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			

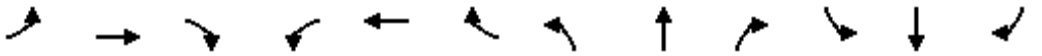
Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	1130	127	1673	168	226	69	69
v/c Ratio	0.24	0.33	0.46	0.53	0.79	0.74	0.33	0.15
Control Delay	10.5	8.5	26.2	19.2	88.3	67.4	46.6	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	8.5	26.2	19.2	88.3	67.4	46.6	41.2
Queue Length 50th (m)	3.6	40.6	21.2	108.3	52.1	58.8	16.9	15.7
Queue Length 95th (m)	m7.8	54.3	49.9	146.8	74.0	82.7	27.6	26.9
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	227	3436	279	3185	326	448	224	625
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	0.21	0.33	0.46	0.53	0.52	0.50	0.31	0.11

Intersection Summary

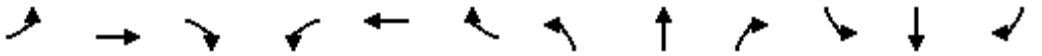
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	946	71	114	1444	62	151	93	111	62	53	9
Future Volume (vph)	42	946	71	114	1444	62	151	93	111	62	53	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0		7.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	5088		1789	5110		1789	1730		1789	1842	
Flt Permitted	0.10	1.00		0.24	1.00		0.71	1.00		0.28	1.00	
Satd. Flow (perm)	183	5088		448	5110		1341	1730		520	1842	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	1051	79	127	1604	69	168	103	123	69	59	10
RTOR Reduction (vph)	0	4	0	0	2	0	0	30	0	0	5	0
Lane Group Flow (vph)	47	1126	0	127	1671	0	168	196	0	69	64	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	1	6			2			4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	107.9	107.9		99.1	99.1		25.5	25.5		39.1	39.1	
Effective Green, g (s)	107.9	107.9		99.1	99.1		25.5	25.5		39.1	39.1	
Actuated g/C Ratio	0.67	0.67		0.62	0.62		0.16	0.16		0.24	0.24	
Clearance Time (s)	3.0	6.0		6.0	6.0		7.0	7.0		4.0	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)	181	3431		277	3165		213	275		203	450	
v/s Ratio Prot	0.01	c0.22			c0.33			0.11		c0.02	0.03	
v/s Ratio Perm	0.16			0.28			c0.13			0.06		
v/c Ratio	0.26	0.33		0.46	0.53		0.79	0.71		0.34	0.14	
Uniform Delay, d1	11.8	10.9		16.2	17.2		64.7	63.8		48.4	47.3	
Progression Factor	0.82	0.71		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		5.4	0.6		17.4	8.4		1.0	0.1	
Delay (s)	10.4	8.0		21.6	17.9		82.0	72.2		49.4	47.5	
Level of Service	B	A		C	B		F	E		D	D	
Approach Delay (s)		8.1			18.1			76.4			48.4	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

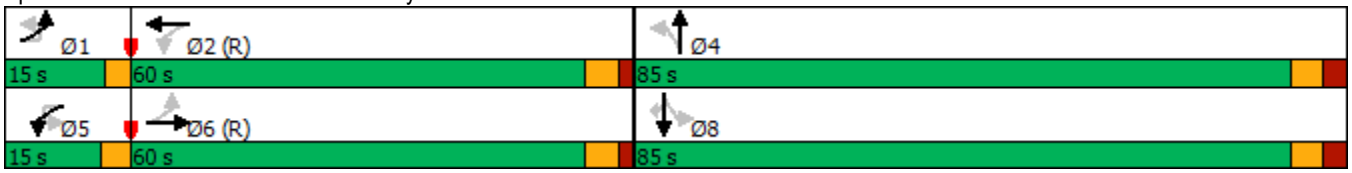


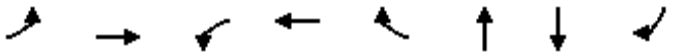
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	1039	4	4	462	150	4	5	22	454	14	364
Future Volume (vph)	175	1039	4	4	462	150	4	5	22	454	14	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	20.0		35.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	35.0			40.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.903				0.850
Flt Protected	0.950			0.950				0.994			0.954	
Satd. Flow (prot)	1789	3575	0	1789	3579	1601	0	1691	0	0	1797	1601
Flt Permitted	0.358			0.125				0.953			0.709	
Satd. Flow (perm)	674	3575	0	235	3579	1601	0	1621	0	0	1335	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						92		23				330
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		68.4			140.0			67.8			105.1	
Travel Time (s)		5.1			10.5			5.1			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	182	1082	4	4	481	156	4	5	23	473	15	379
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	1086	0	4	481	156	0	32	0	0	488	379
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)		1.6			4.9			1.6			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
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		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	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		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	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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	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	
Turn Type	pm+pt	NA		pm+pt	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		4.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	25.0		8.0	25.0		39.0	39.0		39.0	39.0	39.0
Total Split (s)	15.0	60.0		15.0	60.0		85.0	85.0		85.0	85.0	85.0
Total Split (%)	9.4%	37.5%		9.4%	37.5%		53.1%	53.1%		53.1%	53.1%	53.1%
Maximum Green (s)	12.0	54.0		11.5	54.0		78.0	78.0		78.0	78.0	78.0
Yellow Time (s)	3.0	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0		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
Total Lost Time (s)	3.0	6.0		3.5	6.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	Max
Walk Time (s)		8.0			8.0		13.0	13.0		13.0	13.0	13.0
Flash Dont Walk (s)		9.0			9.0		19.0	19.0		19.0	19.0	19.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	72.0	67.1		62.5	54.3	160.0		78.0			78.0	78.0
Actuated g/C Ratio	0.45	0.42		0.39	0.34	1.00		0.49			0.49	0.49
v/c Ratio	0.47	0.72		0.03	0.40	0.10		0.04			0.75	0.40
Control Delay	31.6	42.8		25.2	41.6	0.1		10.0			42.0	5.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	31.6	42.8		25.2	41.6	0.1		10.0			42.0	5.1
LOS	C	D		C	D	A		B			D	A
Approach Delay		41.2			31.4			10.0			25.9	
Approach LOS		D			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 33.9		Intersection LOS: C	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			

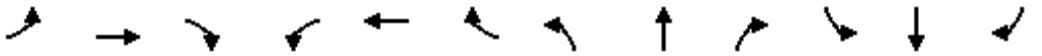
Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East





Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	182	1086	4	481	156	32	488	379
v/c Ratio	0.47	0.72	0.03	0.40	0.10	0.04	0.75	0.40
Control Delay	31.6	42.8	25.2	41.6	0.1	10.0	42.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	42.8	25.2	41.6	0.1	10.0	42.0	5.1
Queue Length 50th (m)	35.1	147.4	0.7	61.7	0.0	1.5	123.5	8.1
Queue Length 95th (m)	52.2	192.3	3.2	78.0	0.0	7.4	171.7	28.0
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	386	1498	211	1213	1601	802	650	949
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	0.47	0.72	0.02	0.40	0.10	0.04	0.75	0.40

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	1039	4	4	462	150	4	5	22	454	14	364
Future Volume (vph)	175	1039	4	4	462	150	4	5	22	454	14	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.5	6.0	4.0		7.0			7.0	7.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.90			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1789	3577		1789	3579	1601		1690			1796	1601
Flt Permitted	0.36	1.00		0.12	1.00	1.00		0.95			0.71	1.00
Satd. Flow (perm)	675	3577		235	3579	1601		1621			1336	1601
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	182	1082	4	4	481	156	4	5	23	473	15	379
RTOR Reduction (vph)	0	0	0	0	0	0	0	12	0	0	0	169
Lane Group Flow (vph)	182	1086	0	4	481	156	0	20	0	0	488	210
Turn Type	pm+pt	NA		pm+pt	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	69.0	64.3		55.5	54.3	160.0		78.0			78.0	78.0
Effective Green, g (s)	69.0	64.3		55.5	54.3	160.0		78.0			78.0	78.0
Actuated g/C Ratio	0.43	0.40		0.35	0.34	1.00		0.49			0.49	0.49
Clearance Time (s)	3.0	6.0		3.5	6.0			7.0			7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	372	1437		93	1214	1601		790			651	780
v/s Ratio Prot	c0.04	c0.30		0.00	0.13							
v/s Ratio Perm	0.18			0.01		0.10		0.01			c0.37	0.13
v/c Ratio	0.49	0.76		0.04	0.40	0.10		0.03			0.75	0.27
Uniform Delay, d1	29.6	41.1		36.8	40.3	0.0		21.3			33.1	24.2
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	1.0	3.7		0.2	1.0	0.1		0.1			7.7	0.8
Delay (s)	30.6	44.9		37.0	41.3	0.1		21.3			40.9	25.0
Level of Service	C	D		D	D	A		C			D	C
Approach Delay (s)		42.8			31.3			21.3			33.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	37.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

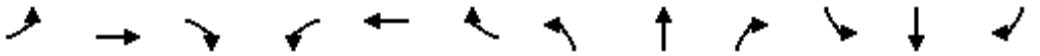
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1258	0	0	540	0	0
Future Volume (vph)	1258	0	0	540	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	3579	0	0	3579	0	1883
Flt Permitted						
Satd. Flow (perm)	3579	0	0	3579	0	1883
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1367	0	0	587	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1367	0	0	587	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	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
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1258	0	0	540	0	0
Future Volume (Veh/h)	1258	0	0	540	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1367	0	0	587	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	140			260		
pX, platoon unblocked			0.75		0.75	0.75
vC, conflicting volume			1367		1660	684
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			810		1173	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			605		139	809

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	911	456	294	294	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.54	0.27	0.17	0.17	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

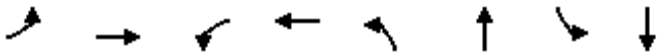


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	986	122	103	457	28	81	49	85	54	38	27
Future Volume (vph)	12	986	122	103	457	28	81	49	85	54	38	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	45.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			35.0			50.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.991			0.905			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3518	0	1789	3546	0	1789	1705	0	1789	1767	0
Flt Permitted	0.456			0.198			0.711			0.410		
Satd. Flow (perm)	859	3518	0	373	3546	0	1339	1705	0	772	1767	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			7			48			20	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		260.0			79.3			97.0			129.7	
Travel Time (s)		19.5			5.9			7.3			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	1072	133	112	497	30	88	53	92	59	41	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	1205	0	112	527	0	88	145	0	59	70	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			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
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	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	8.0		4.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	8.0	33.0		8.0	33.0		37.0	37.0		37.0	37.0	
Total Split (s)	13.0	109.0		13.0	109.0		46.0	46.0		46.0	46.0	
Total Split (%)	7.7%	64.9%		7.7%	64.9%		27.4%	27.4%		27.4%	27.4%	
Maximum Green (s)	10.0	103.0		9.0	103.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.0	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.5	2.0		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)	3.0	6.0		4.0	6.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	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	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		11.0			11.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)		16.0			16.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	135.9	127.2		140.4	135.0		16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.81	0.76		0.84	0.80		0.10	0.10		0.10	0.10	
v/c Ratio	0.02	0.45		0.30	0.18		0.68	0.69		0.79	0.37	
Control Delay	3.0	8.6		4.9	4.6		96.9	65.1		129.2	54.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.0	8.6		4.9	4.6		96.9	65.1		129.2	54.2	
LOS	A	A		A	A		F	E		F	D	
Approach Delay		8.5			4.6			77.1			88.5	
Approach LOS		A			A			E			F	

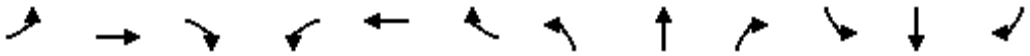
Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 168			
Offset: 155 (92%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	13	1205	112	527	88	145	59	70
v/c Ratio	0.02	0.45	0.30	0.18	0.68	0.69	0.79	0.37
Control Delay	3.0	8.6	4.9	4.6	96.9	65.1	129.2	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	8.6	4.9	4.6	96.9	65.1	129.2	54.2
Queue Length 50th (m)	0.6	69.6	5.4	15.8	29.0	32.0	19.6	15.8
Queue Length 95th (m)	2.1	101.3	11.6	33.3	46.8	54.5	35.6	31.5
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	772	2666	388	2851	310	432	179	425
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	0.02	0.45	0.29	0.18	0.28	0.34	0.33	0.16

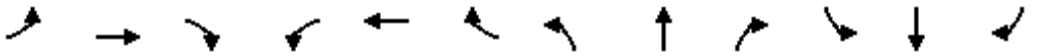
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	986	122	103	457	28	81	49	85	54	38	27
Future Volume (vph)	12	986	122	103	457	28	81	49	85	54	38	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.90		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)	1789	3519		1789	3548		1789	1704		1789	1766	
Flt Permitted	0.46	1.00		0.20	1.00		0.71	1.00		0.41	1.00	
Satd. Flow (perm)	860	3519		372	3548		1340	1704		772	1766	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	1072	133	112	497	30	88	53	92	59	41	29
RTOR Reduction (vph)	0	4	0	0	1	0	0	43	0	0	18	0
Lane Group Flow (vph)	13	1201	0	112	526	0	88	102	0	59	52	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	129.6	127.2		138.6	133.2		16.4	16.4		16.4	16.4	
Effective Green, g (s)	129.6	127.2		138.6	133.2		16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.77	0.76		0.82	0.79		0.10	0.10		0.10	0.10	
Clearance Time (s)	3.0	6.0		4.0	6.0		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)	676	2664		369	2813		130	166		75	172	
v/s Ratio Prot	0.00	c0.34		c0.01	0.15			0.06			0.03	
v/s Ratio Perm	0.01			0.24			0.07			c0.08		
v/c Ratio	0.02	0.45		0.30	0.19		0.68	0.61		0.79	0.30	
Uniform Delay, d1	4.4	7.5		4.4	4.2		73.2	72.8		74.1	70.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.6		0.5	0.1		13.1	6.5		40.6	1.0	
Delay (s)	4.4	8.1		4.8	4.4		86.3	79.3		114.7	71.5	
Level of Service	A	A		A	A		F	E		F	E	
Approach Delay (s)		8.0			4.5			82.0			91.2	
Approach LOS		A			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	168.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

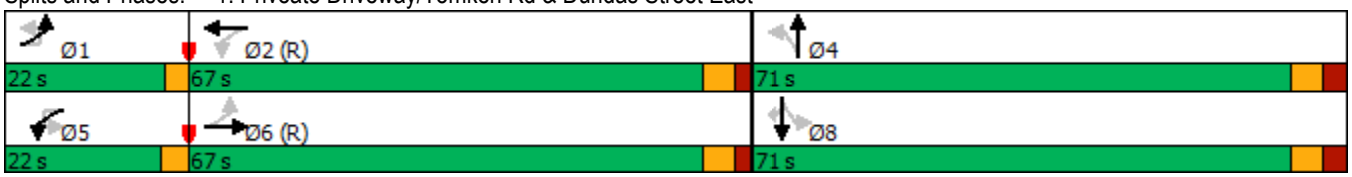


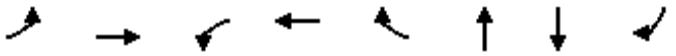
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	684	28	19	983	234	34	15	50	309	21	261
Future Volume (vph)	181	684	28	19	983	234	34	15	50	309	21	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	20.0		35.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	35.0			40.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.932				0.850
Flt Protected	0.950			0.950				0.983			0.955	
Satd. Flow (prot)	1789	3557	0	1789	3579	1601	0	1726	0	0	1799	1601
Flt Permitted	0.126			0.328				0.780			0.676	
Satd. Flow (perm)	237	3557	0	618	3579	1601	0	1369	0	0	1273	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				92		38				272
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		68.4			140.0			67.8			105.1	
Travel Time (s)		5.1			10.5			5.1			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	189	713	29	20	1024	244	35	16	52	322	22	272
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	742	0	20	1024	244	0	103	0	0	344	272
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)		1.6			4.9			1.6			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
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		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	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		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	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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	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	
Turn Type	pm+pt	NA		pm+pt	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		4.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	25.0		8.0	25.0		39.0	39.0		39.0	39.0	39.0
Total Split (s)	22.0	67.0		22.0	67.0		71.0	71.0		71.0	71.0	71.0
Total Split (%)	13.8%	41.9%		13.8%	41.9%		44.4%	44.4%		44.4%	44.4%	44.4%
Maximum Green (s)	19.0	61.0		18.5	61.0		64.0	64.0		64.0	64.0	64.0
Yellow Time (s)	3.0	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0		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
Total Lost Time (s)	3.0	6.0		3.5	6.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	Max
Walk Time (s)		8.0			8.0		13.0	13.0		13.0	13.0	13.0
Flash Dont Walk (s)		9.0			9.0		19.0	19.0		19.0	19.0	19.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	86.0	76.8		74.2	65.3	160.0		64.0			64.0	64.0
Actuated g/C Ratio	0.54	0.48		0.46	0.41	1.00		0.40			0.40	0.40
v/c Ratio	0.70	0.43		0.06	0.70	0.15		0.18			0.68	0.34
Control Delay	35.5	28.9		16.3	30.4	0.2		20.2			47.5	4.3
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	35.5	28.9		16.3	30.4	0.2		20.2			47.5	4.3
LOS	D	C		B	C	A		C			D	A
Approach Delay		30.2			24.5			20.2			28.4	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 27.0		Intersection LOS: C	
Intersection Capacity Utilization 80.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East

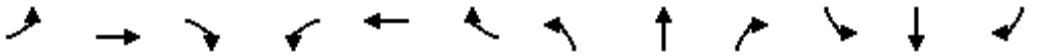




Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	189	742	20	1024	244	103	344	272
v/c Ratio	0.70	0.43	0.06	0.70	0.15	0.18	0.68	0.34
Control Delay	35.5	28.9	16.3	30.4	0.2	20.2	47.5	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.5	28.9	16.3	30.4	0.2	20.2	47.5	4.3
Queue Length 50th (m)	30.4	83.7	1.9	72.1	0.0	13.0	89.6	0.0
Queue Length 95th (m)	49.7	102.9	m4.1	95.7	0.0	26.7	127.9	17.9
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	311	1708	461	1461	1601	570	509	803
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	0.61	0.43	0.04	0.70	0.15	0.18	0.68	0.34

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	684	28	19	983	234	34	15	50	309	21	261
Future Volume (vph)	181	684	28	19	983	234	34	15	50	309	21	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.5	6.0	4.0		7.0			7.0	7.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98			0.96	1.00
Satd. Flow (prot)	1789	3558		1789	3579	1601		1726			1799	1601
Flt Permitted	0.13	1.00		0.33	1.00	1.00		0.78			0.68	1.00
Satd. Flow (perm)	238	3558		618	3579	1601		1369			1273	1601
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	189	712	29	20	1024	244	35	16	52	322	22	272
RTOR Reduction (vph)	0	2	0	0	0	0	0	23	0	0	0	163
Lane Group Flow (vph)	189	740	0	20	1024	244	0	80	0	0	344	109
Turn Type	pm+pt	NA		pm+pt	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	83.0	75.4		69.4	65.3	160.0		64.0			64.0	64.0
Effective Green, g (s)	83.0	75.4		69.4	65.3	160.0		64.0			64.0	64.0
Actuated g/C Ratio	0.52	0.47		0.43	0.41	1.00		0.40			0.40	0.40
Clearance Time (s)	3.0	6.0		3.5	6.0			7.0			7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	265	1676		298	1460	1601		547			509	640
v/s Ratio Prot	c0.07	0.21		0.00	0.29							
v/s Ratio Perm	c0.30			0.03		0.15		0.06			c0.27	0.07
v/c Ratio	0.71	0.44		0.07	0.70	0.15		0.15			0.68	0.17
Uniform Delay, d1	27.6	28.2		26.1	39.3	0.0		30.6			39.5	30.9
Progression Factor	1.00	1.00		0.87	0.70	1.00		1.00			1.00	1.00
Incremental Delay, d2	8.8	0.8		0.1	2.4	0.2		0.6			7.0	0.6
Delay (s)	36.3	29.1		22.9	29.8	0.2		31.2			46.5	31.5
Level of Service	D	C		C	C	A		C			D	C
Approach Delay (s)		30.6			24.1			31.2			39.9	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	920	0	0	1189	0	0
Future Volume (vph)	920	0	0	1189	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	3579	0	0	3579	0	1883
Flt Permitted						
Satd. Flow (perm)	3579	0	0	3579	0	1883
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1000	0	0	1292	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1000	0	0	1292	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	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
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	920	0	0	1189	0	0
Future Volume (Veh/h)	920	0	0	1189	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1000	0	0	1292	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	140			260		
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			1000		1646	500
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			697		773	121
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			777		293	788

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	667	333	646	646	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.39	0.20	0.38	0.38	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

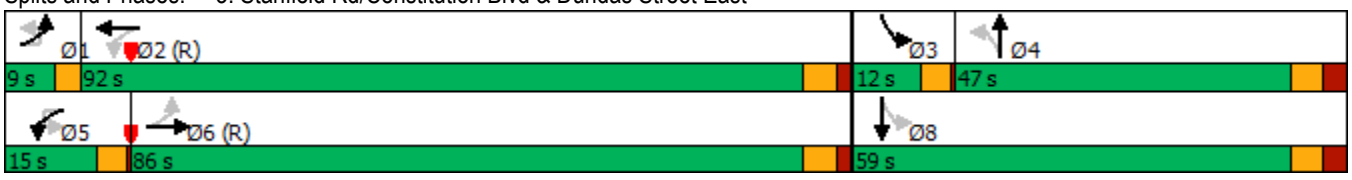
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

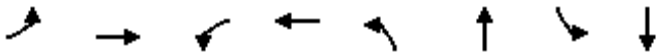
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	732	55	84	1060	46	151	93	111	68	59	10
Future Volume (vph)	32	732	55	84	1060	46	151	93	111	68	59	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	45.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			35.0			50.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.994			0.918			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3543	0	1789	3557	0	1789	1729	0	1789	1844	0
Flt Permitted	0.173			0.263			0.707			0.279		
Satd. Flow (perm)	326	3543	0	495	3557	0	1332	1729	0	525	1844	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			4			36			6	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		260.0			79.3			97.0			129.7	
Travel Time (s)		19.5			5.9			7.3			9.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	813	61	93	1178	51	168	103	123	76	66	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	874	0	93	1229	0	168	226	0	76	77	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			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
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	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	8.0		4.0	8.0		8.0	8.0		4.0	8.0	
Minimum Split (s)	8.0	33.0		8.0	33.0		37.0	37.0		8.0	37.0	
Total Split (s)	9.0	86.0		15.0	92.0		47.0	47.0		12.0	59.0	
Total Split (%)	5.6%	53.8%		9.4%	57.5%		29.4%	29.4%		7.5%	36.9%	
Maximum Green (s)	6.0	80.0		11.0	86.0		40.0	40.0		8.0	52.0	
Yellow Time (s)	3.0	4.0		3.5	4.0		4.0	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		0.5	2.0		3.0	3.0		0.5	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	6.0		4.0	6.0		7.0	7.0		4.0	7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	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	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		11.0			11.0		12.0	12.0			12.0	
Flash Dont Walk (s)		16.0			16.0		18.0	18.0			18.0	
Pedestrian Calls (#/hr)		0			0		0	0			0	
Act Effct Green (s)	106.7	97.2		110.7	101.6		25.7	25.7		40.5	37.5	
Actuated g/C Ratio	0.67	0.61		0.69	0.64		0.16	0.16		0.25	0.23	
v/c Ratio	0.13	0.41		0.23	0.54		0.79	0.74		0.39	0.18	
Control Delay	8.1	14.0		10.3	18.8		88.2	66.9		50.4	43.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.1	14.0		10.3	18.8		88.2	66.9		50.4	43.8	
LOS	A	B		B	B		F	E		D	D	
Approach Delay		13.7			18.2			76.0			47.1	
Approach LOS		B			B			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East

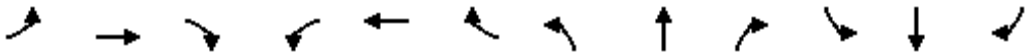




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	874	93	1229	168	226	76	77
v/c Ratio	0.13	0.41	0.23	0.54	0.79	0.74	0.39	0.18
Control Delay	8.1	14.0	10.3	18.8	88.2	66.9	50.4	43.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	14.0	10.3	18.8	88.2	66.9	50.4	43.8
Queue Length 50th (m)	3.2	55.5	8.8	112.3	52.1	58.7	19.0	18.1
Queue Length 95th (m)	m6.3	67.7	18.4	158.3	74.0	82.6	30.6	30.2
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	278	2154	433	2260	333	459	196	603
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	0.13	0.41	0.21	0.54	0.50	0.49	0.39	0.13

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	732	55	84	1060	46	151	93	111	68	59	10
Future Volume (vph)	32	732	55	84	1060	46	151	93	111	68	59	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		4.0	6.0		7.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3541		1789	3556		1789	1730		1789	1843	
Flt Permitted	0.17	1.00		0.26	1.00		0.71	1.00		0.28	1.00	
Satd. Flow (perm)	326	3541		494	3556		1331	1730		525	1843	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	813	61	93	1178	51	168	103	123	76	66	11
RTOR Reduction (vph)	0	3	0	0	1	0	0	30	0	0	5	0
Lane Group Flow (vph)	36	871	0	93	1228	0	168	196	0	76	72	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	102.7	97.2		109.3	101.0		25.7	25.7		37.5	37.5	
Effective Green, g (s)	102.7	97.2		109.3	101.0		25.7	25.7		37.5	37.5	
Actuated g/C Ratio	0.64	0.61		0.68	0.63		0.16	0.16		0.23	0.23	
Clearance Time (s)	3.0	6.0		4.0	6.0		7.0	7.0		4.0	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)	259	2151		404	2244		213	277		184	431	
v/s Ratio Prot	0.00	0.25		c0.01	c0.35			0.11		c0.02	0.04	
v/s Ratio Perm	0.08			0.14			c0.13			0.08		
v/c Ratio	0.14	0.41		0.23	0.55		0.79	0.71		0.41	0.17	
Uniform Delay, d1	12.3	16.3		9.9	16.6		64.5	63.6		49.9	48.8	
Progression Factor	0.81	0.77		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.3	1.0		17.4	8.0		1.5	0.2	
Delay (s)	10.2	13.1		10.1	17.6		81.9	71.6		51.4	49.0	
Level of Service	B	B		B	B		F	E		D	D	
Approach Delay (s)		13.0			17.1			76.0			50.2	
Approach LOS		B			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

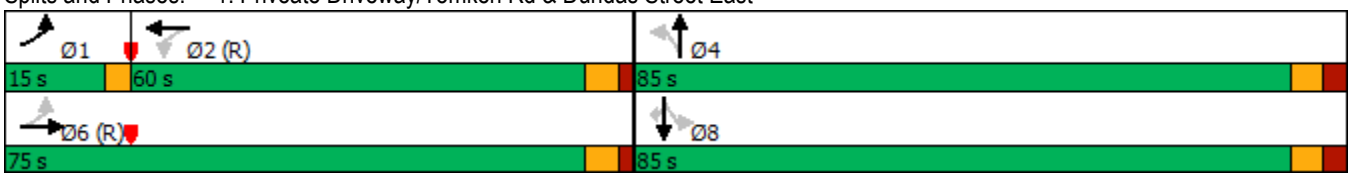
c Critical Lane Group

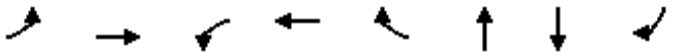
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	1427	6	5	586	202	4	5	21	466	14	364
Future Volume (vph)	239	1427	6	5	586	202	4	5	21	466	14	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	20.0		35.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	35.0			40.0			2.5			2.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.904				0.850
Flt Protected	0.950			0.950				0.994			0.954	
Satd. Flow (prot)	1789	5137	0	1789	5142	1601	0	1692	0	0	1797	1601
Flt Permitted	0.324			0.107				0.951			0.710	
Satd. Flow (perm)	610	5137	0	202	5142	1601	0	1619	0	0	1337	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						119		10				280
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		68.4			140.0			67.8			105.1	
Travel Time (s)		5.1			10.5			5.1			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	249	1486	6	5	610	210	4	5	22	485	15	379
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	1492	0	5	610	210	0	31	0	0	500	379
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)		1.6			4.9			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
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	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		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	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		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	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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	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	
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	8.0	23.0		23.0	23.0		39.0	39.0		39.0	39.0	39.0
Total Split (s)	15.0	75.0		60.0	60.0		85.0	85.0		85.0	85.0	85.0
Total Split (%)	9.4%	46.9%		37.5%	37.5%		53.1%	53.1%		53.1%	53.1%	53.1%
Maximum Green (s)	12.0	69.0		54.0	54.0		78.0	78.0		78.0	78.0	78.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			-5.0	0.0
Total Lost Time (s)	3.0	6.0		6.0	6.0			7.0			2.0	7.0
Lead/Lag	Lead			Lag	Lag							
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	3.0
Recall Mode	None	C-Max		C-Max	C-Max		Max	Max		Max	Max	Max
Walk Time (s)		8.0		8.0	8.0		13.0	13.0		13.0	13.0	13.0
Flash Dont Walk (s)		9.0		9.0	9.0		19.0	19.0		19.0	19.0	19.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	72.0	69.0		54.0	54.0	160.0		78.0			83.0	78.0
Actuated g/C Ratio	0.45	0.43		0.34	0.34	1.00		0.49			0.52	0.49
v/c Ratio	0.69	0.67		0.07	0.35	0.13		0.04			0.72	0.41
Control Delay	40.4	38.4		36.2	35.5	0.2		16.2			37.0	7.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	40.4	38.4		36.2	35.5	0.2		16.2			37.0	7.8
LOS	D	D		D	D	A		B			D	A
Approach Delay		38.6			26.5			16.2			24.4	
Approach LOS		D			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 138 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 32.0		Intersection LOS: C	
Intersection Capacity Utilization 80.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East

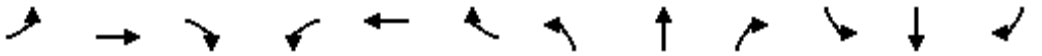




Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	249	1492	5	610	210	31	500	379
v/c Ratio	0.69	0.67	0.07	0.35	0.13	0.04	0.72	0.41
Control Delay	40.4	38.4	36.2	35.5	0.2	16.2	37.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	38.4	36.2	35.5	0.2	16.2	37.0	7.8
Queue Length 50th (m)	50.1	138.1	1.1	47.4	0.0	3.4	119.8	17.0
Queue Length 95th (m)	71.3	154.6	m4.1	56.1	0.0	9.5	166.8	40.3
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	362	2215	68	1735	1601	794	693	923
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	0.69	0.67	0.07	0.35	0.13	0.04	0.72	0.41

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	1427	6	5	586	202	4	5	21	466	14	364
Future Volume (vph)	239	1427	6	5	586	202	4	5	21	466	14	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	4.0		7.0			2.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.90			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.95	1.00
Satd. Flow (prot)	1789	5139		1789	5142	1601		1692			1796	1601
Flt Permitted	0.32	1.00		0.11	1.00	1.00		0.95			0.71	1.00
Satd. Flow (perm)	609	5139		201	5142	1601		1619			1337	1601
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	249	1486	6	5	610	210	4	5	22	485	15	379
RTOR Reduction (vph)	0	0	0	0	0	0	0	5	0	0	0	144
Lane Group Flow (vph)	249	1492	0	5	610	210	0	26	0	0	500	236
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	69.0	69.0		54.0	54.0	160.0		78.0			78.0	78.0
Effective Green, g (s)	69.0	69.0		54.0	54.0	160.0		78.0			83.0	78.0
Actuated g/C Ratio	0.43	0.43		0.34	0.34	1.00		0.49			0.52	0.49
Clearance Time (s)	3.0	6.0		6.0	6.0			7.0			7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	351	2216		67	1735	1601		789			693	780
v/s Ratio Prot	c0.05	0.29			0.12							
v/s Ratio Perm	c0.25			0.02		0.13		0.02			c0.37	0.15
v/c Ratio	0.71	0.67		0.07	0.35	0.13		0.03			0.72	0.30
Uniform Delay, d1	32.9	36.5		36.0	39.8	0.0		21.4			29.6	24.6
Progression Factor	1.00	1.00		0.90	0.87	1.00		1.00			1.00	1.00
Incremental Delay, d2	6.4	1.7		2.1	0.6	0.2		0.1			6.4	1.0
Delay (s)	39.3	38.1		34.6	35.3	0.2		21.4			36.0	25.6
Level of Service	D	D		C	D	A		C			D	C
Approach Delay (s)		38.3			26.4			21.4			31.5	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

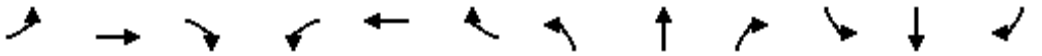
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1715	22	21	680	17	44
Future Volume (vph)	1715	22	21	680	17	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	0.91	0.91	1.00	1.00
Frt	0.998				0.902	
Flt Protected				0.998	0.987	
Satd. Flow (prot)	5132	0	0	5132	1677	0
Flt Permitted				0.998	0.987	
Satd. Flow (perm)	5132	0	0	5132	1677	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1864	24	23	739	18	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1888	0	0	762	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1715	22	21	680	17	44
Future Volume (Veh/h)	1715	22	21	680	17	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1864	24	23	739	18	48
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	140			260		
pX, platoon unblocked			0.77		0.77	0.77
vC, conflicting volume			1888		2168	633
vC1, stage 1 conf vol					1876	
vC2, stage 2 conf vol					292	
vCu, unblocked vol			1113		1471	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		91	94
cM capacity (veh/h)			481		207	836

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	746	746	397	171	296	296	66
Volume Left	0	0	0	23	0	0	18
Volume Right	0	0	24	0	0	0	48
cSH	1700	1700	1700	481	1700	1700	457
Volume to Capacity	0.44	0.44	0.23	0.05	0.17	0.17	0.14
Queue Length 95th (m)	0.0	0.0	0.0	1.1	0.0	0.0	3.8
Control Delay (s)	0.0	0.0	0.0	2.3	0.0	0.0	14.2
Lane LOS				A			B
Approach Delay (s)	0.0			0.5			14.2
Approach LOS							B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

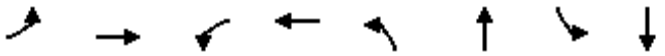


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1383	171	129	595	36	80	47	81	54	38	27
Future Volume (vph)	16	1383	171	129	595	36	80	47	81	54	38	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	45.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			35.0			50.0			30.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.991			0.905			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5054	0	1789	5096	0	1789	1705	0	1789	1767	0
Flt Permitted	0.370			0.130			0.711			0.454		
Satd. Flow (perm)	697	5054	0	245	5096	0	1339	1705	0	855	1767	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			10			51			21	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		260.0			79.3			97.0			129.7	
Travel Time (s)		19.5			5.9			7.3			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1503	186	140	647	39	87	51	88	59	41	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1689	0	140	686	0	87	139	0	59	70	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			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes				
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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	8.0	33.0		33.0	33.0		37.0	37.0		37.0	37.0	
Total Split (s)	13.0	114.0		101.0	101.0		46.0	46.0		46.0	46.0	
Total Split (%)	8.1%	71.3%		63.1%	63.1%		28.8%	28.8%		28.8%	28.8%	
Maximum Green (s)	10.0	108.0		95.0	95.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		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)	3.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
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	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		11.0		11.0	11.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)		16.0		16.0	16.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	134.2	131.2		125.9	125.9		15.8	15.8		15.8	15.8	
Actuated g/C Ratio	0.84	0.82		0.79	0.79		0.10	0.10		0.10	0.10	
v/c Ratio	0.03	0.41		0.73	0.17		0.66	0.65		0.70	0.36	
Control Delay	1.7	2.2		36.8	4.9		91.6	57.0		108.3	51.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	1.7	2.2		36.8	4.9		91.6	57.0		108.3	51.0	
LOS	A	A		D	A		F	E		F	D	
Approach Delay		2.2			10.3			70.3			77.2	
Approach LOS		A			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 155 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 13.2		Intersection LOS: B	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

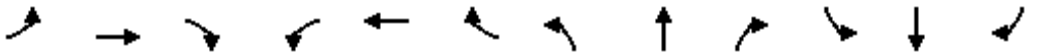
Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	1689	140	686	87	139	59	70
v/c Ratio	0.03	0.41	0.73	0.17	0.66	0.65	0.70	0.36
Control Delay	1.7	2.2	36.8	4.9	91.6	57.0	108.3	51.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	2.2	36.8	4.9	91.6	57.0	108.3	51.0
Queue Length 50th (m)	0.5	21.9	21.7	19.0	27.2	27.3	18.5	14.7
Queue Length 95th (m)	m0.7	26.3	#79.6	28.1	44.8	48.9	33.9	29.8
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	653	4150	192	4010	326	454	208	446
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	0.03	0.41	0.73	0.17	0.27	0.31	0.28	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1383	171	129	595	36	80	47	81	54	38	27
Future Volume (vph)	16	1383	171	129	595	36	80	47	81	54	38	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.91		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)	1789	5057		1789	5098		1789	1705		1789	1766	
Flt Permitted	0.37	1.00		0.13	1.00		0.71	1.00		0.45	1.00	
Satd. Flow (perm)	698	5057		245	5098		1340	1705		855	1766	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1503	186	140	647	39	87	51	88	59	41	29
RTOR Reduction (vph)	0	5	0	0	2	0	0	46	0	0	19	0
Lane Group Flow (vph)	17	1684	0	140	684	0	87	93	0	59	51	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	131.2	131.2		124.6	124.6		15.8	15.8		15.8	15.8	
Effective Green, g (s)	131.2	131.2		124.6	124.6		15.8	15.8		15.8	15.8	
Actuated g/C Ratio	0.82	0.82		0.78	0.78		0.10	0.10		0.10	0.10	
Clearance Time (s)	3.0	6.0		6.0	6.0		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)	596	4146		190	3970		132	168		84	174	
v/s Ratio Prot	0.00	c0.33			0.13			0.05			0.03	
v/s Ratio Perm	0.02			c0.57			0.06			c0.07		
v/c Ratio	0.03	0.41		0.74	0.17		0.66	0.55		0.70	0.29	
Uniform Delay, d1	2.6	3.9		9.2	4.5		69.5	68.7		69.8	66.9	
Progression Factor	0.57	0.47		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.2		22.3	0.1		11.3	3.9		23.3	0.9	
Delay (s)	1.5	2.1		31.5	4.6		80.8	72.7		93.1	67.9	
Level of Service	A	A		C	A		F	E		F	E	
Approach Delay (s)		2.1			9.2			75.8			79.4	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

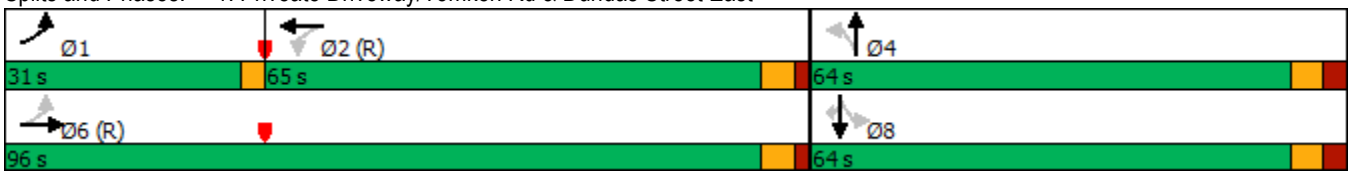
c Critical Lane Group

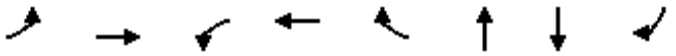
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	902	37	27	1348	354	34	15	50	304	19	237
Future Volume (vph)	234	902	37	27	1348	354	34	15	50	304	19	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	20.0		35.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	35.0			40.0			2.5			2.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.932				0.850
Flt Protected	0.950			0.950				0.983			0.955	
Satd. Flow (prot)	1789	5111	0	1789	5142	1601	0	1726	0	0	1799	1601
Flt Permitted	0.090			0.280				0.681			0.670	
Satd. Flow (perm)	170	5111	0	527	5142	1601	0	1195	0	0	1262	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				91		36				247
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		68.4			140.0			67.8			175.0	
Travel Time (s)		5.1			10.5			5.1			13.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	244	940	39	28	1404	369	35	16	52	317	20	247
Shared Lane Traffic (%)												
Lane Group Flow (vph)	244	979	0	28	1404	369	0	103	0	0	337	247
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)		1.6			4.9			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
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	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		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	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		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	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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	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	
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	25.0		25.0	25.0		39.0	39.0		39.0	39.0	39.0
Total Split (s)	31.0	96.0		65.0	65.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	19.4%	60.0%		40.6%	40.6%		40.0%	40.0%		40.0%	40.0%	40.0%
Maximum Green (s)	28.0	90.0		59.0	59.0		57.0	57.0		57.0	57.0	57.0
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			-5.0	0.0
Total Lost Time (s)	3.0	6.0		6.0	6.0			7.0			2.0	7.0
Lead/Lag	Lead			Lag	Lag							
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	3.0
Recall Mode	None	C-Max		C-Max	C-Max		Max	Max		Max	Max	Max
Walk Time (s)		8.0		8.0	8.0		13.0	13.0		13.0	13.0	13.0
Flash Dont Walk (s)		9.0		9.0	9.0		19.0	19.0		19.0	19.0	19.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	93.0	90.0		66.2	66.2	160.0		57.0			62.0	57.0
Actuated g/C Ratio	0.58	0.56		0.41	0.41	1.00		0.36			0.39	0.36
v/c Ratio	0.79	0.34		0.13	0.66	0.23		0.23			0.69	0.34
Control Delay	50.6	19.2		30.3	30.0	0.3		24.7			49.7	5.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	50.6	19.2		30.3	30.0	0.3		24.7			49.7	5.1
LOS	D	B		C	C	A		C			D	A
Approach Delay		25.5			23.9			24.7			30.9	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 25.6		Intersection LOS: C	
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East

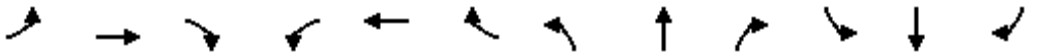




Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	244	979	28	1404	369	103	337	247
v/c Ratio	0.79	0.34	0.13	0.66	0.23	0.23	0.69	0.34
Control Delay	50.6	19.2	30.3	30.0	0.3	24.7	49.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	19.2	30.3	30.0	0.3	24.7	49.7	5.1
Queue Length 50th (m)	49.4	59.5	3.7	68.3	0.0	14.5	89.3	0.0
Queue Length 95th (m)	78.7	69.1	m9.2	99.2	0.0	29.9	127.7	18.6
Internal Link Dist (m)		44.4		116.0		43.8	151.0	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	382	2877	218	2126	1601	448	489	729
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	0.64	0.34	0.13	0.66	0.23	0.23	0.69	0.34

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	902	37	27	1348	354	34	15	50	304	19	237
Future Volume (vph)	234	902	37	27	1348	354	34	15	50	304	19	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	4.0		7.0			2.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98			0.96	1.00
Satd. Flow (prot)	1789	5111		1789	5142	1601		1726			1799	1601
Flt Permitted	0.09	1.00		0.28	1.00	1.00		0.68			0.67	1.00
Satd. Flow (perm)	169	5111		528	5142	1601		1195			1262	1601
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	244	940	39	28	1404	369	35	16	52	317	20	247
RTOR Reduction (vph)	0	3	0	0	0	0	0	23	0	0	0	159
Lane Group Flow (vph)	244	976	0	28	1404	369	0	80	0	0	337	88
Turn Type	pm+pt	NA		Perm	NA	Free	Perm	NA		Perm	NA	Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	90.0	90.0		66.2	66.2	160.0		57.0			57.0	57.0
Effective Green, g (s)	90.0	90.0		66.2	66.2	160.0		57.0			62.0	57.0
Actuated g/C Ratio	0.56	0.56		0.41	0.41	1.00		0.36			0.39	0.36
Clearance Time (s)	3.0	6.0		6.0	6.0			7.0			7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	305	2874		218	2127	1601		425			489	570
v/s Ratio Prot	c0.10	0.19			0.27							
v/s Ratio Perm	c0.34			0.05		0.23		0.07			c0.27	0.05
v/c Ratio	0.80	0.34		0.13	0.66	0.23		0.19			0.69	0.15
Uniform Delay, d1	38.4	18.9		29.0	37.8	0.0		35.5			40.9	35.1
Progression Factor	1.00	1.00		0.90	0.74	1.00		1.00			1.00	1.00
Incremental Delay, d2	13.9	0.3		1.0	1.4	0.3		1.0			7.7	0.6
Delay (s)	52.3	19.3		27.0	29.2	0.3		36.5			48.7	35.7
Level of Service	D	B		C	C	A		D			D	D
Approach Delay (s)		25.8			23.3			36.5			43.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

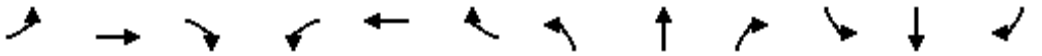
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1189	41	62	1620	42	44
Future Volume (vph)	1189	41	62	1620	42	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	0.91	0.91	1.00	1.00
Frt	0.995				0.931	
Flt Protected				0.998	0.976	
Satd. Flow (prot)	5116	0	0	5132	1711	0
Flt Permitted				0.998	0.976	
Satd. Flow (perm)	5116	0	0	5132	1711	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1292	45	67	1761	46	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1337	0	0	1828	94	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1189	41	62	1620	42	44
Future Volume (Veh/h)	1189	41	62	1620	42	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1292	45	67	1761	46	48
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	140			260		
pX, platoon unblocked			0.90		0.85	0.90
vC, conflicting volume			1337		2036	453
vC1, stage 1 conf vol					1314	
vC2, stage 2 conf vol					721	
vCu, unblocked vol			994		842	15
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			89		84	95
cM capacity (veh/h)			624		288	957

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	517	517	303	419	704	704	94
Volume Left	0	0	0	67	0	0	46
Volume Right	0	0	45	0	0	0	48
cSH	1700	1700	1700	624	1700	1700	448
Volume to Capacity	0.30	0.30	0.18	0.11	0.41	0.41	0.21
Queue Length 95th (m)	0.0	0.0	0.0	2.7	0.0	0.0	5.9
Control Delay (s)	0.0	0.0	0.0	3.1	0.0	0.0	15.1
Lane LOS				A			C
Approach Delay (s)	0.0			0.7			15.1
Approach LOS							C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

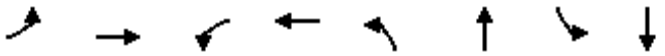


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	986	76	114	1500	62	157	93	111	62	53	9
Future Volume (vph)	42	986	76	114	1500	62	157	93	111	62	53	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	45.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			35.0			50.0			30.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.994			0.918			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	5085	0	1789	5111	0	1789	1729	0	1789	1842	0
Flt Permitted	0.088			0.223			0.712			0.289		
Satd. Flow (perm)	166	5085	0	420	5111	0	1341	1729	0	544	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			5			36			6	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		260.0			79.3			97.0			129.7	
Travel Time (s)		19.5			5.9			7.3			9.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	1096	84	127	1667	69	174	103	123	69	59	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	1180	0	127	1736	0	174	226	0	69	69	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			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes				
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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	1	6			2			4		3	8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		2	2		4	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		4.0	8.0	
Minimum Split (s)	8.0	33.0		33.0	33.0		37.0	37.0		8.0	37.0	
Total Split (s)	13.0	99.0		86.0	86.0		46.0	46.0		15.0	61.0	
Total Split (%)	8.1%	61.9%		53.8%	53.8%		28.8%	28.8%		9.4%	38.1%	
Maximum Green (s)	10.0	93.0		80.0	80.0		39.0	39.0		11.0	54.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		3.0	3.0		0.5	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	6.0		6.0	6.0		7.0	7.0		4.0	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	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		11.0		11.0	11.0		12.0	12.0			12.0	
Flash Dont Walk (s)		16.0		16.0	16.0		18.0	18.0			18.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	110.0	107.0		98.8	98.8		26.4	26.4		43.0	40.0	
Actuated g/C Ratio	0.69	0.67		0.62	0.62		0.16	0.16		0.27	0.25	
v/c Ratio	0.26	0.35		0.49	0.55		0.79	0.72		0.31	0.15	
Control Delay	12.0	8.9		28.9	20.2		87.2	65.0		45.6	40.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.0	8.9		28.9	20.2		87.2	65.0		45.6	40.6	
LOS	B	A		C	C		F	E		D	D	
Approach Delay		9.0			20.8			74.7			43.1	
Approach LOS		A			C			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 23.6		Intersection LOS: C	
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	1180	127	1736	174	226	69	69
v/c Ratio	0.26	0.35	0.49	0.55	0.79	0.72	0.31	0.15
Control Delay	12.0	8.9	28.9	20.2	87.2	65.0	45.6	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	8.9	28.9	20.2	87.2	65.0	45.6	40.6
Queue Length 50th (m)	3.9	41.6	22.0	115.8	54.0	58.5	16.8	15.7
Queue Length 95th (m)	m7.4	50.6	53.2	156.9	76.1	82.1	27.4	26.6
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	215	3406	259	3157	326	448	231	625
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	0.22	0.35	0.49	0.55	0.53	0.50	0.30	0.11

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	986	76	114	1500	62	157	93	111	62	53	9
Future Volume (vph)	42	986	76	114	1500	62	157	93	111	62	53	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0		7.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	5087		1789	5111		1789	1730		1789	1842	
Flt Permitted	0.09	1.00		0.22	1.00		0.71	1.00		0.29	1.00	
Satd. Flow (perm)	165	5087		420	5111		1341	1730		544	1842	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	1096	84	127	1667	69	174	103	123	69	59	10
RTOR Reduction (vph)	0	4	0	0	2	0	0	30	0	0	5	0
Lane Group Flow (vph)	47	1176	0	127	1734	0	174	196	0	69	65	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	1	6			2			4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	107.0	107.0		98.2	98.2		26.4	26.4		40.0	40.0	
Effective Green, g (s)	107.0	107.0		98.2	98.2		26.4	26.4		40.0	40.0	
Actuated g/C Ratio	0.67	0.67		0.61	0.61		0.16	0.16		0.25	0.25	
Clearance Time (s)	3.0	6.0		6.0	6.0		7.0	7.0		4.0	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)	169	3401		257	3136		221	285		210	460	
v/s Ratio Prot	0.01	c0.23			c0.34			0.11		c0.02	0.04	
v/s Ratio Perm	0.18			0.30			c0.13			0.06		
v/c Ratio	0.28	0.35		0.49	0.55		0.79	0.69		0.33	0.14	
Uniform Delay, d1	12.7	11.4		17.1	18.1		64.1	62.9		47.7	46.6	
Progression Factor	0.90	0.71		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3		6.6	0.7		16.7	6.7		0.9	0.1	
Delay (s)	12.2	8.4		23.8	18.8		80.8	69.7		48.6	46.8	
Level of Service	B	A		C	B		F	E		D	D	
Approach Delay (s)		8.5			19.1			74.5			47.7	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

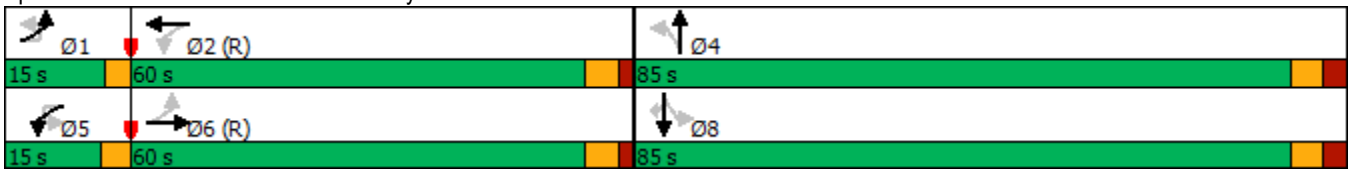
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	175	1053	4	18	4	469	172	4	5	22	466	14
Future Volume (vph)	175	1053	4	18	4	469	172	4	5	22	466	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0		20.0		35.0	0.0		0.0	0.0	
Storage Lanes	1		0		1		1	0		0	0	
Taper Length (m)	35.0				40.0			2.5			2.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999					0.850		0.902			
Flt Protected	0.950				0.950				0.994			0.954
Satd. Flow (prot)	1789	3575	0	0	1789	3579	1601	0	1689	0	0	1797
Flt Permitted	0.338				0.078				0.952			0.708
Satd. Flow (perm)	637	3575	0	0	147	3579	1601	0	1617	0	0	1333
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)							92		24			
Link Speed (k/h)		48				48			48			48
Link Distance (m)		68.4				140.0			67.8			105.1
Travel Time (s)		5.1				10.5			5.1			7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	1145	4	20	4	510	187	4	5	24	507	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	190	1149	0	0	24	510	187	0	33	0	0	522
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
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)		1.6				4.9			1.6			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	14	24		14	24		14	24	
Number of Detectors	1	2		1	1	2	1	1	2		1	2
Detector Template	Left	Thru		Left	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (m)	6.1	30.5		6.1	6.1	30.5	6.1	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		0.0	0.0
Detector 1 Position(m)	0.0	0.0		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	6.1	1.8	6.1	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		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		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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		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
Turn Type	pm+pt	NA		custom	pm+pt	NA	Free	Perm	NA		Perm	NA
Protected Phases	1	6			5	2			4			8
Permitted Phases	6			5	2		Free	4			8	

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	364
Future Volume (vph)	364
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1601
Flt Permitted	
Satd. Flow (perm)	1601
Right Turn on Red	Yes
Satd. Flow (RTOR)	314
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	396
Shared Lane Traffic (%)	
Lane Group Flow (vph)	396
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	0.99
Turning Speed (k/h)	14
Number of Detectors	1
Detector Template	Right
Leading Detector (m)	6.1
Trailing Detector (m)	0.0
Detector 1 Position(m)	0.0
Detector 1 Size(m)	6.1
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Detector Phase	1	6		5	5	2		4	4		8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		4.0	4.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	9.0	25.0		8.0	8.0	25.0		39.0	39.0		39.0	39.0
Total Split (s)	15.0	60.0		15.0	15.0	60.0		85.0	85.0		85.0	85.0
Total Split (%)	9.4%	37.5%		9.4%	9.4%	37.5%		53.1%	53.1%		53.1%	53.1%
Maximum Green (s)	12.0	54.0		11.5	11.5	54.0		78.0	78.0		78.0	78.0
Yellow Time (s)	3.0	4.0		3.5	3.5	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	0.0	2.0		3.0	3.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	3.0	6.0			3.5	6.0			7.0			7.0
Lead/Lag	Lead	Lag		Lead	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode	None	C-Max		None	None	C-Max		Max	Max		Max	Max
Walk Time (s)		8.0				8.0		13.0	13.0		13.0	13.0
Flash Dont Walk (s)		9.0				9.0		19.0	19.0		19.0	19.0
Pedestrian Calls (#/hr)		0				0		0	0		0	0
Act Effct Green (s)	72.0	62.5			63.4	54.2	160.0		78.0			78.0
Actuated g/C Ratio	0.45	0.39			0.40	0.34	1.00		0.49			0.49
v/c Ratio	0.51	0.82			0.19	0.42	0.12		0.04			0.80
Control Delay	32.6	50.5			28.5	42.2	0.2		9.9			45.9
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			0.0
Total Delay	32.6	50.5			28.5	42.2	0.2		9.9			45.9
LOS	C	D			C	D	A		A			D
Approach Delay		47.9				30.8			9.9			29.0
Approach LOS		D				C			A			C

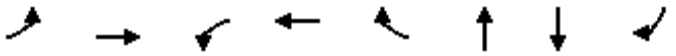
Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 37.7		Intersection LOS: D	
Intersection Capacity Utilization 80.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East



Lane Group	SBR
Detector Phase	8
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	39.0
Total Split (s)	85.0
Total Split (%)	53.1%
Maximum Green (s)	78.0
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	13.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	78.0
Actuated g/C Ratio	0.49
v/c Ratio	0.42
Control Delay	6.8
Queue Delay	0.0
Total Delay	6.8
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	190	1149	24	510	187	33	522	396
v/c Ratio	0.51	0.82	0.19	0.42	0.12	0.04	0.80	0.42
Control Delay	32.6	50.5	28.5	42.2	0.2	9.9	45.9	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.6	50.5	28.5	42.2	0.2	9.9	45.9	6.8
Queue Length 50th (m)	36.8	179.1	4.2	66.1	0.0	1.5	137.7	13.9
Queue Length 95th (m)	54.6	212.2	10.1	82.8	0.0	7.6	191.7	36.6
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	373	1395	180	1212	1601	800	649	941
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	0.51	0.82	0.13	0.42	0.12	0.04	0.80	0.42

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	175	1053	4	18	4	469	172	4	5	22	466	14
Future Volume (vph)	175	1053	4	18	4	469	172	4	5	22	466	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0			3.5	6.0	4.0		7.0			7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00		1.00			1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.90			1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.99			0.95
Satd. Flow (prot)	1789	3577			1789	3579	1601		1688			1796
Flt Permitted	0.34	1.00			0.08	1.00	1.00		0.95			0.71
Satd. Flow (perm)	637	3577			146	3579	1601		1617			1333
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	1145	4	20	4	510	187	4	5	24	507	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	12	0	0	0
Lane Group Flow (vph)	190	1149	0	0	24	510	187	0	21	0	0	522
Turn Type	pm+pt	NA		custom	pm+pt	NA	Free	Perm	NA		Perm	NA
Protected Phases	1	6			5	2			4			8
Permitted Phases	6			5	2		Free	4			8	
Actuated Green, G (s)	69.0	61.1			58.6	54.2	160.0		78.0			78.0
Effective Green, g (s)	69.0	61.1			58.6	54.2	160.0		78.0			78.0
Actuated g/C Ratio	0.43	0.38			0.37	0.34	1.00		0.49			0.49
Clearance Time (s)	3.0	6.0			3.5	6.0			7.0			7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	359	1365			98	1212	1601		788			649
v/s Ratio Prot	c0.04	c0.32			0.01	0.14						
v/s Ratio Perm	0.19				0.08		0.12		0.01			c0.39
v/c Ratio	0.53	0.84			0.24	0.42	0.12		0.03			0.80
Uniform Delay, d1	29.9	45.0			37.1	40.8	0.0		21.3			34.6
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			1.00
Incremental Delay, d2	1.4	6.4			1.3	1.1	0.1		0.1			10.2
Delay (s)	31.3	51.5			38.4	41.9	0.1		21.3			44.8
Level of Service	C	D			D	D	A		C			D
Approach Delay (s)		48.6				30.9			21.3			36.5
Approach LOS		D				C			C			D

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	364
Future Volume (vph)	364
Ideal Flow (vphpl)	1900
Total Lost time (s)	7.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1601
Flt Permitted	1.00
Satd. Flow (perm)	1601
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	396
RTOR Reduction (vph)	161
Lane Group Flow (vph)	235
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	78.0
Effective Green, g (s)	78.0
Actuated g/C Ratio	0.49
Clearance Time (s)	7.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	780
v/s Ratio Prot	
v/s Ratio Perm	0.15
v/c Ratio	0.30
Uniform Delay, d1	24.6
Progression Factor	1.00
Incremental Delay, d2	1.0
Delay (s)	25.6
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1258	44	0	588	0	73
Future Volume (vph)	1258	44	0	588	0	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.995					0.865
Flt Protected						
Satd. Flow (prot)	3561	0	0	3579	0	1629
Flt Permitted						
Satd. Flow (perm)	3561	0	0	3579	0	1629
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1367	48	0	639	0	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1415	0	0	639	0	79
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	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
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1258	44	0	588	0	73
Future Volume (Veh/h)	1258	44	0	588	0	73
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1367	48	0	639	0	79
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	140			260		
pX, platoon unblocked			0.72		0.72	0.72
vC, conflicting volume			1415		1710	708
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			788		1128	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			593		143	777

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	911	504	320	320	79
Volume Left	0	0	0	0	0
Volume Right	0	48	0	0	79
cSH	1700	1700	1700	1700	777
Volume to Capacity	0.54	0.30	0.19	0.19	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.6
Control Delay (s)	0.0	0.0	0.0	0.0	10.2
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.2
Approach LOS					B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	28	12	1026	127	103	476	28	81	49	85	54	38
Future Volume (vph)	28	12	1026	127	103	476	28	81	49	85	54	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0		0.0	30.0		0.0	30.0		0.0	45.0	
Storage Lanes		1		0	1		0	1		0	1	
Taper Length (m)		40.0			35.0			50.0			30.0	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.983			0.992			0.905			0.938
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1789	3518	0	1789	3550	0	1789	1705	0	1789	1767
Flt Permitted		0.448			0.187			0.711			0.410	
Satd. Flow (perm)	0	844	3518	0	352	3550	0	1339	1705	0	772	1767
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			15			6			48			20
Link Speed (k/h)			48			48			48			48
Link Distance (m)			260.0			79.3			97.0			129.7
Travel Time (s)			19.5			5.9			7.3			9.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	13	1115	138	112	517	30	88	53	92	59	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	1253	0	112	547	0	88	145	0	59	70
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
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			1.6			1.6			1.6
Two way Left Turn Lane									Yes			
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)	14	24		14	24		14	24		14	24	
Number of Detectors	1	1	2		1	2		1	2		1	2
Detector Template	Left	Left	Thru		Left	Thru		Left	Thru		Left	Thru
Leading Detector (m)	6.1	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	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	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	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	0.0
Detector 1 Queue (s)	0.0	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	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
Turn Type	custom	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA
Protected Phases		1	6		5	2			4			8
Permitted Phases	1	6			2			4			8	

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	27
Future Volume (vph)	27
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	29
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	0.99
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	

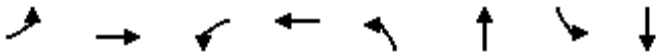
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Detector Phase	1	1	6		5	2		4	4		8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	8.0		4.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	8.0	8.0	33.0		8.0	33.0		37.0	37.0		37.0	37.0
Total Split (s)	13.0	13.0	109.0		13.0	109.0		46.0	46.0		46.0	46.0
Total Split (%)	7.7%	7.7%	64.9%		7.7%	64.9%		27.4%	27.4%		27.4%	27.4%
Maximum Green (s)	10.0	10.0	103.0		9.0	103.0		39.0	39.0		39.0	39.0
Yellow Time (s)	3.0	3.0	4.0		3.5	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	0.0	0.0	2.0		0.5	2.0		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)		3.0	6.0		4.0	6.0		7.0	7.0		7.0	7.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max		None	None		None	None
Walk Time (s)			11.0			11.0		12.0	12.0		12.0	12.0
Flash Dont Walk (s)			16.0			16.0		18.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)			0			0		0	0		0	0
Act Effct Green (s)		136.3	127.2		139.4	131.1		16.4	16.4		16.4	16.4
Actuated g/C Ratio		0.81	0.76		0.83	0.78		0.10	0.10		0.10	0.10
v/c Ratio		0.06	0.47		0.32	0.20		0.68	0.69		0.79	0.37
Control Delay		3.0	8.8		5.1	5.5		96.9	65.1		129.2	54.2
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		3.0	8.8		5.1	5.5		96.9	65.1		129.2	54.2
LOS		A	A		A	A		F	E		F	D
Approach Delay			8.6			5.5			77.1			88.5
Approach LOS			A			A			E			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 168			
Actuated Cycle Length: 168			
Offset: 155 (92%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 19.1		Intersection LOS: B	
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East

Lane Group	SBR
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	1253	112	547	88	145	59	70
v/c Ratio	0.06	0.47	0.32	0.20	0.68	0.69	0.79	0.37
Control Delay	3.0	8.8	5.1	5.5	96.9	65.1	129.2	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	8.8	5.1	5.5	96.9	65.1	129.2	54.2
Queue Length 50th (m)	1.9	74.0	5.4	23.0	29.0	32.0	19.6	15.8
Queue Length 95th (m)	5.1	107.5	11.6	35.6	46.8	54.5	35.6	31.5
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	760	2666	371	2772	310	432	179	425
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	0.06	0.47	0.30	0.20	0.28	0.34	0.33	0.16

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	28	12	1026	127	103	476	28	81	49	85	54	38
Future Volume (vph)	28	12	1026	127	103	476	28	81	49	85	54	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	6.0		4.0	6.0		7.0	7.0		7.0	7.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frt		1.00	0.98		1.00	0.99		1.00	0.90		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)		1789	3519		1789	3549		1789	1704		1789	1766
Flt Permitted		0.45	1.00		0.19	1.00		0.71	1.00		0.41	1.00
Satd. Flow (perm)		843	3519		352	3549		1340	1704		772	1766
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	13	1115	138	112	517	30	88	53	92	59	41
RTOR Reduction (vph)	0	0	4	0	0	1	0	0	43	0	0	18
Lane Group Flow (vph)	0	43	1249	0	112	546	0	88	102	0	59	52
Turn Type	custom	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA
Protected Phases		1	6		5	2			4			8
Permitted Phases	1	6			2			4			8	
Actuated Green, G (s)		132.3	127.2		137.9	130.5		16.4	16.4		16.4	16.4
Effective Green, g (s)		132.3	127.2		137.9	130.5		16.4	16.4		16.4	16.4
Actuated g/C Ratio		0.79	0.76		0.82	0.78		0.10	0.10		0.10	0.10
Clearance Time (s)		3.0	6.0		4.0	6.0		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)		692	2664		352	2756		130	166		75	172
v/s Ratio Prot		0.00	c0.35		c0.01	0.15			0.06			0.03
v/s Ratio Perm		0.05			0.25			0.07			c0.08	
v/c Ratio		0.06	0.47		0.32	0.20		0.68	0.61		0.79	0.30
Uniform Delay, d1		3.9	7.7		4.6	4.9		73.2	72.8		74.1	70.5
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.6		0.5	0.2		13.1	6.5		40.6	1.0
Delay (s)		3.9	8.3		5.2	5.1		86.3	79.3		114.7	71.5
Level of Service		A	A		A	A		F	E		F	E
Approach Delay (s)			8.1			5.1			82.0			91.2
Approach LOS			A			A			F			F

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	168.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	27
Future Volume (vph)	27
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	29
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

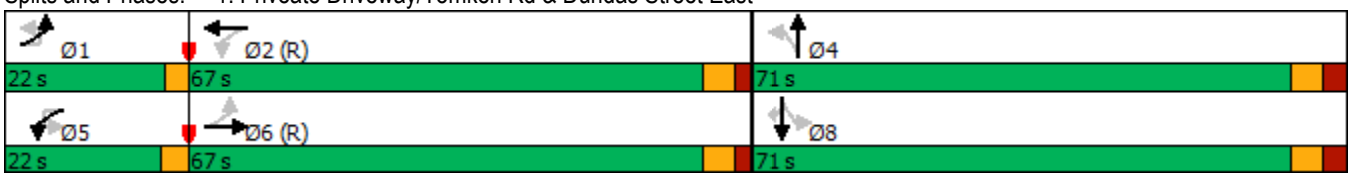
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	181	708	28	55	19	991	269	34	15	50	333	21
Future Volume (vph)	181	708	28	55	19	991	269	34	15	50	333	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0		20.0		35.0	0.0		0.0	0.0	
Storage Lanes	1		0		1		1	0		0	0	
Taper Length (m)	35.0				40.0			2.5			2.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994					0.850		0.932			
Flt Protected	0.950				0.950				0.983			0.955
Satd. Flow (prot)	1789	3557	0	0	1789	3579	1601	0	1726	0	0	1799
Flt Permitted	0.123				0.282				0.749			0.675
Satd. Flow (perm)	232	3557	0	0	531	3579	1601	0	1315	0	0	1271
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		3					92		38			
Link Speed (k/h)		48				48			48			48
Link Distance (m)		68.4				140.0			67.8			105.1
Travel Time (s)		5.1				10.5			5.1			7.9
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	189	738	29	57	20	1032	280	35	16	52	347	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	767	0	0	77	1032	280	0	103	0	0	369
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
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)		1.6				4.9			1.6			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	14	24		14	24		14	24	
Number of Detectors	1	2		1	1	2	1	1	2		1	2
Detector Template	Left	Thru		Left	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (m)	6.1	30.5		6.1	6.1	30.5	6.1	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		0.0	0.0
Detector 1 Position(m)	0.0	0.0		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	6.1	1.8	6.1	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		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		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		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		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
Turn Type	pm+pt	NA		custom	pm+pt	NA	Free	Perm	NA		Perm	NA
Protected Phases	1	6			5	2			4			8
Permitted Phases	6			5	2		Free	4			8	

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	261
Future Volume (vph)	261
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1601
Flt Permitted	
Satd. Flow (perm)	1601
Right Turn on Red	Yes
Satd. Flow (RTOR)	272
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Peak Hour Factor	0.96
Adj. Flow (vph)	272
Shared Lane Traffic (%)	
Lane Group Flow (vph)	272
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	0.99
Turning Speed (k/h)	14
Number of Detectors	1
Detector Template	Right
Leading Detector (m)	6.1
Trailing Detector (m)	0.0
Detector 1 Position(m)	0.0
Detector 1 Size(m)	6.1
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Detector Phase	1	6		5	5	2		4	4		8	8
Switch Phase												
Minimum Initial (s)	5.0	8.0		4.0	4.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	9.0	25.0		8.0	8.0	25.0		39.0	39.0		39.0	39.0
Total Split (s)	22.0	67.0		22.0	22.0	67.0		71.0	71.0		71.0	71.0
Total Split (%)	13.8%	41.9%		13.8%	13.8%	41.9%		44.4%	44.4%		44.4%	44.4%
Maximum Green (s)	19.0	61.0		18.5	18.5	61.0		64.0	64.0		64.0	64.0
Yellow Time (s)	3.0	4.0		3.5	3.5	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	0.0	2.0		3.0	3.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0			0.0
Total Lost Time (s)	3.0	6.0			3.5	6.0			7.0			7.0
Lead/Lag	Lead	Lag		Lead	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode	None	C-Max		None	None	C-Max		Max	Max		Max	Max
Walk Time (s)		8.0				8.0		13.0	13.0		13.0	13.0
Flash Dont Walk (s)		9.0				9.0		19.0	19.0		19.0	19.0
Pedestrian Calls (#/hr)		0				0		0	0		0	0
Act Effct Green (s)	86.0	70.7			76.5	65.2	160.0		64.0			64.0
Actuated g/C Ratio	0.54	0.44			0.48	0.41	1.00		0.40			0.40
v/c Ratio	0.71	0.49			0.24	0.71	0.17		0.19			0.73
Control Delay	36.1	33.2			19.2	32.9	0.2		20.4			50.5
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			0.0
Total Delay	36.1	33.2			19.2	32.9	0.2		20.4			50.5
LOS	D	C			B	C	A		C			D
Approach Delay		33.8				25.6			20.4			30.9
Approach LOS		C				C			C			C

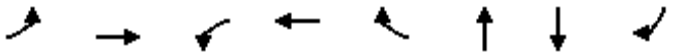
Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 29.0		Intersection LOS: C	
Intersection Capacity Utilization 80.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Priveate Driveway/Tomken Rd & Dundas Street East



Lane Group	SBR
Detector Phase	8
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	39.0
Total Split (s)	71.0
Total Split (%)	44.4%
Maximum Green (s)	64.0
Yellow Time (s)	4.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	13.0
Flash Dont Walk (s)	19.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	64.0
Actuated g/C Ratio	0.40
v/c Ratio	0.34
Control Delay	4.3
Queue Delay	0.0
Total Delay	4.3
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	189	767	77	1032	280	103	369	272
v/c Ratio	0.71	0.49	0.24	0.71	0.17	0.19	0.73	0.34
Control Delay	36.1	33.2	19.2	32.9	0.2	20.4	50.5	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	33.2	19.2	32.9	0.2	20.4	50.5	4.3
Queue Length 50th (m)	30.4	90.1	8.0	78.5	0.0	13.0	98.8	0.0
Queue Length 95th (m)	50.6	111.9	18.9	115.6	0.0	26.8	140.2	17.9
Internal Link Dist (m)		44.4		116.0		43.8	81.1	
Turn Bay Length (m)	15.0		20.0		35.0			
Base Capacity (vph)	309	1572	425	1458	1601	548	508	803
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	0.61	0.49	0.18	0.71	0.17	0.19	0.73	0.34

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	181	708	28	55	19	991	269	34	15	50	333	21
Future Volume (vph)	181	708	28	55	19	991	269	34	15	50	333	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0			3.5	6.0	4.0		7.0			7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00		1.00			1.00
Frt	1.00	0.99			1.00	1.00	0.85		0.93			1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.98			0.96
Satd. Flow (prot)	1789	3558			1789	3579	1601		1726			1799
Flt Permitted	0.12	1.00			0.28	1.00	1.00		0.75			0.67
Satd. Flow (perm)	232	3558			530	3579	1601		1314			1271
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	189	738	29	57	20	1032	280	35	16	52	347	22
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	23	0	0	0
Lane Group Flow (vph)	189	765	0	0	77	1032	280	0	80	0	0	369
Turn Type	pm+pt	NA		custom	pm+pt	NA	Free	Perm	NA		Perm	NA
Protected Phases	1	6			5	2			4			8
Permitted Phases	6			5	2		Free	4			8	
Actuated Green, G (s)	83.0	70.7			74.0	65.2	160.0		64.0			64.0
Effective Green, g (s)	83.0	70.7			74.0	65.2	160.0		64.0			64.0
Actuated g/C Ratio	0.52	0.44			0.46	0.41	1.00		0.40			0.40
Clearance Time (s)	3.0	6.0			3.5	6.0			7.0			7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	264	1572			314	1458	1601		525			508
v/s Ratio Prot	c0.07	0.22			0.01	0.29						
v/s Ratio Perm	c0.31				0.10		0.17		0.06			c0.29
v/c Ratio	0.72	0.49			0.25	0.71	0.17		0.15			0.73
Uniform Delay, d1	27.8	31.8			24.9	39.5	0.0		30.7			40.6
Progression Factor	1.00	1.00			0.95	0.76	1.00		1.00			1.00
Incremental Delay, d2	8.9	1.1			0.3	2.5	0.2		0.6			8.8
Delay (s)	36.7	32.8			24.0	32.3	0.2		31.3			49.4
Level of Service	D	C			C	C	A		C			D
Approach Delay (s)		33.6				25.3			31.3			41.8
Approach LOS		C				C			C			D

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	261
Future Volume (vph)	261
Ideal Flow (vphpl)	1900
Total Lost time (s)	7.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1601
Flt Permitted	1.00
Satd. Flow (perm)	1601
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	272
RTOR Reduction (vph)	163
Lane Group Flow (vph)	109
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	64.0
Effective Green, g (s)	64.0
Actuated g/C Ratio	0.40
Clearance Time (s)	7.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	640
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.17
Uniform Delay, d1	30.9
Progression Factor	1.00
Incremental Delay, d2	0.6
Delay (s)	31.5
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	920	104	0	1287	0	87
Future Volume (vph)	920	104	0	1287	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.985					0.865
Flt Protected						
Satd. Flow (prot)	3525	0	0	3579	0	1629
Flt Permitted						
Satd. Flow (perm)	3525	0	0	3579	0	1629
Link Speed (k/h)	48			48	48	
Link Distance (m)	140.0			260.0	55.5	
Travel Time (s)	10.5			19.5	4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1000	113	0	1399	0	95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1113	0	0	1399	0	95
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	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
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	920	104	0	1287	0	87
Future Volume (Veh/h)	920	104	0	1287	0	87
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1000	113	0	1399	0	95
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	140			260		
pX, platoon unblocked			0.85		0.86	0.85
vC, conflicting volume			1113		1756	556
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			789		792	137
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	87
cM capacity (veh/h)			705		281	757

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	667	446	700	700	95
Volume Left	0	0	0	0	0
Volume Right	0	113	0	0	95
cSH	1700	1700	1700	1700	757
Volume to Capacity	0.39	0.26	0.41	0.41	0.13
Queue Length 95th (m)	0.0	0.0	0.0	0.0	3.3
Control Delay (s)	0.0	0.0	0.0	0.0	10.4
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.4
Approach LOS					B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	42	32	772	60	84	1116	46	151	93	111	68	59
Future Volume (vph)	42	32	772	60	84	1116	46	151	93	111	68	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0		0.0	30.0		0.0	30.0		0.0	45.0	
Storage Lanes		1		0	1		0	1		0	1	
Taper Length (m)		40.0			35.0			50.0			30.0	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.989			0.994			0.918			0.979
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1789	3539	0	1789	3557	0	1789	1729	0	1789	1844
Flt Permitted		0.152			0.254			0.707			0.277	
Satd. Flow (perm)	0	286	3539	0	478	3557	0	1332	1729	0	522	1844
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			8			4			35			5
Link Speed (k/h)			48			48			48			48
Link Distance (m)			260.0			79.3			97.0			129.7
Travel Time (s)			19.5			5.9			7.3			9.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	36	858	67	93	1240	51	168	103	123	76	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	925	0	93	1291	0	168	226	0	76	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
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			1.6			1.6			1.6
Two way Left Turn Lane									Yes			
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)	14	24		14	24		14	24		14	24	
Number of Detectors	1	1	2		1	2		1	2		1	2
Detector Template	Left	Left	Thru		Left	Thru		Left	Thru		Left	Thru
Leading Detector (m)	6.1	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	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	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	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	0.0
Detector 1 Queue (s)	0.0	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	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
Turn Type	custom	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA
Protected Phases		1	6		5	2			4		3	8
Permitted Phases	1	6			2			4			8	

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	11
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	0.99
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	

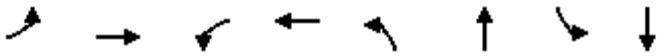
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Detector Phase	1	1	6		5	2		4	4		3	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	8.0		4.0	8.0		8.0	8.0		4.0	8.0
Minimum Split (s)	8.0	8.0	33.0		8.0	33.0		37.0	37.0		8.0	37.0
Total Split (s)	14.0	14.0	92.0		13.0	91.0		45.0	45.0		10.0	55.0
Total Split (%)	8.8%	8.8%	57.5%		8.1%	56.9%		28.1%	28.1%		6.3%	34.4%
Maximum Green (s)	11.0	11.0	86.0		9.0	85.0		38.0	38.0		6.0	48.0
Yellow Time (s)	3.0	3.0	4.0		3.5	4.0		4.0	4.0		3.5	4.0
All-Red Time (s)	0.0	0.0	2.0		0.5	2.0		3.0	3.0		0.5	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	6.0		4.0	6.0		7.0	7.0		4.0	7.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag		Lag	Lag		Lead	
Lead-Lag Optimize?	Yes	Yes	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	3.0
Recall Mode	None	None	C-Max		None	C-Max		None	None		None	None
Walk Time (s)			11.0			11.0		12.0	12.0			12.0
Flash Dont Walk (s)			16.0			16.0		18.0	18.0			18.0
Pedestrian Calls (#/hr)			0			0		0	0			0
Act Effct Green (s)		110.0	99.2		110.7	100.5		25.6	25.6		38.6	35.6
Actuated g/C Ratio		0.69	0.62		0.69	0.63		0.16	0.16		0.24	0.22
v/c Ratio		0.31	0.42		0.23	0.58		0.79	0.74		0.44	0.19
Control Delay		9.4	13.3		9.7	19.8		88.6	67.6		54.4	46.0
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		9.4	13.3		9.7	19.8		88.6	67.6		54.4	46.0
LOS		A	B		A	B		F	E		D	D
Approach Delay			13.0			19.1			76.5			50.2
Approach LOS			B			B			E			D

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 26.3		Intersection LOS: C	
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Stanfield Rd/Constitution Blvd & Dundas Street East

Lane Group	SBR
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	83	925	93	1291	168	226	76	77
v/c Ratio	0.31	0.42	0.23	0.58	0.79	0.74	0.44	0.19
Control Delay	9.4	13.3	9.7	19.8	88.6	67.6	54.4	46.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	13.3	9.7	19.8	88.6	67.6	54.4	46.0
Queue Length 50th (m)	6.8	56.2	8.4	119.4	52.2	59.1	19.4	18.7
Queue Length 95th (m)	m11.6	70.6	17.6	170.6	74.0	82.9	31.2	31.0
Internal Link Dist (m)		236.0		55.3		73.0		105.7
Turn Bay Length (m)	30.0		30.0		30.0		45.0	
Base Capacity (vph)	305	2196	410	2236	316	437	173	556
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	0.27	0.42	0.23	0.58	0.53	0.52	0.44	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	42	32	772	60	84	1116	46	151	93	111	68	59
Future Volume (vph)	42	32	772	60	84	1116	46	151	93	111	68	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	6.0		4.0	6.0		7.0	7.0		4.0	7.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frt		1.00	0.99		1.00	0.99		1.00	0.92		1.00	0.98
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1789	3540		1789	3557		1789	1730		1789	1843
Flt Permitted		0.15	1.00		0.25	1.00		0.71	1.00		0.28	1.00
Satd. Flow (perm)		286	3540		478	3557		1331	1730		523	1843
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	36	858	67	93	1240	51	168	103	123	76	66
RTOR Reduction (vph)	0	0	3	0	0	1	0	0	29	0	0	4
Lane Group Flow (vph)	0	83	922	0	93	1290	0	168	197	0	76	73
Turn Type	custom	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA
Protected Phases		1	6		5	2			4		3	8
Permitted Phases	1	6			2			4			8	
Actuated Green, G (s)		107.1	99.2		108.7	100.5		25.6	25.6		35.6	35.6
Effective Green, g (s)		107.1	99.2		108.7	100.5		25.6	25.6		35.6	35.6
Actuated g/C Ratio		0.67	0.62		0.68	0.63		0.16	0.16		0.22	0.22
Clearance Time (s)		3.0	6.0		4.0	6.0		7.0	7.0		4.0	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)		265	2194		391	2234		212	276		163	410
v/s Ratio Prot		c0.02	0.26		0.01	c0.36			0.11		c0.02	0.04
v/s Ratio Perm		0.19			0.15			c0.13			0.09	
v/c Ratio		0.31	0.42		0.24	0.58		0.79	0.71		0.47	0.18
Uniform Delay, d1		12.4	15.6		9.9	17.4		64.6	63.7		51.4	50.4
Progression Factor		0.84	0.76		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.6	0.5		0.3	1.1		18.1	8.4		2.1	0.2
Delay (s)		11.1	12.5		10.2	18.4		82.7	72.1		53.5	50.6
Level of Service		B	B		B	B		F	E		D	D
Approach Delay (s)			12.4			17.9			76.6			52.0
Approach LOS			B			B			E			D

Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Appendix E

The Mississauga Parking Regulations Study (PRS)

PARKING REGULATIONS STUDY

MISSISSAUGA

PARKING REGULATIONS

DRAFT POLICY DIRECTIONS FOR CONSULTATION

May 14, 2021

MISSISSAUGA

WSP

EXECUTIVE SUMMARY – DRAFT POLICY DIRECTIONS

INTRODUCTION

The City of Mississauga's first Parking Master Plan and Implementation Strategy (PMPIS) was completed and approved by Council in June 2019. The goal of the project was to improve the efficiency and effectiveness of current and future resources dedicated to parking and to use parking as a tool to realize the city-building objectives. Through an analysis of existing policies, best practices, and extensive consultation, the PMPIS established a precinct approach to parking provision and management in the City. The precinct approach allows for lower parking requirements to be established based on context, and a price responsive approach in the most urbanized areas while ensuring appropriate on-site parking provision in other areas. This provides the basis for the subsequent zoning by-law review, which would determine the parking requirements for land uses in each Precinct.

In addition to the Precinct based approach to regulating parking, the PMPIS also addressed other key issues including on-street parking permits, lower driveway boulevard parking, curbside management, municipal parking, parking lot design, technology, as well as governance and future funding for municipal parking operations.

The Mississauga Parking Regulations Study (PRS) was initiated in 2020 to refine the parking precincts and develop or modify parking requirements for select key land uses for inclusion in an updated Zoning By-law. This study will also identify recommendations for policies and guidelines to complement the Zoning By-law regulations, to ensure a coordinated approach to parking management in the City.

This Key Directions Summary is organized in seven sections as described below.

- **Executive Summary:** Provides a summary of key policy directions and parking requirements
- **Introduction: Overview of the study purpose and report contents**
- **Engagement: Engagement Plan, outcomes of engagement activities date, next steps**
- **Parking Precincts Criteria and Boundaries:** Criteria and guidelines used to establish Parking Precincts, draft Parking Precinct map
- **Policy Review and Proposed Changes:** Discussion of key policy change considerations including over sixteen policy areas such, Parking Maximum, Shared/Public Parking, Shared Mobility, Curbside Management, Second Units, and Affordable Housing
- **Parking Requirements Benchmarking and Changes:** Potential consolidation of land uses based on a review of permitted uses in the Zoning By-law, key findings from benchmarking Mississauga's current parking requirements against other municipalities, proposed parking requirements
- **Implementation of Changes:** Principles for developing the draft Zoning By-law Amendment to implement the parking regulations study.
- **Next Steps:** Identify actions to follow once the report is issued.

ENGAGEMENT

Building upon the strong foundation of engagement and input generated throughout the PMPIS, a more refined and focused approach to engagement and communication was identified for the Parking Regulations Study with a focus on:

- Internal stakeholder collaboration and consensus-building;
- External stakeholder engagement with a focus on parking providers i.e. those who would be responsible for using the updated parking regulations; and
- Communication of the process and key outcomes with members of the public i.e. the parking users.

Prior to commencement, a Community Engagement Plan was developed by the consultant team in partnership with City staff consistent with the corporate template and approach. This engagement plan was to guide the design, development, and implementation of engagement tactics and milestones. The plan included an overview of the project purpose, engagement goals, scope, audiences, communication tools, and an activity plan.

The engagement approach and milestones that were originally identified in the community engagement plan were impacted significantly by COVID-19 restrictions. Due to the restrictions in place from public health and the provincial government, in-person engagement was not permitted, and focus was placed more on virtual stakeholder engagement and informing the public of the initiation and undertaking of the parking regulations through the City's "Have Your Say" page. While the focus of engagement for Part A of the project was primarily on stakeholder engagement; additional efforts will be made to expand the public outreach and engagement to gather input and inform project outcomes as opposed to just communication and information sharing.

During Part A of the project, the following engagement activities were completed:

Parking providers were engaged through an online survey and interviews to gather information on current practices and any concerns.

- The city staff has been involved through a topic-specific meeting regarding affordable housing and a staff workshop to collaborate and consult with them regarding the proposed changes.
- The general public has been informed through the webpage updates.

The following key messages are gathered through topics discussed from the stakeholder interviews, and comments and feedback heard from the staff workshop. The topics discussed include parking precinct boundaries, parking maximum, shared public parking, shared mobility, curbside management, second units, and affordable housing.

- **Parking Precinct Approach & Min/Max Parking Rates:** The proposed precinct approach was supported. The feedback received showed that available alternative transportation options and future development plans were key considerations impacting the parking rates. Also, the impact of LRT such as travel pattern changes and infrastructure required due to the implementation of LRT were discussed for future planning consideration. As for the commercial buildings, consumer patterns and commercial lot allocations may be changed due to COVID and parking requirements should be flexible to accommodate future anticipated changes.

- **Shared/Public parking:** Shared parking for on-site, off-site, and civic uses were discussed. Some felt on- and off-site shared parking should be considered for further study, while others supported the concept; allowing shared parking for civic and community uses were well supported. Especially for locations that can be better used as parking and that can also generate potential revenue.
- **Second Units:** There was mixed feedback regarding the parking requirements for the second unit for residential units. The proximity and availability of alternative transportation options were raised as a consideration for a second unit parking requirement, as well as enabling a parking permit for second units. This input has been used for the City staff to coordinate with Municipal Parking staff to review a city-wide permit parking system.
- **Affordable Housing:** From both the topic-specific meeting with the City staff (held on November 13, 2020) and the Staff Workshop, a reduced parking rate for affordable housing was supported.
- **Shared Mobility & Curbside Management:** These two topics were introduced as new guidelines to address current trends. The purpose of this introduction was to provide background context and knowledge on how they can be integrated with the policies and programs that the City is planning and has implemented.
- **Electric Vehicles and Carshare:** With an increase in electric vehicles (EV) and carshare availability, the question was regarding whether providing spaces for EV and carshare was in best practices. The comments received included that many locations are implementing EV stalls. However, the requirements or the proportion to the overall parking and the method of implementation were determined by individual suppliers such as the development community. Setting a minimum requirement was generally disagreed against since these spaces would only benefit a select percentage of the users.

The engagement next steps for the City of Mississauga Parking Regulations Study are meant to inform the final components - Part B – of the study. More specifically, the objectives of the final round of engagement will be to gather final input on the proposed requirements, changes, and overall outcomes of the PRS before finalization and approval. The engagement activities will continue to be virtual for both parking providers and parking users with a continued focus on involving and consulting with the parking providers and primarily informing and answering questions from parking users. The specific timeline of the second round of engagement will be determined by City staff in collaboration with the consultant team to ensure that the key milestones for the project are met.

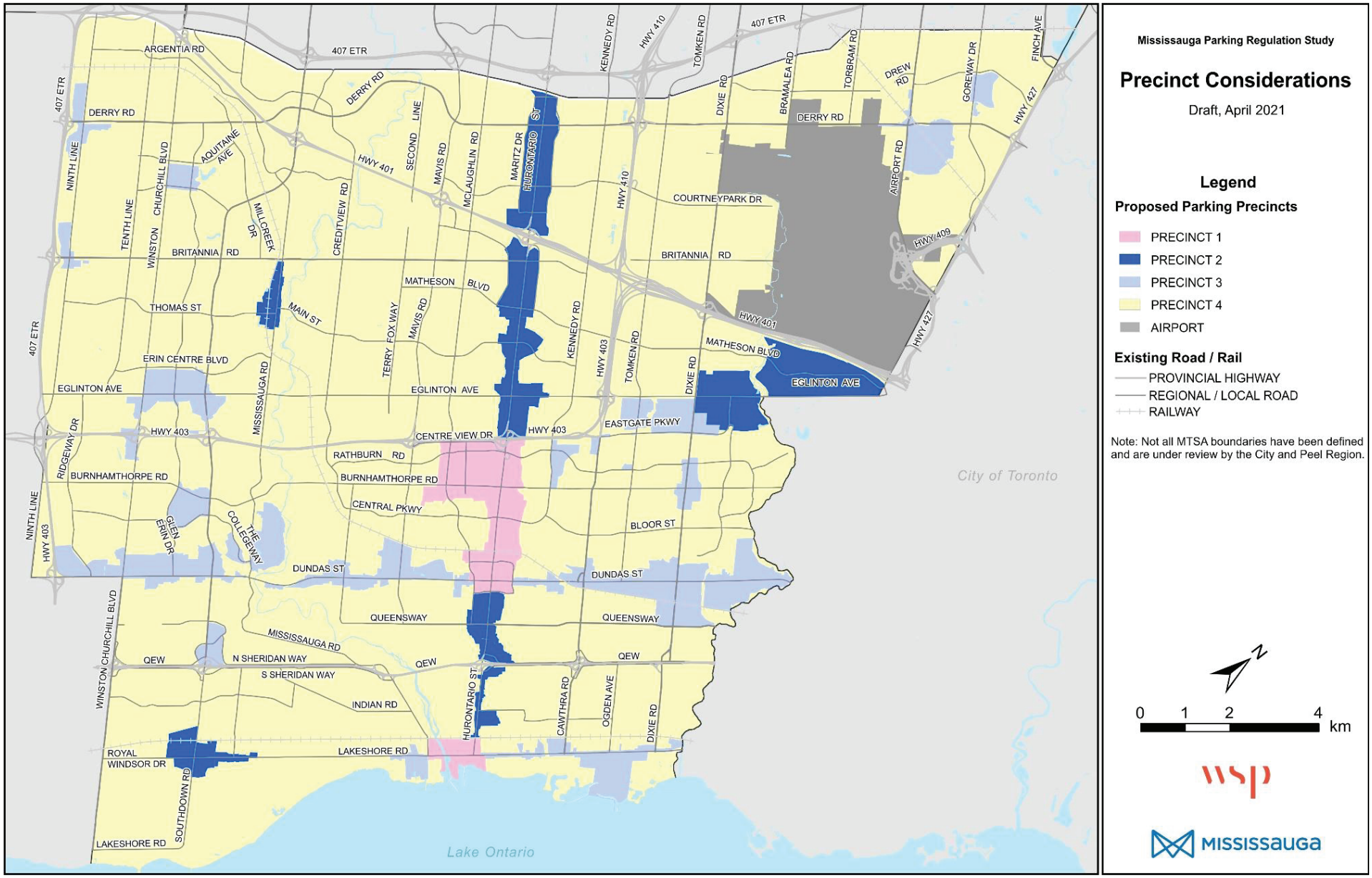
PARKING PRECINCT CRITERIA AND BOUNDARIES

Based on the PMPIS, and to further implement recent inputs and, the following are the proposed criteria that are used to establish the boundaries for the Parking Precincts. The Criteria are organized within five themes: transit access; availability of public parking; location within an intensification area; land use and density mix; and active transportation characteristics. Based on the above criteria themes, four Precinct boundaries were developed. **Table EX 1** identifies the proposed criteria that are used to establish the boundaries for the Parking Precincts. Generally, Precinct 1 will require the lowest parking requirement given access to modes of travel other than by automobile. While Precinct 4 will require the largest parking requirement. The proposed Parking Precinct map is shown on the following page **Map EX 1**.

Table EX 1: Parking Precincts and Criteria

Criteria	Precinct 1	Precinct 2	Precinct 3	Precinct 4
1. Transit				
Rapid Transit Terminal/Station	Yes	Yes (may be planned)	Yes (may be planned, or is not required with high-frequency bus transit)	Not required
Rapid Transit Interconnectivity	Yes	Not required	Not required	Not required
High-frequency bus transit service	Yes	Yes	Yes (Not required if other rapid transit is provided or planned)	Not required
2. Public Parking				
Public Parking	Yes	Yes	Not required	Not required
3. Planning Area				
Urban Growth Centre, Downtown or Mobility Hub	Yes	Not required	Not required	Not required
Intensification Area	Yes	Yes	Yes	Not required
4. Land Use and Density				
Mix of Uses	Yes	Yes	Not required	Not required
High-Density Uses	Yes	Yes	Not required	Not required
5. Active Transportation				
Walkability	Highly walkable (Walk score is 90 or higher)	Walkable (50 or higher)	Some walkability (25 or higher)	Limited walkability (0 or higher)
Cycling Facility	Highly accessible to cyclists	Moderately accessible to cyclists	Limited accessibility to cyclists	Limited or no accessibility to cyclists
Public Bike Share Potential	Yes	Yes	Not required	Not required

Map EX 1: Proposed Parking Precincts Map



PROPOSED POLICY DIRECTIONS

Table EX 2 summarizes the proposed policy direction the City of Mississauga could consider to further enhance current parking policies and fill the gap where there are none. The aim is to provide the right amount of parking supply and have policies in place to improve the efficiency of parking supply; such as sharing parking spaces between sites. The policies will also assist in City building and allow for the implementation of measures to realize the City Vision, such as affordable housing and increase travel by non-auto modes.

Table EX 2: Proposed Policy Direction

PARKING PRECINCT IMPLEMENTATION POLICY	POLICY DIRECTION	POLICY DOCUMENT CHANGE
Minimum Parking	As shown in Tables EX3 and EX4, modifications are proposed to the minimum parking requirements for several land uses. The City should continue to monitor parking demand and could make further changes in the future when additional transit and infrastructure supporting non-auto modes of travel are available.	Changes to City of Mississauga Zoning By-law (Zoning By-law)
Parking Maximum	No parking maximums are proposed at this time. However, the need to introduce a parking maximum could be revisited in the future.	No change to Zoning By-law
Public Parking Facilities	The City could conduct a detailed parking demand analysis for Precincts 1 and 2 to determine future demand for public parking.	Potential project for Municipal Parking
Shared on-Site Parking	In future Zoning By-Law updates, the City could review the current list of land uses and utilization (percentage of peak parking) in Table 3.1.2.3 Mixed-Use Development Shared Parking Formula to add new land use and update percentages.	Future Addition to Zoning By-law Table 3.1.2.3
Shared off-Site Parking Supply	The City could consider adding a policy within the City's Official Plan that would allow sharing off-site parking between appropriate land uses, subject to an agreement with the City. The City could develop an Off-Site Parking Implementation Guidelines as an internal tool to guide the implementation of the new policy. The Implementation Guidelines would establish the criteria for when the City would consider sharing off-site	New policy to Zoning By-law New Zoning Implementation Guide: Shared Parking - Off-Site Parking

PARKING PRECINCT IMPLEMENTATION POLICY	POLICY DIRECTION	POLICY DOCUMENT CHANGE
	parking supply. A Memorandum of Understanding could be used to facilitate these agreements.	
Shared Parking - Civic / Community Infrastructure Uses	The City could allow sharing of parking supply among civic and community infrastructure use; when desired by the Parties. The previously discussed Implementation Guidelines would establish the criteria for when the City would consider shared parking between or among civic and community facilities.	New Zoning Implementation Guide, No change to the Official Plan (policy 7.3.8) or Zoning By-law
Shared Mobility	The City continues to accept carshare vehicles on private or public sites as a measure to enhance the Travel Demand Measures of a site. However, carshare services would not be required by municipal by-law but instead be provided at the Applicant's desire.	No action required
Bikeshare	The City of Mississauga has taken a proactive approach on shared mobility (bikes, bike-sharing, and e-scooter sharing) and has conducted a series of studies exploring Micro mobility Programs for the City and how to implement them in the coming years. No adjustment in parking requirements is currently proposed for providing a private on-site bike-share facility.	Further study needed No action required
Curbside Management	The City conducts a Curbside Management Study and, through that study, develops policies, guidelines, and standards specifically related to Curbside Management throughout the City, especially for Precincts 1, 2, and 3. These policies could include on-street parking, shared mobility, loading, and transit.	The project is contemplated by Municipal Parking
On-Street Parking Permits	The City will be conducting a Parking Permit Review. The review will include recommendations regarding the need and location of on-street parking and a digital permit system, making it easier for residents to access various parking services.	The project is contemplated by Municipal Parking
Second Units	The City could consider allowing sharing of parking spaces on the property between the principal home and the first Second Unit. Any subsequent Second Unit would each require one additional parking space.	Change to Zoning By-law

PARKING PRECINCT IMPLEMENTATION POLICY	POLICY DIRECTION	POLICY DOCUMENT CHANGE
Affordable and Assisted/Alternative Housing	The City could introduce parking requirements within the Zoning By-law for residential units deem to be affordable housing. The affordable parking requirement could be 50 percent lower than the requirement for each conventional housing category in Precinct 1 and 30 percent lower in all other Precincts. Also, the City could develop Implementation Guidelines that set out the definition and criteria of affordable housing. The City could also develop definitions and criteria for alternative and assisted housing and that consideration be given to exempting these units from providing parking spaces per unit; but instead, minimal parking spaces be provided to accommodate employee parking.	Addition to Zoning By-law, Addition to Official Plan, New Implementation Guide
Heritage Buildings	The City could consider parking exemptions for sites designated heritage buildings under Part IV of the Ontario Heritage Act subject to maximum density and specific land uses. The exemptions would be limited to existing GFA and to uses such as commercial, retail and restaurants under 220 GFA. Additions to GFA and other uses would be required to provide parking as per the Zoning By-law or apply for a minor variance.	Addition to Zoning By-Law
Electric Vehicle Charging Stations	It is recommended that the City develop guidelines or requirements for Electric Vehicle Charging Stations or Electric Vehicle Supply Equipment for new developments; this could be done in consultation with the development community and appropriate stakeholders. The City may consider requesting a percentage of the off-street parking supply in new development to be EV ready. These percentages could be determined through future studies conducted by City or pilot projects and when appropriate could be included in the City's Green Development Standards or Zoning By-law.	Additions to Green Development Standards or Addition to Zoning By-law
Bicycle Parking and End of Trip Facilities	Refer to City’s Bicycle Parking Study	Addition to Zoning By-law, subject to results of Bicycle Parking Study

PARKING PRECINCT IMPLEMENTATION POLICY	POLICY DIRECTION	POLICY DOCUMENT CHANGE
Transitional Parking	The City could consider including policies within the Official Plan and implementation guidelines with clear criteria and conditions in the site Plan Application process that support transitional parking policies, where deemed appropriate.	Addition to the Official Plan
Automated Parking Systems	The City could consider including policies within the Official Plan, Zoning By-law, and design standards to allow a variety of parking-related technologies including Automated Parking Systems.	Addition to Official Plan and design standards
Flexible or Adaptable Parking	Also, the City could develop Implementation Guidelines to assist in the review of a variety of parking technologies.	Implementation guidelines

PROPOSED PARKING REQUIREMENTS

Proposed parking requirements for selected land uses were developed with consideration for the following, in no particular order:

- **Precinct approach –** Parking requirements could be the lowest in Precinct 1, and highest in Precinct 4. This is one of the primary objectives of this study and directly responds to a key recommendation of the PMPIS.
- **Reduce or maintain existing requirements –** New parking requirements could not be more onerous than the existing requirements unless there is strong evidence to support the contrary.
- **Relationship between land uses –** Parking requirements should be higher for uses that generate higher parking demands, and lower for uses that generate lower parking demands. Appropriate alignment of parking requirements across land uses should be maintained. For example, households in detached dwellings tend to have higher vehicle ownership than those in apartments. In addition, there are some land uses such as personal service shops, small retail stores, and take-out restaurants that are traditionally found in mixed-use buildings especially at ground level, neighbourhood retail plazas, or along Main Streets that typical share on-site parking supply, therefore, consolidation or harmonization of their parking requirements could be considered.
- **The city-approved parking reductions, proxy site survey information –** City-approved parking reductions, and proxy site survey information serve as reference points for establishing proposed parking requirements in each Precinct. However, these could not necessarily dictate the draft parking requirements. It is important to note that the implementation of new parking requirements in the Zoning By-law will not affect sites with site-specific parking reductions.
- **Benchmarking findings –** Best practices and benchmarking provide additional reference points for establishing proposed parking requirements. Benchmarking completed in 2019 and 2020 show that Mississauga's current parking requirements are consistently higher than those adopted in peer municipalities with an urban character and with significant transit investments. It could be noted that these findings could not necessarily dictate the draft parking requirements.
- **User-friendly Zoning By-law –** Parking requirements could be developed with user-friendliness in mind, for developers and staff involved in zoning and development reviews. For example, consolidation of parking requirements for similar commercial land uses may ease the turnover of tenants in a building and reduce the number of parking-related minor variances.
- **Engagement with City staff –** Input from City staff could be considered in the development of parking requirements. To date, staff has reviewed two drafts of the proposed parking requirements, along with supporting background review and data analysis findings.
- **Engagement with the public and stakeholders –** Input from the public and stakeholders could also be considered in the development of parking requirements. Stakeholders have expressed general support for reducing parking requirements using a precinct approach. This report presents the proposed parking requirements for the first time to the public and external stakeholders for review and comment.
- **Short to Medium Term Implementation –** The draft parking requirements could strive to "right-size" parking for the short to medium term. It is anticipated that the City will initiate a Zoning By-

law Amendment to implement new parking requirements upon completion of this study. Those new parking requirements are expected to be in force over the short to medium term and be subject to subsequent Zoning By-law reviews and amendments in the longer-term future.

The proposed residential and commercial parking requirements are summarized in **Table EX 3** and **EX 4**.

Table EX 3: Proposed Residential Parking Requirements

Residential Land Use	Existing Min. Parking Requirement (no. spaces/unit)	Proposed Min. Parking Requirement (no. spaces/unit)			
		Precinct 1	Precinct 2	Precinct 1	Precinct 4
Detached Dwelling, Linked Dwelling, Semi-detached Dwelling, Street Townhouse					
-Resident	2	2	2	2	2
-Visitor, Common Element Condominium (CEC) road (Private Road)	0.25		0.25	0.25	0.25
			In a mixed-use development, shared parking is permitted between residential visitors and non-residential visitors subject to (1).		
Dwelling unit located above commercial, with a max height of 3 storeys	1.25	1	1	1	1
Back-to-back and stacked townhouse					
-Resident	Condominium, without exclusive use garage and driveway: Studio/1-Bedroom: 1.10 2-Bedroom: 1.50 3-Bedroom: 1.75 4-Bedroom: 2.0 With exclusive garage and driveway: 2.0 Rental, without exclusive use garage and driveway: Studio/1-Bedroom: 1.10 2-Bedroom: 1.25 3-Bedroom: 1.41 4-Bedroom: 1.95 With exclusive garage and driveway: 2.0	1	1.1	1.2	1.3
-Visitor	0.25	0.15	0.20	0.20	0.20
		In a mixed-use development, shared parking is permitted between residential visitors and non-residential visitors subject to (1).			

Table EX 3 (Continued): Proposed Commercial Parking Requirements

Residential Land Use	Existing Min. Parking Requirement (no. spaces/unit)	Proposed Min. Parking Requirement (no. spaces/unit)			
		Precinct 1	Precinct 2	Precinct 3	Precinct 4
Apartment					
-Resident	Studio: 1.00 1-Bedroom: 1.25 2-Bedroom: 1.40 3-Bedroom: 1.75	0.8	0.9	1.0	1.1
-Resident, Purpose-Built Rental	Studio: 1.00 1-Bedroom: 1.18 2-Bedroom: 1.36 3-Bedroom: 1.50	0.8	0.8	0.8	0.8
-Visitor	0.20	0.15	0.15	0.15	0.15
		In a mixed-use development, shared parking is permitted between residential visitors and non-residential visitors subject to (1).			
Second Unit	1.0	A total of 2 spaces for the Principal and Second Unit (which may be provided in tandem), plus 1 additional space for each additional unit.			
Affordable Housing Unit	n/a	50% Reduction	30% Reduction from the base parking requirement		
Assisted/Alternative Housing Unit	n/a	0.1	0.1	0.1	0.1

Note 1:
Visitor Parking Regulation:
For the visitor component, a shared parking arrangement may be used for the calculation of required visitor/non-residential parking in accordance of the following: the greater of the indicated visitor parking by precinct or parking required for all non-residential uses, located in the same building or on the same lot as the residential use except banquet hall/conference centre/convention centre, entertainment establishment, overnight accommodation, place of religious assembly, recreational establishment, and restaurant over 220 m^2 GFA non-residential. Parking for these listed non-residential uses shall not be included in the above-shared parking arrangement and shall be provided in accordance with applicable regulations in the Zoning By-law.

Table EX 4: Proposed Commercial Parking Requirements

<table>
<tr><th rowspan="2">Commercial Land Use</th><th rowspan="2">Existing Min. Parking Requirement (no. spaces/100 sq.m. GFA)</th><th colspan="4">Proposed Minimum Parking Requirement (no. spaces/100 sq.m. GFA)</th></tr>
<tr><th>Precinct 1</th><th>Precinct 2</th><th>Precinct 3</th><th>Precinct 4</th></tr>
<tr><td rowspan="4">Retail Store,
Service Establishment,
Convenience Restaurant,
Take-out Restaurant,
Restaurant under 220 sq.m.,
Financial Institution</td><td rowspan="4">Retail Store: 5.4
In C4 zone: 4.0
In CC2 to CC4 zones: 4.3

Personal Service Establishment: 5.4
In C4 zone: 4.0
In CC2 to CC4 zones: 4.3

Convenience Restaurant: 16
Take-out Restaurant: 6.0

Financial Institution: 5.5</td><td>3</td><td>3</td><td>4</td><td rowspan="2">5</td></tr>
<tr><td colspan="3">No parking is required for GFA under 220 sq.m.</td></tr>
<tr><td colspan="4">The Precinct 1 parking requirement shall apply in a C4 Zone.</td></tr>
<tr><td colspan="4">In a mixed-use development, shared parking is permitted between residential visitors and non-residential visitors subject to (1).</td></tr>
<tr><td>Retail Centre under 2,000 sq.m.</td><td>4.3</td><td>3</td><td>3</td><td>3.5</td><td>4.3</td></tr>
<tr><td>Retail Centre over 2,000 sq.m.</td><td>5.4</td><td>3.8</td><td>3.8</td><td>4.5</td><td>5.4</td></tr>
<tr><td>Restaurant over 220 sq.m.</td><td>16
In C4 zone: 9.0</td><td>6</td><td>6</td><td>9</td><td>9</td></tr>
<tr><td>Office</td><td>3.2</td><td>2</td><td>2.5</td><td>2.8</td><td>3</td></tr>
<tr><td>Medical Office</td><td>6.5</td><td>3.8</td><td>4</td><td>4.5</td><td>5.5</td></tr>
<tr><td colspan="6">Note 1:
Visitor Parking Regulation:
For the visitor component, a shared parking arrangement may be used for the calculation of required visitor/non-residential parking in accordance of the following: the greater of the indicated visitor parking by precinct or parking required for all non-residential uses, located in the same building or on the same lot as the residential use except banquet hall/conference centre/convention centre, entertainment establishment, overnight accommodation, place of religious assembly, recreational establishment, and restaurant over 220 m^2 GFA non-residential. Parking for these listed non-residential uses shall not be included in the above-shared parking arrangement and shall be provided in accordance with applicable regulations in the Zoning By-law.</td></tr>
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1 INTRODUCTION

The City of Mississauga's first Parking Master Plan and Implementation Strategy (PMPIS) was completed and approved by Council in June 2019. The goal of the project was to improve the efficiency and effectiveness of current and future resources dedicated to parking and to use parking as a tool to realize the city-building objectives. Through an analysis of existing policies, best practices, and extensive consultation, the PMPIS established a precinct approach to parking provision and management in the City. The precinct approach allows for lower parking requirements to be established based on context, and a price responsive approach in the most urbanized areas while ensuring appropriate on-site parking provision in other areas. This provides the basis for the subsequent zoning by-law review, which would determine the parking requirements for land uses in each Precinct.

In addition to the Precinct based approach to regulating parking, the PMPIS also addressed other key issues including on-street parking permits, lower driveway boulevard parking, curbside management, municipal parking, parking lot design, technology, as well as governance and future funding for municipal parking operations.

To address these issues the City will develop a parking tool kit; which will also include on-street parking and permit system, boulevard parking, curbside management, shared mobility, and parking technologies to improve convenience, improve design and sustainability and be future-ready. The City will be embarking on these studies to continue the implementation of the City's Parking Master Plan; the first being the Parking Regulations Study.

The Mississauga Parking Regulations Study was initiated in 2020 to refine the parking precincts and develop or modify off-street parking requirements for select key land uses for inclusion in an updated Zoning By-law. This study will also identify recommendations for policies and guidelines to complement the Zoning By-law regulations, to ensure a coordinated approach to parking management in the City.

This study and outcome will be one in a series of tools and policies the City will develop to effectively manage parking in the City of Mississauga. The tool kit will be comprehensive and address all aspects of parking and the important role it has in achieving the City's vision to be truly multi-modal. The goal will be developing the best parking strategies across the City understanding that all communities are not the same as they vary in transit access, municipal parking supply, on-street parking, active transportation infrastructure, and development density. Therefore, the Parking Precinct system will be tailored to each community through the four Precinct areas. In so doing the aim is to right-size parking in the City by Precinct.

1.1 PROJECT STATUS

Tasks completed to date include the policy context review, parking data review, an initial round of consultation with key stakeholders, review, and confirmation of the Precinct boundaries and approach, and review of best practices. Draft recommendations were reviewed by the City's project team and planning staff. Review comments were provided to WSP in January of 2021 to guide the continued development of the study recommendations. A Workshop was later held with staff to review the Key Directions and subsequent revisions made to reflect the content of this report.

1.2 CONTENTS OF THIS DOCUMENT

This Key Directions Summary is organized in five sections as described below.

- **Executive Summary:** Provides a summary of key policy directions and parking requirements
- **Introduction:** Overview of the study purpose and report contents
- **Engagement:** Engagement Plan, outcomes of engagement activities date, next steps
- **Parking Precincts Criteria and Boundaries:** Criteria and guidelines used to establish Parking Precincts, draft Parking Precinct map
- **Policy Review and Proposed Changes:** Discussion of key policy change considerations including over sixteen policy areas such, Parking Maximum, Shared/Public Parking, Shared Mobility, Curbside Management, Second Units, and Affordable Housing
- **Parking Requirements Benchmarking and Changes:** Potential consolidation of land uses based on a review of permitted uses in the Zoning By-law, key findings from benchmarking Mississauga's current parking requirements against other municipalities, proposed parking requirements
- **Implementation of Changes:** Principles for developing the draft Zoning By-law Amendment to implement the parking regulations study.
- **Next Steps:** Identify actions to follow once the report is issued.

2 ENGAGEMENT

The development and preparation of any planning-related project should – where possible – be informed by staff, stakeholder, and public input and should build upon past planning and consultation efforts – of a similar topic or nature – as completed by the City and its partners.

For the Mississauga Parking Regulations Study, engagement was considered to be a critical part of the project process; however, due to the impacts of COVID-19 and the restrictions placed on public interactions, the engagement approach used for the initial phase of the project had to be altered to respect public health directions and guidelines. As such, engagement-focused primarily on stakeholders – internal and external – as opposed to members of the public and the styles of engagement shifted from an in-person approach to be virtual.

The City of Mississauga remains committed to a robust engagement program while also accommodating public health requirements and directions. The following is a summary of the past parking engagement activities and input received by the City as well as the approach that was used to inform the first Phase of the Parking Regulations Study.

2.1 PRIOR ENGAGEMENT & INPUT

The Parking Regulations Study is a direct outcome of the City's PMPIS which was adopted in 2019. A considerable amount of engagement was undertaken to inform the development of the PMPIS including outreach with residents of the City in different neighbourhoods / geographic areas; parking providers, technical agencies, and interest groups as well as municipal staff. The input that was gathered through this process not only pertained to the PMPIS but in many cases provided a strong foundation of understanding and input related to the City's parking regulations. There was a desire to shift away from a uniform guideline and approach applied to the overall City, but to establish clear and location-specific requirements. This in turn resulted in the Parking Regulations Study that further develops the precinct approach as one of the first recommendations to implement.

The input based on the locations and key themes such as City Policies and Bylaws and Technologies were used as foundational elements for establishing the parking precincts boundaries and topics to further discuss throughout the Parking Regulations Study phase 1 process. These inputs also helped to coordinate parking management practices based on PMPIS recommendations and engage internal and external stakeholders in more meaningful ways to be able to inform the identification of new parking rates and revisit necessary policy changes within the Zoning By-law.

2.2 ENGAGEMENT PURPOSE AND GOAL

Prior to the commencement of the Parking Regulations Study, an Engagement Community Plan was prepared as a comprehensive stakeholder management plan and consultation strategy and adopted by the City's team. This plan included a high-level description of the stakeholders that were engaged through the PMPIS process and how they can be re-engaged throughout the Parking Regulations Study. The engagement strategy was developed to serve as a blueprint and guide for engagement and outreach – including communication – throughout the entire project; one that can be used by City staff and its partners. Content included:

- **The engagement objectives and approaches:** the main goal of the engagement is to inform the development of the Parking Regulations Study through engagement methods tailored to the audience. By developing the stakeholder management plan and consultation strategy, a range of potential engagement options was made available to ensure that the input that is received can be contributed to the project in meaningful ways.
- **Stakeholder groups and analysis:** Identifying stakeholders and understanding how they will be impacted is an important step. The same three stakeholder groups as PMPIS have carried forward: Parking Decision Makers, Parking Providers, Parking users. As part of the stakeholder management plan, each stakeholder's interest, impact, and influence are identified. Potential issues and opportunities are outlined to manage their expectations and communicate appropriately.
- **Engagement tactics and milestones:** The project website and social media campaigns will be active throughout the project. The project website will be used as the primary hub for project-related information including project updates and interactive engagement.

  Part A of the project is to understand the current context, issues, and needs. To fulfill this objective, the engagement tactics used are phone calls, surveys, working meetings using breakout rooms for small group discussion, interactive online tools like real-time polling and whiteboards.
- **Internal and external communication methods:** Between the City and the consulting team, WSP, a consultation, and communication team, roles and responsibilities are identified to ensure an efficient, effective, and well-managed consultation and engagement program. Any public announcement will be completed by the City with WSP's effort in developing the materials. Communication with the identified stakeholders will be done by both the City's and WSP's Project Managers

2.3 ENGAGEMENT OBJECTIVES & AUDIENCES

It is important to understand the purpose and the desired outcome of the study and who will be impacted by the final output of the study and who can provide the necessary input. The engagement objectives guide the why, how, and who to involve in the development process for the study.

The purpose of any engagement strategy is to develop a robust approach to inform, engage, consult, involve, and empower different audiences with the specific purpose of fulfilling project objectives. For the City of Mississauga Parking Regulations Study, the following objectives were identified early in the process as the foundation for the design and implementation of engagement activities:

1. Inform the development of the Parking Regulations Study;

2. Identify ideas, preferences, and principles of various audiences;
3. Better understand who will be impacted by the outcomes and how they will be impacted;
4. Develop a sense of commitment and contribution; and
5. Increase understanding of a typical technical topic.

Consistent with the approach used for the PMPIS, three key stakeholders' groups were identified including Parking Decision Makers, Parking Providers, and Parking Users. Engagement is not a "one size fits all" approach. Within each of the stakeholder groups noted above, there will be individuals with different interests, levels of understanding, and levels of commitment and influence.

To facilitate communication, outreach, and engagement, a contact list was prepared for the parking regulations study which built upon the list of stakeholders prepared for the PMPIS. The contact list was monitored and maintained by the consultant team in coordination with City staff.

2.4 ENGAGEMENT MILESTONES & SUMMARY

Mississauga Parking Regulations Study's Engagement Community Plan included the engagement activity plan to help provide a phase by phase overview of the targeted engagement activities. The intent was for the strategy to provide a blueprint for engagement but was not meant to be a prescriptive approach to engaging with the various audiences. At the time, it was the City's preference to proceed only with virtual engagement. The strategy and opportunities for engagement continue to be monitored and adapted where appropriate.

The engagement approach and milestones were impacted significantly by the COVID-19 restrictions regarding public interaction and communication. WSP has been working with City staff to move forward with meaningful engagement to inform the development of the Parking Regulations Study; however, it should be noted that all public outreach was put on hold until further notice, and engagement was meant to focus solely on stakeholder outreach except for the project webpage on the City's "Have Your Say" engagement page.

2.4.1 PHASE 1 ENGAGEMENT MILESTONES

The first round of engagement is in Phase A: Setting the Stage. During this round, consultations have been used to understand the current context, issues, and needs by revisiting the recommendations from PMPIS and best practices and gathering information on the parking rates for residential and commercial units. The second round of engagement is in Phase B: Developing the Updated Parking Regulations. Stakeholders and members of the public will be informed during this round of the recommended parking regulations that are proposed by the project team and seek feedback and approval of those parking rates.

During the first phase, parking providers were engaged through an online survey and interviews to gather information on current practices and any concerns. The city staff has been involved through a topic-specific meeting regarding affordable housing and a staff workshop to collaborate and consult with them regarding the proposed changes. The general public has been informed through the webpage updates.

The input received and outcomes identified from the engagement activities undertaken in Part A are documented in the following sections.

2.5 PHASE 1 ENGAGEMENT SUMMARY

The following is a summary of the approach taken to engage with different audiences within the First Phase of the project as well as the input received and key themes that emerged.

2.5.1 PARKING PROVIDER ENGAGEMENT

As part of the first set of engagement activities in Part A, the parking provider survey and interviews were conducted. Parking providers are the connecting links to the parking users as they have experience and data on the current demand and usages and are also aware of municipal regulations and guidelines. The engagement with the parking providers was in two phases utilizing online surveys and interviews.

2.5.1.1 *STAKEHOLDER QUESTIONNAIRE*

A set of questions was drafted for developers, small businesses, property managers, business improvement areas (BIAs), and consultants. The questionnaire was designed to gather insights on current parking management practices such as the parking demand and their experience working with the city's current parking requirements.

The invitation to participate was sent on September 10, 2020. A total of 37 responses were submitted in different degrees of completion. Property management provided the level of usage and demand at the locations that they manage. BIAs provided information on the concerns that they face in their BIA regarding boulevard parking issues for both on-street parking and commercial loading zones. In order to gather additional input, follow-up interviews were conducted with a small group of parking providers.

2.5.1.2 *STAKEHOLDER INTERVIEWS*

A select number of stakeholders were reached for a follow-up interview based on their survey results. The interviews were used to provide additional responses and clarification and to supplement the online survey responses with more detailed information and additional responses.

Seven representatives from development, property management, and consulting companies were interviewed between October 23 to November 11, 2020.

2.5.2 PHASE 1 KEY MESSAGES

The following key messages are gathered through topics discussed from the stakeholder interviews, and comments and feedback heard from the staff workshop. The topics discussed include parking precinct boundaries, parking maximum, shared public parking, shared mobility, curbside management, second units, and affordable housing.

- **Parking Precinct Approach & Min/Max Parking Rates:** The proposed precinct approach was supported. The feedback received showed that available alternative transportation options and future development plans were key considerations impacting the parking rates. In addition, the impact of LRT such as travel pattern changes and infrastructure required due to the implementation of LRT were discussed for future planning consideration. As for the commercial buildings, consumer patterns and commercial lot allocations may be changed due to COVID and parking requirements should be flexible to accommodate future anticipated changes.
- **Shared/Public parking:** Shared parking for on-site, off-site, and civic uses were discussed. While on- and off-site shared parking was considered for further study, allowing shared parking

for civic and community uses was found to be preferred. Especially for locations that can be better used as parking and that can also generate potential revenue.

- **Second Units:** There was mixed feedback regarding the parking requirements for the second unit for residential units. The proximity and availability of alternative transportation options were raised as a consideration for a second unit parking requirement, as well as enabling a parking permit for second units. This input has been used for the City staff to coordinate with Municipal Parking staff to review a city-wide permit parking system.
- **Affordable Housing:** From both the topic-specific meeting with the City staff (held on November 13, 2020) and the Staff Workshop, a reduced parking rate for affordable housing was supported.
- **Shared Mobility& Curbside Management:** These two topics were introduced as new guidelines to address current trends. The purpose of this introduction was to provide background context and knowledge on how they can be integrated with the policies and programs that the City is planning and has implemented.
- **Electric Vehicles and Carshare:** With an increase in electric vehicles (EV) and carshare availability, the question was regarding whether providing spaces for EV and carshare was in best practices. The comments received included that many locations are implementing EV stalls. However, the requirements or the proportion to the overall parking and the method of implementation were determined by individual condominium boards. Setting a minimum requirement was generally disagreed against since these spaces would only benefit a select percentage of the users.

The outputs from the survey, interviews and workshop meetings were considered in developing the draft parking requirements.

3 PARKING PRECINCTS

3.1 BACKGROUND

The 2019 PMPIS established a vision for changing the mechanisms around parking policy and regulation within the City of Mississauga. A key recommendation of the PMPIS was to move towards a precinct-based approach to regulating the provision of parking which better considers mobility and other contextual considerations. This is a shift in the City's current approach to regulating parking, where the parking regulations are largely only tied to land use and less on the surrounding context. The PMPIS included a fulsome assessment of inputs and considerations for developing a precinct-based approach to parking regulation.

Based on this work, the PMPIS identified a preliminary Parking Precinct map. This map proposed the various delineated Precincts, where different parking requirements would apply. However, the mapping included in the PMPIS required refinement, to consider a range of more recent inputs and studies and to provide a detailed delineation. The conceptual Precincts identified in the PMPIS have been reviewed and the criteria have been established based on further consideration and synthesis of the following inputs, briefly characterized as follows:

- In the PMPIS, many of the Precinct areas were identified only conceptually, as they were proposed to align with future "Major Transit Station Areas" which were not available when the PMPIS was completed. The Region of Peel has now advanced the proposed delineation of Major Transit Station Areas (MTSAs). MTSAs refer to lands within proximity of a rapid transit station. In accordance with the Growth Plan for the Greater Golden Horseshoe (2019, as amended), MTSAs must be delineated and generally planned for land uses which are transit-supportive. As the delineation of MTSAs significantly affects land use and intensification policy, the boundaries of the parking precincts must consider the MTSA delineation and could be aligned, where appropriate.
- The precinct boundaries were reviewed in conjunction with current and planned transit services. There is a wide variety of existing and planned transit services in Mississauga, and some transit lines are not definitive and may change due to funding. The parking precincts could take transit service and ability into account, as transit availability is a significant driver of parking demand and vehicle ownership. Further, there is a need to support transit viability, which includes considering reduced parking requirements where transit is available.
- The precinct boundaries were reviewed against planning policies, such as the City of Mississauga's Official Plan, to understand how lands in the City are intended to grow, evolve and change over time, if at all. This was to ensure that the parking requirements are aligned with the City's planning policies and are conducive to facilitating intensification where envisioned by the City.
- The precinct boundaries were reviewed to consider mobility context, such as public parking availability, and active transportation infrastructure as well as land use and density characteristics. The parking requirements could be responsive to these characteristics which relate to parking demand and vehicle ownership.

- Consideration has been made with respect to minor variances and zoning amendment applications for parking reductions to help confirm the appropriateness of the precincts based on recent practice and approvals.

3.2 CRITERIA AND GUIDELINES

Based on the PMPIS, and to further implement recent inputs and considerations as briefly described in Section 3.1, the following table identifies the proposed criteria that are used to establish the boundaries for the Parking Precincts. The Criteria are organized within five themes:

1. transit access;
2. availability of public parking;
3. location within an intensification area;
4. land use and density mix; and
5. active transportation characteristics.

The “Guidelines” contained in **Table 3-1** explain how each criterion is to be interpreted and applied. This table has been used and applied to map the proposed Parking Precinct boundaries, as presented in **Figure 3-1**. Furthermore, it is intended that the criteria including guidelines will form the basis for the City to evaluate site-specific applications for development, to assess the appropriateness of the different requirements. For example, if development is currently located in Precinct 3, but the applicant wishes to utilize the parking requirements for Precinct 2, then the Guidelines establish criteria for the City to evaluate this type of request which could be implemented through a minor variance or site-specific zoning by-law amendment. The criteria could be used as a guide by staff to assess applications and to form a recommendation on the proposed rate. There may be instances of sites that do not perfectly achieve all the criteria under a given Precinct. In these instances, the suitable Precinct requirements for a given site could be the Precinct where the stated criteria are best achieved.

It should be further noted that final refinements may need to be made to the proposed Precincts to consider the ultimately delineated MTSA boundaries, in particular. This may affect the proposed hierarchy of Precincts to consider any Regional policies for the Major Transit Station Areas. It is noted that several undelineated MTSAs, which have been incorporated into Precinct 4, may be delineated over time and the parking precinct boundaries could accordingly be reviewed.

It is also anticipated that the criteria will be applied through future comprehensive Zoning By-law Reviews or other review processes. Overtime, the City’s mobility, and demographic context will evolve, and it will be desirable for the City to review the Precinct boundaries from time to time. For example, as rapid transit plans are finalized and constructed, it may become desirable to shift some areas into a precinct with lower minimum parking requirements to reflect the improved transit service.

Table 3-1 Precinct Criteria and Guidelines

Criteria	Guidelines	Precinct 1	Precinct 2	Precinct 3	Precinct 4
1. Transit					
Rapid Transit Terminal/Station	• Lands in Precinct 1 are required to be located within approximately 800 metres (10- or 15-minute walk) of an operational rapid transit corridor, terminal, or station (BRT, LRT, GO). • Lands in Precinct 2 are required to be located within approximately 800 metres (10- or 15-minute walk) of an operational or planned rapid transit corridor, terminal, or station (BRT, LRT, GO), provided the rapid transit plans are definitive and approvals/funding are secured. • Lands in Precinct 3 could also be within approximately 800 metres (10- or 15-minute walk) of a planned or existing rapid transit corridor, terminal, or station (BRT, LRT, GO). However, this is not required where high-frequency bus transit service is planned or available (refer to the criterion for high-frequency bus transit service below). • Lands in Precinct 4 do not have access to a rapid transit station (not including MiWAY service), or a rapid transit station/corridor may also be planned in the long-term and its status is subject to funding or approvals.	Yes	Yes (may be planned)	Yes (may be planned, or is not required with high-frequency bus transit)	Not required
Rapid Transit Interconnectivity	• In Precinct 1, the lands are within approximately 800 metres of a second type of rapid transit terminal or station, providing interconnectivity between rapid transit services. • In Precincts 2, 3, and 4, there is typically only one type of rapid transit provided or rapid transit is not available.	Yes	Not required	Not required	Not required
High-frequency bus transit service	• In Precincts 1, 2, and 3, bus service typically includes connectivity (one bus route) to rapid transit stations and connection with other bus routes. • In Precinct 3, where rapid transit is not available, 24-hour and frequent peak bus service and/or MiWAY service is currently available within approximately 800 metres (10- or 15-minute walk), and there is typically an opportunity for bus transfers via interconnecting bus routes within walking distance. • In Precinct 4, high-frequency bus transit service may or may not be available and bus transit service may or may not be available.	Yes	Yes	Yes (Not required if other rapid transit is provided or planned)	Not required

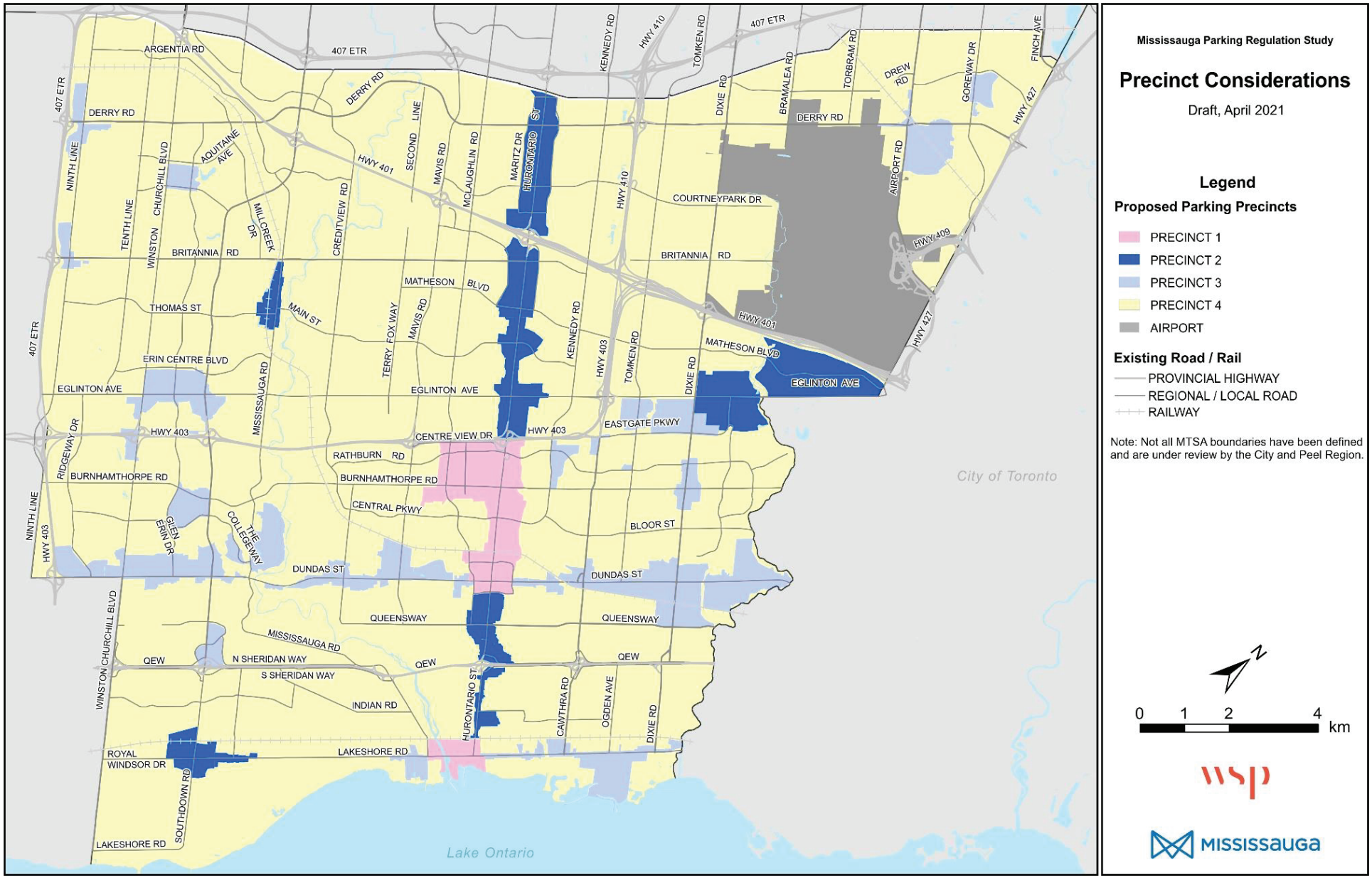
2. Public Parking		Precinct 1	Precinct 2	Precinct 3	Precinct 4
Public Parking	• In Precinct 1, there are public parking facilities provided within approximately 800 metres (10- or 15-minute walk) of the lands. This could include structured or surface public parking lots that are operated by the City, Metrolinx (GO parking), other public agencies, or privately operated structured public parking facilities. These facilities are available for commuter and localized public and visitor parking and are not strictly used for commuter parking in conjunction with a rapid transit station. Lands in Precinct 1 are also characterized by close access to municipal on-street parking. • In Precinct 2, there are public parking facilities, but they are limited compared to Precinct 1. Lands in Precinct 2 could be near municipal on-street parking at a minimum (e.g., within approximately 300 metres). Lands in Precinct 2 may also be within walking distance of publicly operated public parking facilities, and these facilities may be geared to providing commuter parking for an associated rapid transit line, rather than providing generally available parking for the local area and businesses. • In Precincts 3 and 4, public parking availability is limited. Most parking is provided in the form of private surface lots and there may or may not be municipal on-street municipal parking available.	Yes	Yes	Not required	Not required

3. Planning Area		Precinct 1	Precinct 2	Precinct 3	Precinct 4
Urban Growth Centre, Downtown or Mobility Hub	• Lands in Precinct 1 are within an identified Urban Growth Centre, the Downtown, or a Mobility Hub, which are the focal points of intensification in the City. • Lands in Precincts 2, 3, and 4 are not required to be located within these specified areas.	Yes	Not required	Not required	Not required
Intensification Area, Mainstreet Commercial and Key Growth Areas	• Lands in Precincts 1, 2, and 3 are mostly located in a defined intensification area in the Official Plan or are within a delineated Major Transit Station Area. Lands in Precinct 1 will be included in an Urban Growth Centre, Downtown, or Mobility Hub as stated above. • Some lands in Precincts 2 and 3 are not explicitly within a defined intensification area or an MTSA, but the lands may be within a “Mainstreet” commercial area (as evidenced-based on the application of the C4 zone to the lands), or the lands are otherwise considered to be within a key growth area. • Lands in Precinct 4 are not required to be in a defined intensification area of the City, or there is limited potential for intensification. There may be potential for minor or gentle intensification. • Lands in Precinct 4 may encompass areas that are located within an undelineated Major Transit Station Area, where rapid transit service is considered long-term and subject to approvals/funding.	Yes	Yes	Yes	Not required

4. Land Use and Density		Precinct 1	Precinct 2	Precinct 3	Precinct 4
Mix of Uses	• In Precinct 1, there is a wide range of existing uses, including residential, commercial, and employment, within an approximately 800 metre radius (10- to 15-minute walk) of the subject lands. • In Precinct 2, there is an existing or planned mix of land uses within an approximately 800 metre radius (10-15 minute walk), including residential, commercial and employment uses. Some portions of Precinct 2 may be characterized as having a 'main street' character, with a range of shops and services facing the street with a pedestrian-oriented feel. • Precincts 3 and 4 may consist of a limited range of existing and planned uses within walking distance.	Yes	Yes	Not required	Not required
High-Density Uses	• In Precincts 1 and 2, there are existing or planned high-density uses, such as multi-storey office buildings or multi-unit residential building typologies. • In Precinct 3, there may be existing or planned higher-density uses including multi-storey office buildings or multi-unit residential building typologies, but this is not required. • In Precinct 4, the lands will typically consist of a low-rise building and there are limited multi-unit residential building typologies or low-rise employment and commercial uses.	Yes	Yes	Not required	Not required

5. Active Transportation		Precinct 1	Precinct 2	Precinct 3	Precinct 4
Walkability	• The walkability score is generally within the range indicated in the columns table for the applicable Precinct. • In Precinct 1, there is a fine-grain network of pedestrian routes and there are good pedestrian amenities. • Precincts 2 and 3 have good pedestrian accessibility, but pedestrian amenities and direct walking routes to adjacent neighbourhoods may be limited compared to Precinct 1. • In Precinct 4, pedestrian facilities and amenities do not exist or there are limited facilities and long walks between destinations, due to limited permeability of routes and the nature of the road network and urban form.	Highly walkable (Walk score is 90 or higher)	Walkable (50 or higher)	Some walkability (25 or higher)	Limited walkability (0 or higher)
Cycling Facility	• Precincts 1 and 2 include a mixture of on and off-road cycling facilities, separated and shared bicycle facilities that connect cyclists to major and minor destinations. • Precinct 3 has or is planned to have, some on- and off-road cycling facilities to facilitate connectivity with cyclists, but facilities may be limited. • Precinct 4 has limited or no dedicated cycling infrastructure/facilities.	Highly accessible to cyclists	Moderately accessible to cyclists	Limited accessibility to cyclists	Limited or no accessibility to cyclists
Public Bike Share Potential	• There is an opportunity to locate viable bike-share station or stations in Precincts 1 and 2. • There is limited opportunity to provide viable bike share opportunities in Precincts 3 and 4.	Yes	Yes	Not required	Not required

Figure 3-1: Precinct Map



4 POLICY REVIEW

4.1 OVERVIEW

The City needs to have policies and guidelines in place that supports the Precinct system and criteria used, which are:

- transit access;
- availability of public parking;
- location within an intensification area;
- land use and density mix; and
- active transportation characteristics.

The Official Plan and Local Area Plans provide direction and guidance surrounding the locations of intensification areas, land use, and density. However, these documents typically contain only general guidance regarding parking and related matters. For example, Section 8.4 of the City's Official Plan includes policies regarding parking and the promotion of a multi-modal City, but the policies are general in nature and often involve statements about encouraging certain measures or approaches, whereas there may be a desire to improve the strength or directness of these policies. To support the proposed Precinct system and its criteria, other City policies and guidelines will be required to support transit access, public and municipal parking facilities, and active transportation infrastructure and measures to support the Precinct system and criteria. Also, policies or guidelines could be used to encourage "right-sizing" of parking rather than over or undersupply, which is a key purpose of the Precinct system and criteria. Finally, parking policies supporting other City building initiatives, such as Affordable Housing, have also been reviewed.

The following policy areas were reviewed:

- Parking minimums
- Parking maximum
- Public and Shared Parking
- Shared mobility
- Curbside management
- On-street parking permit
- Second units
- Affordable and alternative housing
- Heritage buildings
- Electric vehicle station parking
- Bicycle parking
- End of trip facilities
- Transitional parking
- Parking technology

Each policy area review included the following:

- Description of the policy
- The City of Mississauga current policy related to the subject policy
- Why it is important to the City

- Could the subject policy differ by Precinct?
- What do other municipalities do?

All the policy areas reviewed can complement the Mississauga parking framework and Precinct system; some could be in the form of guidelines, such as parking for Heritage properties and Electric vehicles that could be included in the City's Green Development Standards.

The following sections describe each policy area and the proposed direction the City could consider. **Appendix A** provides the full details of the best practice policy review.

4.2 REVIEW SUMMARY AND POLICY DIRECTION

4.2.1 PARKING MINIMUMS

A municipality's zoning by-law defines parking minimums to specify the minimum parking threshold that is to be supplied by all new developments according to specified land uses and the size of the development (e.g. minimum spaces per unit of gross floor area), preventing undersupply. Minimums can be lowered through site-specific applications with a parking demand study that justifies lowering the required number of parking spaces.

Parking minimums are specified in the current Mississauga Zoning By-law, and right-sizing parking lots are a priority of the City's vision for 2041. The PMPIS recommends that "an appropriate level of minimum parking requirements is needed along with appropriate parking management strategies" across all precincts.

Parking minimums help regulate the baseline amount of parking required depending on land use and anticipated demand to control undesirable parking practices. When they are set to reflect actual parking demand, functional parking needs can be met. PMPIS recommends that minimum parking requirements could differ across precincts to reduce parking requirements in proposed transit corridors. Some municipalities, such as Downtown Oakville which is mixed-use, have implemented zero parking minimums in high-density areas to allow developers to decide on appropriate baseline parking.

Modifications are proposed to the minimum parking requirements for several land uses to better reflect current parking demand, to support the City's Official Plan policies, and support multi-modal travel options. The City should continue to monitor parking demands and could make further changes in the future when additional transit and infrastructure supporting non-auto modes of travel are available to limit the potential oversupply of parking spaces.

4.2.2 PARKING MAXIMUM

Parking maximum limits the extent of parking supplied by stating the maximum number of parking spaces per land use. Currently, parking maximums are not included in the Mississauga Zoning By-Law. However, the Official Plan generally supports the notion of maximum parking standards within the Intensification Areas (see Section 8.4.7 b).

Effective use of parking maximums may prevent oversupply practices and limits the amount of land reserved for parking spaces; land can be allocated/developed for more productive uses and could improve affordability. Parking maximums are becoming increasingly common across Canadian

municipalities, including those in the Greater Toronto Area (GTA) like the City of Toronto and the City of Vaughan. The 2019 PMPIS recommends that the City consider establishing maximum parking requirements across the City, but particularly in Precincts 1 and 2. These areas have and continue to have enhanced transit, Active Transportation facilities, and the largest volumes of public and municipal parking spaces all complementing reduced on-site parking demand.

Review of current development Applications shows a trend for reduction of parking requirements, therefore no parking maximums are proposed at this time. However, the need to introduce a parking maximum could be revisited in the future, once new requirements are in place for a period of time.

4.2.3 PUBLIC AND SHARED PARKING

4.2.3.1 *PUBLIC PARKING*

Public parking, including on-street, municipal off-street, and commercial (for profit) facilities, generally serves multiple destinations.

Public parking contributes to the efficient use of land and reduces the oversupply of parking. These are key components of the Parking Precinct framework and are required to reduce on-site parking and support reduced parking requirements in some Precincts.

The City could conduct a detailed parking demand analysis for Precincts 1 and 2 to determine future parking demand based on the currently proposed parking requirements; to determine if and where additional public parking facilities could be located. Any parking facility could be provided in an economically and environmentally sound manner.

4.2.3.2 *SHARED ON-SITE PARKING*

Shared parking can be used to reduce the oversupply of parking spaces by permitting multiple developments to combine parking requirements to share a single parking facility where utilization periods are complementary (e.g. peak vs off-peak). Section 8.4.2 of the City's Official Plan promotes shared parking strategies in appropriate locations. Current practices in the City allow shared parking in some mixed-use developments, based on the existing Shared Parking Formula within the Mississauga Zoning By-Law.

In future Zoning By-Law updates, the City could review the current list of land uses and utilization (percentage of peak parking) in Table 3.1.2.3 Mixed-Use Development Shared Parking Formula. Recent trends in development patterns indicate a wider mixing of land uses and could necessitate adding new land uses, such as education facilities and entertainment establishments.

4.2.3.3 *SHARED OFF-SITE PARKING*

As discussed above, the City currently allows shared parking using the shared parking formula, but this is typically applied to land uses on the same site. However, the same principle can be applied to some off-site land uses located within proximity to each other and experience different peak periods.

It is recommended that the City consider adding a policy within the City's Official Plan that would allow sharing off-site parking between appropriate land uses, subject to an agreement with the City. Also, it is recommended that the City develop an Off-Site Parking Implementation Guidelines

as an internal tool to guide the implementation of the new policy. The Implementation Guidelines would establish the criteria for when the City could consider off-site parking supply, such as:

- **sites could be located within 500m of each other; and**
- **each land use must have different peak periods that can be demonstrated using the City's Shared Parking Formula or industry-standard publications such as ULI, "Shared Parking".**

The administration of these off-site arrangements could be a Memorandum of Understanding to the satisfaction of the City of Mississauga. The Memorandum of Understanding could outline the conditions of the agreement such as capped density, land use, duration of the agreement (10years) between owners of the sites. Also, a one-year notice period to the municipality is required before terminating the agreements; allowing time to address any deficiencies as a result of the termination.

4.2.3.4 *SHARED PARKING CIVIC USES*

Civic uses such as public parks, playing fields, elementary and secondary schools, community theatre, libraries, and community centres can peak at different times of the day and or days of the week. These land uses are often located on the same site or within very close proximity to each other, thus making them ideal for sharing parking spaces rather than requiring independent parking supply.

The City's Official Plan currently includes policies that encourage the shared use of parking spaces for community infrastructure (policy 7.3.8) and municipal parking facilities for cultural facilities (policy 7.5.4) to reduce overall parking requirements.

It is recommended that the City allow sharing of parking supply among civic and community facilities; when desired by the Parties. The previously discussed Implementation Guideline would establish the criteria for when the City would consider shared parking between or among civic and community facilities. The criteria could include:

- **list of qualified land uses (schools, neighbourhood Parks, Library, community centre);**
- **sites could be located within the same complex or within 500m of each other; and**
- **agreement between operators and owners.**

Shared off-site parking could be applied Citywide.

4.2.4 SHARED MOBILITY

Shared Mobility refers to transportation services and resources that are shared among users. This can include all forms of mass transit (buses, trains, and shuttle services), smaller vehicles (car-sharing or ride-sharing), and micro-mobility (bike-share, e-bikes, and e-scooters, etc.). The availability of smartphones has enabled the emergence of ride-sharing services like Uber, Lyft, and many similar Transportation Network Companies (TNCs) that offer vehicle-based mobility options for individuals or shared groups. Bike-sharing services have also taken off in recent years, with over 750 separate schemes worldwide. Likewise, car-sharing and peer-to-peer models are also gaining popularity in this industry.

With the rise of these shared mobility services and sustainable travel modes, the demand for parking in urban areas will begin to decrease. Shared mobility is becoming more cost-effective, convenient, and time-efficient, leading to a very attractive and different way for people to travel. It potentially reduces travelling by personally owned car, which would then reduce the need for parking. In addition, micro-mobility can be used to complete the critical first mile and or last mile of some trips that could increase

travel by transit or micro-mobility for short-distance trips, all resulting in reduced demand for vehicular parking spaces.

The City of Mississauga has taken a proactive approach on shared mobility and has conducted a series of studies exploring Micro mobility Programs for the City and how to implement them in the coming years and the service areas to be covered. The micromobility programs may include bikes, bike-sharing, and e-scooter sharing.

4.2.4.1 *CARSHARE*

It is recommended that the City continue to accept carshare vehicles on private or public sites as a measure to enhance the Travel Demand Measures of a site. However, carshare services are not recommended for inclusion within the Zoning By-law but instead be provided at the Applicant's desire. The reason for this recommendation is the uncertainty around the future availability of this third-party service, mainly due to the significant success of ride-sharing services like Uber and Lyft. It would be unwise to require a service that the City has no control over its continued existence. Similarly, it is not recommended that a fixed parking space equivalent be provided for carshare spaces, because the City cannot ensure the carshare vehicle will remain on-site to allow residents/patrons to use the service, thus reducing personal vehicle demand.

4.2.4.2 *BIKESHARE*

It is premature to recommend any adjustments in parking requirements due to on-site or nearby bike-share facilities. Adjustments to site-specific parking requirements could be explored in the future when the City's Micromobility programs have determined the service areas and extent of a bike-share program.

4.2.5 BICYCLE PARKING AND FACILITIES

4.2.5.1 *BICYCLE PARKING*

Bicycle parking requirements and infrastructure, at both residential and non-residential developments, provide users with a safe and secure location to park, store and lock their bicycles. Bicycle parking is most effectively implemented through the zoning by-law, which specifies the bicycle parking and storage amenities required for new developments.

Increasing bicycle parking will encourage more people to use cycling as their mode of transportation, increasing active transportation trips. Different types of parking facilities could be required throughout the City, including provision for short-term parking and long-term parking, and overnight parking.

Bicycle parking could be provided at key locations such as schools, transit stations, community centres, etc., across precincts in Mississauga and inline with the cycling network development. Like other municipalities such as Oakville and Vaughan, Mississauga could consider including bicycle parking facilities in their local regulations and zoning by-laws. The provision of bicycle storage facilities will encourage cycling and increase active transportation throughout the City.

The 2019 TMP highlights the need for more bicycle parking supply and the City's commitment to expanding bicycle parking provision on City-owned property. The City is currently conducting a concurrent study to implement bicycle parking within the updated Mississauga Zoning By-law. Bicycle parking requirements will be included within the consultation process, and the public and stakeholders will have an opportunity to provide comments on the proposed bicycle parking requirements. **It is recommended**

that the parking requirements resulting from the City's bicycling parking study be included in the Mississauga Zoning By-law.

4.2.5.2 *END OF TRIP FACILITIES*

End of Trip facilities include showers, lockers, and restrooms or change rooms for cyclists, joggers, or walkers to encourage alternative modes and active transportation for commuter trips. End of Trip facilities are often linked to the provision of bicycle parking facilities and established bicycle parking standards defined by a zoning by-law.

end-of-trip facilities increase cycling attractiveness to potential users and encourage active transportation as convenient and safe facilities are provided for users allowing them to shower and change before and after work.

The 2018 Cycling Master Plan recognizes the need for commercial/residential development to provide bicycle facilities. The Transportation Demand Management Strategy also lists a requirement for End of Trip Facilities as part of the Bike Parking Standards to be included in the City's Zoning By-Law in their short-term action plan.

Increasing end of trip facilities can encourage more people to cycle as their method of transportation, which will encourage sustainable travel behaviours. **The City could consider including requirements for end-of-trip bicycle facilities to complement the bicycle parking requirements.**

4.2.6 CURBSIDE MANAGEMENT

Curbside space is increasingly in high demand with the continued rise in e-commerce and associated delivery systems. With proper planning and management, curbside space can serve many purposes throughout the day, from parking and EV charging stations to outdoor cafés and commercial delivery zones.

Unregulated parking in busy urban areas can impact these curbside spaces through vehicles blocking sidewalks or cycle lanes. Managing curbside and providing specific designations for commercial loading zones, passenger pick up or drop off, on-street parking zones with time-limits and demand-based pricing, restaurant delivery services or micro-mobility docking stations, etc., can help manage parking supply and allocation and improve road user safety while potentially making valuable street and curb space available for public use, such as parklets.

PMPIS recommends that the City consider a curbside management strategy to frame the discussion regarding on-street parking to determine appropriate locations and curbside priorities for each Precinct. As things such as micro-mobility systems get implemented within the City, it is important to consider curbside management policies and how to properly implement them in the City to ensure safety.

As the City proceeds with the recommendations of the PMPIS, a Curbside Management Study will be conducted to identify specific policies and implementation measures to be taken to protect and manage the curb to achieve the desired results.

It is recommended the City conduct a Curbside Management Study and, through that study, develop policies, guidelines, and standards specifically related to Curbside Management throughout the City, especially for Precincts 1, 2, and 3. These policies could include on-street parking, shared mobility, loading, and transit.

4.2.7 ON-STREET PARKING PERMIT

On-street parking is currently governed by the City's Traffic By-law (555-00), which includes all regulations related to where parking is permitted when it is permitted, and for how long. There are currently five types of on-street parking that are offered in Mississauga. The PMPIS recommended that a digital on-street parking program be developed.

On-street permits help remove spillover parking from nearby attractions during high-demand periods and control illegal parking activities. The application of on-street permits could depend on the type of roadway, and the PMPIS recommends that the City implements on-street overnight permits in alignment with the zoning by-law and potential reductions in certain precincts.

On-street parking permits are generally used by all municipalities to permit on-street parking depending on hourly, daily, or monthly allowance. On-street parking permits are beneficial for managing spillover parking and illegal parking activities. They are also useful for overnight guests, extended visitor stays, construction, etc.

The City's Parking Master Plan and Implementation Strategy recommended **the City conduct a Parking Permit Review. The review will include recommendations regarding the need and location of on-street parking and a digital permit system, making it easier for residents to access various parking services.**

4.2.8 SECOND UNITS

Second Units are sometimes referred to as Second Suites, in-law suites, accessory dwelling units, or accessory residential units. Some municipalities in the GTA recently passed an amendment to eliminate the parking requirement for second suite units.

Permissions and policy surrounding second suites have been driven in part by recent legislative changes. The Province recently amended the Planning Act to require municipalities to permit additional residential units in both accessory structures or within the house for any single-detached, semi-detached, or townhouse dwellings. Regulation 299/19 under the Act was passed, and it includes minimum parking-related requirements that are to be implemented in Zoning. The Act allows municipalities to establish no minimum parking or one parking space in conjunction with an additional residential unit.

Second units are beneficial for creating more affordable housing opportunities within the City. The City's Zoning By-Law currently requires one additional parking space for each Second Unit, which can be a barrier to providing the units. However, most neighbourhoods and properties considering Second Unit currently have two-car garages and often a large driveway that can accommodate an additional two vehicles, totalling four parking spaces on the site, that are not used for parking four vehicles.

The City could consider allowing sharing of parking spaces on the property between the principal home 2 parking spaces and the first Second Unit. Therefore, the main residence with one Second Unit would require a minimum of two parking spaces on-site. This will address the potential barrier of providing Second Units due to the lack of an additional parking space when it may not be necessary. Any subsequent Second Unit would each require one additional parking space.

4.2.9 AFFORDABLE AND ALTERNATIVE HOUSING

The need to provide parking may be considered a barrier to affordable housing, as it may increase development costs. The City's Official Plan contains policies that support the creation of affordable housing. However, the City's Zoning By-law does not define affordable housing units or a similar term.

The Province has recently introduced legislation enabling an inclusionary zoning framework, which can consider minimum requirements for the provision of affordable housing units, the City of Mississauga is in the process of implementing inclusionary zoning.

More municipalities are providing different parking requirements for affordable housing. However, a uniform description is not provided, but the general intent is that parking could not be an obstacle to affordability.

It is recommended that the City introduce parking requirements within the Zoning By-law for residential units deem to be affordable housing. The affordable parking requirement could be 50 percent lower than the requirement for each conventional housing category in Precinct 1 and 30 percent lower in all other Precincts.

In addition, the City could develop Implementation Guidelines that outlines the following plus others deemed necessary by the City:

- **Definition of affordable housing**
- **Criteria for applying the affordable housing parking requirements could include reasonable access to frequent transit service in the short term.**

The City could also develop additional definitions and criteria for alternative and assisted housing and that consideration be given to exempting these units from providing parking spaces per unit; but instead, minimal parking spaces be provided to accommodate employee parking.

4.2.10 HERITAGE BUILDINGS

The need to provide parking may represent a barrier to the protection, adaptive reuse, or viability of heritage buildings and properties. In some cases, older properties or sites may be constrained in their ability to accommodate additional parking on a site. Consideration for reduced parking standards or similar approaches to heritage buildings may help support their conservation.

The City's Official Plan promotes the conservation of heritage buildings/properties, and there is a wide range of tools to support this policy. The City's current Zoning By-law does not make specific reference to heritage properties; however, it does include a parking exemption for lots zoned "C4" which could encompass heritage buildings but the application for that zone is not necessarily heritage related.

Reducing parking standards in conjunction with a designated heritage building may help promote the building's conservation and adaptive reuse, particularly if the site is constrained in terms of the ability to provide additional parking.

The City could consider parking exemptions for sites designated heritage buildings under Part IV of the Ontario Heritage Act subject to maximum density and specific land uses. The exemptions would be limited to existing GFA and to uses such as commercial, retail and restaurants under 220 GFA. Additions to GFA and other uses would be required to provide parking as per the Zoning By-law or apply for a minor variance.

4.2.11 ELECTRIC VEHICLE STATIONS/PARKING SPACES

Electric Vehicle parking is defined by a municipality's zoning by-law to specify the number of dedicated spaces for EV use and goes hand in hand with EV charging provisions. Alternatively, the provision of EV parking can be encouraged through supplementary guidance such as green-building standards and transportation demand measures. EVs include battery electric vehicles (BEV), plug-in hybrid vehicles (PHEV), and fuel-cell electric vehicles (FCEV).

There is currently no mandated provision of dedicated EV spaces in the City's zoning by-law. The 2019 TMP discusses the need to develop regulations for charging infrastructure in public parking lots and investigate the requirements for EV charging mandated for new developments through the zoning by-law.

There is an increase in EV uptake; therefore, more EV charging infrastructure is in demand in residential and non-residential developments. This is reflected in the Ontario Building Code as it includes EV charging provisions. Supporting sustainable travel practices visually communicates the value of EV usage and could support the City's goals defined by the 2019 Climate Change Action Plan.

For the City to reach its goals defined in its 2019 Climate Change Action Plan, it could develop policies or guidelines that encourage and aid the use of EVs throughout the City.

It is recommended that the City develop guidelines or requirements for Electric Vehicle Charging Stations or Electric Vehicle Supply Equipment for new developments; this could be done in consultation with the development community and appropriate stakeholders. The City may consider requesting a percentage of the off-street parking supply in new development to be EV ready. These percentages could be determined through future studies conducted by City or pilot projects and when appropriate could be included in the City's Green Development Standards or Zoning By-law.

4.2.12 TRANSITIONAL PARKING

Transitional Parking policies allow for parking requirements to be met in phases or under provisions that are temporary (provided under conditions different from ultimate build-out). This is typically a market-driven solution to optimize the use of land for its highest and best use at a given time and would be defined/implemented through a development phasing strategy within an area's master plan.

There is currently no policy or formal practice for transitional parking in Mississauga. Transitional parking policies provide flexibility to developers that have secured a large amount of land but do not have immediate plans to develop each parcel simultaneously. Transitional parking reduces the likelihood that land will be left vacant until real estate demand increases. Transitional parking is also beneficial when parking demand decreases because it allows for parking needs to be revisited at the time of ultimate build-out.

Transitional parking could be permitted in high-density precincts, where demand for real estate and development is more dynamic. Transitional parking policies could be beneficial to Mississauga as it helps optimize the use of land for its highest value at a given time. Currently, the City does accept phased developments with appropriate Phasing Plans, and where necessary, the Applicant is required to apply through the Committee of Approval for off-site interim parking.

The City could consider including policies within the Official Plan and implementation guidelines with clear criteria and conditions in the Site Plan Application process that support transitional parking policies, where deemed appropriate.

4.2.13 PARKING TECHNOLOGY

4.2.13.1 *AUTOMATED PARKING SYSTEM*

Automated Parking Systems (APS) are mechanical systems or structures that increase parking densities by allowing vehicles to be parked on multiple levels stacked vertically and parked in tight quarters. These systems allow vehicles to be parked from the entrance to the parking location without the driver present.

APS maximizes the number of parking spaces while minimizing land use consumption. They require 70% less land area to park an equivalent number of cars meaning the land can be used for other developments.

Currently, there are no APS in the City's Policies or Zoning By-Law.

4.2.13.2 *FLEXIBLE/ADAPTABLE PARKING FACILITIES*

Flexible or Adaptable Parking is parking structures that can be retrofitted for other land uses in the future, allowing parking to adapt to changing needs. Flexible parking structures allow structures to be reused for future commercial or residential development as urban areas continue to intensify and demand for parking decreases, and other modes of travel increase in popularity.

Flexible parking structures reduce the potential of future derelict parking structures while encouraging innovative designs and increasing the availability of developable land in the future.

There is currently no reference to flexible parking structures in the City of Mississauga's Policies and design standards. Implementing flexible parking structures in Mississauga could be beneficial as it will supply parking when needed and be redeveloped for other uses when demand for parking decreases. This could help reduce undesirable parking structures that are not being used.

It is recommended that the City considers including policies within the Official Plan and Zoning By-law that allow APS as a permitted use and that parking spaces provided within an APS and flexible parking spaces be counted toward the site parking requirement. The City through future studies can develop a set of criteria or guidelines regarding the design of acceptable APS and flexible parking spaces, these could include height, width, clearance, and other measures.

5 PARKING REQUIREMENTS REVIEW

5.1 POLICY CONTEXT

The City's Official Plan provides a basis for considering parking requirement reductions, where appropriate and considerate of the context. Section 8.4.3 states that off-street parking requirements may be reduced to reflect vehicle ownership, usage, transit service, and other matters. Further, within the City's intensification areas, Section 8.4.7 states that the City will consider reducing minimum standards to reflect transit service and will consider establishing maximum standards to support higher-order transit, in particular. Reduction of minimum parking requirements also complements other policies in the Official Plan. For example, Section 8.1.4 states that the City "will strive to create a transportation system that reduces dependence on non-renewable resources."

The Official Plan does not establish specific parking requirements, as the document is more strategic in nature and guides decision-making. The Zoning By-law is considered the key vehicle for implementing the policies of the Official Plan, and the Official Plan intends for updates to the zoning by-law to occur from time to time (Section 19.4.2). Overall, the approach to establishing parking requirements that are reduced and considerate of transit and other matters is supported by the City's policies and will contribute to some of the Plan's transportation, sustainability, and healthy community objectives.

5.2 REVIEW SCOPE

The scope of this study includes a parking requirement review for the following key land uses:

Residential:

1. Detached Dwelling/Linked Dwelling/Semi-detached, Street Townhouse
2. Dwelling unit located above commercial use, with a maximum height of 3 storeys
3. Back-to-back/stacked Townhouse – Condominium
4. Back-to-back/stacked townhouse – Rental
5. Apartment – Condominium
6. Apartment – Rental
7. Long-term Care Facility
8. Retirement Home
9. Second Units
10. Affordable Housing
11. Transitional Housing

Commercial:

12. Service Establishment
13. Retail Store
14. Retail Centre under 2,000 sq.m.
15. Retail Centre over 2,000 sq.m.
16. Financial Institution
17. Take-out Restaurant
18. Convenience Restaurant
19. Restaurant
20. Office
21. Medical Office

The City is currently conducting a concurrent study to implement bicycle parking regulations in the Zoning By-Law. The bicycle parking regulations will be included within the consultation process, and the public and stakeholders will have an opportunity to provide comments on the proposed bicycle parking requirements.

Building on the outcomes of the PMPIS and the current Parking Regulations Study, a comprehensive review of all parking requirements for all land uses considered in the Zoning By-law may be pursued by the City in the future.

5.3 CONSIDERATIONS FOR DEVELOPING PROPOSED PARKING REQUIREMENTS

Proposed parking requirements for the selected land uses were developed with consideration for the following, in no particular order:

- **Precinct approach** – Parking requirements could be the lowest in Precinct 1, and highest in Precinct 4. This is one of the primary objectives of this study and directly responds to a key recommendation of the PMPIS.
- **Reduce or maintain existing requirements** – New parking requirements could not be more onerous than the existing requirements unless there is strong evidence to support the contrary.
- **Relationship between land uses** – Parking requirements should be higher for uses that generate higher parking demands, and lower for uses that generate lower parking demands. Appropriate alignment of parking requirements across land uses should be maintained. For example, households in detached dwellings tend to have higher vehicle ownership than those in apartments. Also, there are some land uses such as personal service shops, small retail stores, and take-out restaurants that are traditionally found in mixed-use buildings especially at ground level, neighbourhood retail plazas, or along Main Streets that typical share on-site parking supply, therefore, consolidation or harmonization of their parking requirements could be considered.
- **The city-approved parking reductions, proxy site survey information** – City-approved parking reductions and proxy site survey information serve as reference points for establishing proposed parking requirements in each Precinct. However, these could not necessarily dictate the draft parking requirements. It is important to note that the implementation of new parking requirements in the Zoning By-law will not affect sites with site-specific parking reductions.
- **Benchmarking findings** – Best practices and benchmarking provide additional reference points for establishing proposed parking requirements. Again, these findings could not necessarily dictate the draft parking requirements.
- **User-friendly Zoning By-law** – Parking requirements could be developed with user-friendliness in mind, for developers and for staff involved in zoning and development reviews. For example, consolidation of parking requirements for similar commercial land uses may ease the turnover of tenants in a building and reduce the number of parking-related minor variances.
- **Engagement with City staff** – Input from City staff could be considered in the development of parking requirements. This report presents the draft parking requirements for the first time to the Planning and Development Committee of Council for review and comment.
- **Engagement with the public and stakeholders** – Input from the public and stakeholders could also be considered in the development of parking requirements. Stakeholders have expressed general support for reducing parking requirements using a precinct approach. This report presents the proposed parking requirements for the first time to the public and external stakeholders for review and comment.
- **Short to Medium Term Implementation** – The draft parking requirements could strive to “right-size” parking for the short to medium term. It is anticipated that the City will initiate a Zoning By-law Amendment to implement new parking requirements upon completion of this study. Those new parking requirements are expected to be in force over the short to medium term and be subject to subsequent Zoning By-law reviews and amendments in the longer-term future.

5.4 BENCHMARKING

Mississauga's current parking requirements were benchmarked against a comprehensive list of municipalities in the Greater Toronto and Hamilton Area (GTHA) in 2019 as part of the PMPIS. The review showed that Mississauga's current parking requirements are consistently higher than those adopted in peer municipalities with an urban character and with significant transit investments. Those peer municipalities in the GTHA and beyond have recently undertaken comprehensive reviews of their parking requirements and have consistently reduced their requirements, particularly along high-frequent transit corridors and in their downtown areas.

A second benchmarking exercise in 2020 focused on municipalities that have recently adopted new parking requirements using a precinct approach. The review included Oakville, Toronto, Vancouver, Victoria, Ottawa, Kitchener, and Edmonton. The findings were organized into five precincts corresponding to Mississauga's draft precinct structure. (At the time of the review, the draft Precinct 1 was split into two, with the City Centre contemplated as unique Precinct.)

While effort was made to draw comparisons between peer municipalities and equivalent precincts, it is acknowledged that the benchmarked municipalities may not be completely comparable. Each municipality has its own unique approach to defining their precincts, and each precinct has its own historical, planning policy, and transportation contexts. Therefore, as noted in Section 5.3, the findings of the benchmarking could be considered alongside other sources of information and could not dictate the proposed parking requirements.

A summary of the 2020 benchmarking findings is presented in the following sections.

5.4.1 BENCHMARKING OF RESIDENTIAL PARKING REQUIREMENTS

Mississauga's existing residential parking requirements are consistently in or exceeding the high range of requirements adopted in the selected peer municipalities, as shown in **Table 5-1** below.

Table 5-1 Summary of Benchmarking Findings – Residential Parking Requirements

Land Use	Precinct 1 City Centre	Precinct 1 Other Areas	Precinct 2	Precinct 3	Precinct 4
Back-to-back and stacked townhouse without exclusive use of garage and driveway - Condominium	In high range (0-1.5 spaces/unit)	In high range (0-1.5 spaces/unit)	In high range (0-1.5 spaces/ unit)	In high range (0-1.5 spaces/unit)	In high range (0-2 spaces/unit)
	Only Mississauga's parking requirements vary by the number of bedrooms.				
Back-to-back and stacked townhouse without exclusive use of garage and driveway - Rental	Most municipalities do not differentiate between a condominium and rental dwelling types.				
Apartment - Condominium	Exceed high range (0-1.05 spaces/unit)	Exceed high range (0-1.05 spaces/unit)	Exceed high range (0-1.05 spaces/unit)	Exceed high range (0-1.25 spaces/unit)	Exceed high range (0-1.05 spaces/unit)
	Only Mississauga's and Toronto's parking requirements vary by the number of bedrooms.				
Apartment - Rental	Most municipalities do not differentiate between a condominium and rental dwelling types.				
Long Term Care Facility	Most municipalities do not provide a parking requirement for this use.				
Retirement Home	Exceed high range (0-0.5 spaces/unit)	Exceed high range (0-0.5 spaces/unit)	Exceed high range (0-0.5 spaces/unit)	In high range (0-0.5 spaces/unit)	In high range (0-0.5 spaces/unit)
Second Unit	Mississauga does not currently provide a parking requirement for this use. Most municipalities require no parking in Precincts 1 to 3. In Precinct 4 some require 1 space per unit.				
Affordable Housing	Mississauga does not currently provide a parking requirement for this use. Three of the eight selected peer municipalities provide a parking requirement, ranging from 0.12 to 0.9 spaces per unit. Others apply a percentage of the base parking requirement.				
Note: Detached, Linked, Semi-detached Dwellings, Street Townhouse, Dwelling Unit located above Commercial Use with a maximum height of 3 storeys, and Transitional Housing are not included in the scope of the benchmarking exercise. However, these uses are considered in the proposed parking requirements as they relate to the other key residential uses selected for review.					

The benchmarking of residential parking requirements indicates opportunities to:

- Reduce parking requirements across all Precincts,
- Apply a precinct approach to parking requirements,

- Consolidate parking requirements for condominium and rental dwelling types,
- Consolidate parking requirements for different unit types (number of bedrooms), and
- Consolidate parking requirements for higher density multi-unit dwelling types.

5.4.2 BENCHMARKING OF COMMERCIAL PARKING REQUIREMENTS

Mississauga's existing commercial parking requirements are consistently in or exceeding the high range of requirements adopted in the selected peer municipalities, as shown in **Table 5-2** below.

Table 5-2 Summary of Benchmarking Findings – Commercial Parking Requirements

	Precinct 1 City Centre	Precinct 1 Other Areas	Precinct 2	Precinct 3	Precinct 4
Service Establishment	Exceed high range (0-1.25 spaces/ 100sm)	Exceed high range (0-4.17 spaces/ 100sm)	In high range (0-4.17 spaces/ 100sm)	In high range (0-4.17 spaces/ 100sm)	Exceed high range (0-4.55spaces/ 100sm)
Retail Store	Exceed high range (0-1.25 spaces/ 100sm)	Exceed high range (0-4.17 spaces/ 100sm)	Exceed high range (0-4.17 spaces/ 100sm)	Exceed high range (0-4.17 spaces/ 100sm)	In high range (0-6 spaces/ 100sm)
Retail Centre under 2,000 sq.m.	Exceed high range (0-1.7 spaces/ 100sm)	Exceed high range (0-1.7 spaces/ 100sm)	Exceed high range (0-3.4 spaces/ 100sm)	Exceed high range (0-3 spaces/ 100sm)	Exceed high range (0-3.6 spaces/ 100sm)
	Only some municipalities provide a parking requirement for this use.				
Retail Centre over 2,000 sq.m.	Only Mississauga's parking requirements vary by size.				
Convenience Restaurant	Most municipalities do not provide a parking requirement for this use.				
Restaurant	Exceed high range (0-5 spaces/ 100sm)	Exceed high range (0-5 spaces/ 100sm)	Exceed high range (0-5 spaces/ 100sm)	Exceed high range (0-13.3 spaces/ 100sm)	Exceed high range (0-11.1 spaces/ 100sm)

	Precinct 1 City Centre	Precinct 1 Other Areas	Precinct 2	Precinct 3	Precinct 4
Take-out restaurant	Exceed high range (0-2.5 spaces/ 100sm)	Exceed high range (0-2.5 spaces/ 100sm)	Exceed high range (0-2.5 spaces/ 100sm)	Exceed high range (0-2.5 spaces/ 100sm)	Exceed high range (0-5 spaces/ 100sm)
	Most municipalities do not provide a parking requirement for this use.				
Office	Exceed high range (0-2 spaces/ 100sm)	In high range (0-4.17 spaces/ 100sm)	In high range (0-4.17 spaces/ 100sm)	In high range (0-4.17 spaces/ 100sm)	In high range (0-10 spaces/ 100sm)
Medical Office	Exceed high range (0-0.3 spaces/ 100sm)	Exceed high range (0-5.56 spaces/ 100sm)	Exceed high range (0-5.56 spaces/ 100sm)	Exceed high range (0-5.56 spaces/ 100sm)	Exceed high range (0-5.56 spaces/ 100sm)
Note: Financial Institution is not included in the scope of the benchmarking exercise. However, this use is considered in the proposed parking requirements as it relates to the other key commercial uses selected for review.					

- The benchmarking of commercial parking requirements indicates opportunities to:
- Reduce parking requirements across all Precincts,
- Apply a precinct approach to parking requirements,
- Consolidate parking requirements for similar commercial uses, and
- Reduce parking requirements for ancillary commercial uses that primarily serve customers arriving on foot from within the immediate neighbourhood.

Appendix B provides the full details of the benchmarking review.

5.5 PROPOSED PARKING REQUIREMENTS

Proposed minimum parking requirements have been developed based on the approach described in **Section 5.3** and are presented below for further review by City staff, the public, and stakeholders. Based on input from City staff, no maximum parking requirements are being proposed at this time. To further the Official Plan's transportation, sustainability, and healthy community objectives, implementation of maximum parking requirements could be considered in subsequent reviews of the Zoning By-law parking requirements.

5.5.1 PROPOSED RESIDENTIAL PARKING REQUIREMENTS

Detached Dwelling, Linked Dwelling, Semi-detached, and Street Townhouse are characterized by the provision of an exclusive garage and driveway for each dwelling unit. Driveways are provided on either public or private roads such as a Common Element Condominium (CEC) road. It is typical for local

(public) roads to provide some on-street parking for the neighbourhood, which supplements the on-site parking supply by accommodating visitor parking demands. Private roads on the other hand tend to be narrower, such that on-street parking is not typically accommodated. To ensure some parking available for visitors, a visitor parking requirement exists for dwelling units on a Comment Element Condominium (CEC) road.

It is proposed that the resident parking requirement of 2 spaces per unit be maintained. In Precinct 1, this requirement is proposed to accommodate both residents and visitors. This acknowledges the denser built forms that are encouraged in Precinct 1 and provides some flexibility for the developer to vary the number of parking spaces provided for each dwelling unit. In all other Precincts, an additional visitor parking requirement of 0.25 spaces per unit is proposed to be maintained for dwelling units on a Comment Element Condominium (CEC) road. Furthermore, in a mixed-use development, it is proposed that shared parking be permitted between residential visitors and select commercial uses identified in **Table 5-4**.

Dwelling unit located above commercial, with a max height of 3 storeys is permitted in the C4 "Mainstreet Commercial" Zone, which promotes compact mixed-use development along main street areas. Based on engagement with City staff, it is proposed that the parking requirement be reduced from 1.25 to 1 space per unit.

Back-to-back and stacked townhouses are currently subject to parking requirements that vary by unit type (number of bedrooms) and by tenure (condominium and rental). Given the increasing cost of parking, higher parking requirements for larger units may pose a barrier to providing affordable family-sized dwelling units in the City. Also, varying parking requirements based on tenure may no longer be appropriate, as condominium units are commonly rented out by individual owners to tenants, and rental units capture a wide market ranging from luxury units to those geared toward lower-income households.

It is proposed that the parking requirements be reduced and simplified, such that the parking requirements vary only by Precinct, and not by unit type nor tenure. These changes to the parking requirements are anticipated to increase flexibility for the developer and improve ease of administration for the City. The proposed resident parking requirements are:

- 1 space per unit in Precinct 1,
- 1.1 spaces per unit in Precinct 2,
- 1.2 spaces per unit in Precinct 3, and
- 1.3 spaces per unit in Precinct 4.

The proposed visitor parking requirements are 0.15 spaces per unit in Precinct 1, and 0.20 spaces per unit in all other Precincts. In a mixed-use development, it is proposed that shared parking be permitted between residential visitors and select commercial uses identified in **Table 5-4**.

Apartment, similar to Back-to-back and stacked townhouse, is currently subject to parking requirements that vary unit type (number of bedrooms) and by tenure (condominium and rental).

It is proposed that the parking requirements be reduced and simplified, such that the parking requirements vary only by Precinct, and not by unit type. These changes to the parking requirements are anticipated to increase flexibility for the developer and improve ease of administration for the City. The proposed resident parking requirements are:

- 0.8 space per unit in Precinct 1,
- 0.9 spaces per unit in Precinct 2,

- 1.0 spaces per unit in Precinct 3, and
- 1.1 spaces per unit in Precinct 4.

The proposed visitor parking requirement is 0.15 spaces per unit in all Precincts. In a mixed-use development, it is proposed that shared parking be permitted between residential visitors and select commercial uses identified in **Table 5-4**.

Purpose-Built Rental Apartments are a vital component of the City's housing supply that, in the City's experience, provide a more affordable housing option to the secondary market rental apartment unit (i.e., condominium units being rented in the market). To incentive construction of this housing type, a resident parking requirement of 0.8 spaces per unit is proposed in all Precincts. This is consistent with the Precinct 1 requirement for Apartments.

The same visitor parking requirements are proposed for Apartments and Purpose-Built Rental Apartments--0.10 spaces per unit in Precinct 1, and 0.15 spaces per unit in all other Precincts. In a mixed-use development, it is proposed that shared parking be permitted between residential visitors and select commercial uses identified in **Table 5-4**.

Second Units, also referred to as additional units, are another vital component of the City's housing supply, and the implications of their parking requirements warrant careful consideration. There could be adequate parking on-site for both the principal and second unit, however, excessive parking requirements may pose as a barrier to the creation of a second or additional unit. Currently, the parking requirement for a second unit is 1 space per unit, in addition to the parking requirement for the principal dwelling unit. To capture the potential for shared parking, it is proposed that a total of 2 spaces be required for the principal and second unit and that the required parking spaces may be provided in tandem (i.e. in a garage and driveway). Further, it is proposed that one additional parking space be required for each additional unit.

Affordable Housing parking requirements are proposed to be introduced in the Zoning By-law to provide relief for dwelling units deemed "affordable", based on criteria to be defined by the City. It is proposed that qualifying affordable housing units be subject to a 50 percent reduction from the typical parking requirement in Precinct 1, and a 30 percent reduction in all other Precincts. This provides a framework in the Zoning By-law for the City to further its affordable housing objectives.

Alternative/ Assisted Housing refers to a supportive and temporary type of accommodation that bridges the gap from homelessness to permanent housing. Support for residents may include structure, supervision, support for addictions and mental health, life skills, and education and training. Parking demand for this use is primarily generated by support staff and visitors, rather than residents. It is proposed that a transitional housing parking requirement of 0.1 spaces per unit be introduced in the Zoning By-law. This provides a framework in the Zoning By-law for the City to further its Official Plan Complete Community objectives.

Long Term Care Facility, Retirement Home: No changes are proposed to the parking requirements for Long Term Care Facility and Retirement Home at this time. The review undertaken in this study has yielded inconclusive results, in part due to limited data availability and a pause on new data collection (i.e. parking surveys) during the COVID-19 pandemic. Future adjustments to the parking requirements for these uses may be informed by a separate study.

Table 5-3 presents the proposed residential parking requirements.

Table 5-3 Proposed Residential Parking Requirements

Residential Land Use	Existing Min. Parking Requirement (no. spaces/unit)	Proposed Min. Parking Requirement (no. spaces/unit)			
		Precinct 1	Precinct 2	Precinct 1	Precinct 4
Detached Dwelling, Linked Dwelling, Semi-detached Dwelling, Street Townhouse					
-Resident	2	2	2	2	2
-Visitor, Common Element Condominium (CEC) road (Private Road)	0.25		0.25	0.25	0.25
			In a mixed-use development, shared parking is permitted between residential visitors and non-residential visitors subject to (1).		
Dwelling unit located above commercial, with a max height of 3 storeys	1.25	1	1	1	1
Back-to-back and stacked townhouse					
-Resident	Condominium, without exclusive use garage and driveway: Studio/1-Bedroom: 1.10 2-Bedroom: 1.50 3-Bedroom: 1.75 4-Bedroom: 2.0 With exclusive garage and driveway: 2.0 Rental, without exclusive use garage and driveway: Studio/1-Bedroom: 1.10 2-Bedroom: 1.25 3-Bedroom: 1.41 4-Bedroom: 1.95 With exclusive garage and driveway: 2.0	1	1.1	1.2	1.3
-Visitor	0.25	0.15	0.20	0.20	0.20
		In a mixed-use development, shared parking is permitted between residential visitors and non-residential visitors subject to (1).			

Residential Land Use	Existing Min. Parking Requirement (no. spaces/unit)	Proposed Min. Parking Requirement (no. spaces/unit)			
		Precinct 1	Precinct 2	Precinct 3	Precinct 4
Apartment					
-Resident	Studio: 1.00 1-Bedroom: 1.25 2-Bedroom: 1.40 3-Bedroom: 1.75	0.8	0.9	1.0	1.1
-Resident, Purpose-Built Rental	Studio: 1.00 1-Bedroom: 1.18 2-Bedroom: 1.36 3-Bedroom: 1.50	0.8	0.8	0.8	0.8
-Visitor	0.20	0.15	0.15	0.15	0.15
		In a mixed-use development, shared parking is permitted between residential visitors and non-residential visitors subject to (1).			
Second Unit	1.0	A total of 2 spaces for the Principal and Second Unit (which may be provided in tandem), plus 1 additional space for each additional unit.			
Affordable Housing Unit	n/a	50% Reduction	30% Reduction from the base parking requirement		
Assisted/Alternative Housing Unit	n/a	0.1	0.1	0.1	0.1

Note 1:
Visitor Parking Regulation:
For the visitor component, a shared parking arrangement may be used for the calculation of required visitor/non-residential parking in accordance of the following: the greater of the indicated visitor parking by precinct or parking required for all non-residential uses, located in the same building or on the same lot as the residential use except banquet hall/conference centre/convention centre, entertainment establishment, overnight accommodation, place of religious assembly, recreational establishment, and restaurant over 220 m^2 GFA non-residential. Parking for these listed non-residential uses shall not be included in the above-shared parking arrangement and shall be provided in accordance with applicable regulations in the Zoning By-law.

5.5.2 PROPOSED COMMERCIAL PARKING REQUIREMENTS

Retail Store, Service Establishment, Take-out Restaurant, Convenience Restaurant, Restaurant (under 220 sq.m.), and Financial Institution are each subject to a different parking requirement under existing Zoning regulations. The turnover of commercial tenants often triggers changes in the minimum parking requirements. In cases where the overall parking requirement for the site is increased, applicants must either add new parking to the existing site or seek a reduction of the parking requirement through an application to the Committee of Adjustment (minor variance). This poses a barrier to conducting business in the City and is particularly onerous on small businesses. To better accommodate the turnover of commercial tenants and to ease administration for the City, it is proposed that the parking requirements for these uses be consolidated as follows:

- 3 spaces per 100 sq.m. of GFA in Precincts 1 and 2, and in the C4 zone;
- 4 spaces per 100 sq.m. of GFA in Precinct 3, and
- 5 spaces per 100 sq.m. of GFA in Precinct 4.

It is proposed that shared parking be permitted between these commercial uses and residential visitors in a mixed-use development.

To further support small businesses, it is proposed that no parking be required for uses with less than 220 sq.m. of GFA, located partly or entirely on the ground floor of the site within Precincts 1, 2, and 3. This parking exemption would not apply in Precinct 4 where off-site parking opportunities and modal choices may be limited. It is suggested that Council consider this parking exemption as either a permanent change in the Zoning By-law or as a pilot program to aid in the COVID-19 recovery efforts, subject to review after two years.

Retail Centre (over and under 2,000 sq.m.), Restaurant (over 200 sq.m.), Office, and Medical Office are uses with distinct parking demand characteristics. Therefore, no consolidation of parking requirements is proposed for these uses. The existing parking requirements are proposed to be reduced by the Precinct structure, as follows:

Retail Centre under 2,000 sq.m.

- 3 spaces per 100 sq.m. of GFA in Precincts 1 and 2,
- 3.5 spaces per 100 sq.m. of GFA in Precinct 3, and
- 4.3 spaces per 100 sq.m. of GFA in Precinct 4.

Retail Centre over 2,000 sq.m.:

- 3.8 spaces per 100 sq.m. of GFA in Precincts 1 and 2,
- 4.5 spaces per 100 sq.m. of GFA in Precinct 3, and
- 5.4 spaces per 100 sq.m. of GFA in Precinct 4.

Restaurant over 220 sq.m.

- 6 spaces per 100 sq.m. of GFA in Precincts 1 and 2, and
- 9 spaces per 100 sq.m. of GFA in Precinct 3 and 4.

Office

- 2 spaces per 100 sq.m. of GFA in Precinct 1,
- 2.5 spaces per 100 sq.m. of GFA in Precinct 2,
- 2.8 spaces per 100 sq.m. of GFA in Precinct 3, and

- 3.0 spaces per 100 sq.m. of GFA in Precinct 4.

Medical Office

- 3.8 spaces per 100 sq.m. of GFA in Precinct 1,
- 4 spaces per 100 sq.m. of GFA in Precinct 2,
- 4.5 spaces per 100 sq.m. of GFA in Precinct 3, and
- 5.5 spaces per 100 sq.m. of GFA in Precinct 4.

Table 5-4 presents the proposed commercial parking requirements.

Table 5-4 Proposed Commercial Parking Requirements

<table>
<tr><th rowspan="2">Commercial Land Use</th><th rowspan="2">Existing Min. Parking Requirement (no. spaces/100 sq.m. GFA)</th><th colspan="4">Proposed Minimum Parking Requirement (no. spaces/100 sq.m. GFA)</th></tr>
<tr><th>Precinct 1</th><th>Precinct 2</th><th>Precinct 3</th><th>Precinct 4</th></tr>
<tr><td rowspan="4">Retail Store,
Service Establishment,
Convenience Restaurant,
Take-out Restaurant,
Restaurant under 220 sq.m.,
Financial Institution</td><td rowspan="4">Retail Store: 5.4
In C4 zone: 4.0
In CC2 to CC4 zones: 4.3

Personal Service Establishment: 5.4
In C4 zone: 4.0
In CC2 to CC4 zones: 4.3

Convenience Restaurant: 16
Take-out Restaurant: 6.0

Financial Institution: 5.5</td><td>3</td><td>3</td><td>4</td><td rowspan="2">5</td></tr>
<tr><td colspan="3">No parking is required for GFA under 220 sq.m.</td></tr>
<tr><td colspan="4">The Precinct 1 parking requirement shall apply in a C4 Zone.</td></tr>
<tr><td colspan="4">In a mixed-use development, shared parking is permitted between residential visitors and non-residential visitors subject to (1).</td></tr>
<tr><td>Retail Centre under 2,000 sq.m.</td><td>4.3</td><td>3</td><td>3</td><td>3.5</td><td>4.3</td></tr>
<tr><td>Retail Centre over 2,000 sq.m.</td><td>5.4</td><td>3.8</td><td>3.8</td><td>4.5</td><td>5.4</td></tr>
<tr><td>Restaurant over 220 sq.m.</td><td>16
In C4 zone: 9.0</td><td>6</td><td>6</td><td>9</td><td>9</td></tr>
<tr><td>Office</td><td>3.2</td><td>2</td><td>2.5</td><td>2.8</td><td>3</td></tr>
<tr><td>Medical Office</td><td>6.5</td><td>3.8</td><td>4</td><td>4.5</td><td>5.5</td></tr>
<tr><td colspan="6">Note 1:
Visitor Parking Regulation:
For the visitor component, a shared parking arrangement may be used for the calculation of required visitor/non-residential parking in accordance of the following: the greater of the indicated visitor parking by precinct or parking required for all non-residential uses, located in the same building or on the same lot as the residential use except banquet hall/conference centre/convention centre, entertainment establishment, overnight accommodation, place of religious assembly, recreational establishment, and restaurant over 220 m^2 GFA non-residential. Parking for these listed non-residential uses shall not be included in the above-shared parking arrangement and shall be provided in accordance with applicable regulations in the Zoning By-law.</td></tr>
</table>

5.6 REMAINING LAND USES

As stated in Section 5.2, this study reviewed the regulations for Twenty-one land uses but there are several other uses contained within the Municipal Zoning-By-law, that will also require updating; a similar approach and process can be used to update the remaining rates. The key steps are:

1. Review City approved parking reductions
2. Review proxy site survey information for each land use
3. Conduct benchmarking exercise for each land use
4. Where appropriate consolidate land uses for parking requirement purposes
5. Review results of Tasks one to four to identify a base requirement for each land use, then apply Task 6
6. If deemed necessary, apply a percentage reduction to the base rate to obtain varying rates per Precinct, assuming Precinct 1 has the lowest requirement and Precinct 4 the highest.

6 IMPLEMENTATION OF CHANGES

The purpose of this section is to identify some of the principles for developing the Draft Zoning By-law Amendment, which is one of the key documents that will be required to implement the parking regulation study.

6.1 ILLUSTRATING THE PRECINCTS

A key direction identified in this Discussion Paper is the need to delineate a precinct-based approach to regulating parking across the City. This is discussed in Section 3. A new schedule or figure is required to illustrate the Parking Precincts and the incorporation/location of this figure could consider the following:

- The Parking Precincts will need to be delineated as a new schedule or figure, or they may be shown as an overlay on the existing zone schedules (Schedules A and B). If the Precincts are shown as an overlay on an existing schedule, consideration could be made with respect to the complexity of the information shown on the zone schedules. The addition of an overlay may reduce the user-friendliness of the By-law.
- The scale of the figure must be such that the details of the Precinct boundaries would need to be visible. The delineation of precinct boundaries could ensure that the parcel fabric is followed for ease in interpretation and clarity. Where a boundary follows a public right-of-way, the Precinct boundary could follow the centreline of the right-of-way. Due to this required scale, it is suggested that a new schedule or zone schedule overlay would be required and that it would not be possible to simply integrate the Precinct boundary map as a figure within the text of the Zoning By-law.
- The Precinct Mapping could also be integrated into the City's interactive web mapping application, where the information can be shown/hidden as a separate layer. This is likely to be where most users will access the information. As an option to improve user friendliness, the City could consider integrating a non-operative informational box including a link to this map directly into the text of the Zoning By-law's parking regulation section. The inclusion of any non-operative notations could be reviewed by the City's solicitor.

6.2 ORGANIZING THE PARKING REGULATIONS

The City's existing Parking and Loading requirements are currently included in a separate chapter of the City's zoning by-law (Chapter 3). Parking provisions are now tied to 1) Precinct and 2) Land Use (and are not zone-based), so a separate chapter continues to be appropriate. Under a new Precinct-based approach, the requirements will now need to be established individually for each Precinct. As such, a new matrix is recommended which indicates parking requirements for all uses in all Precincts. The parking rate matrix is proposed to be organized generally as follows:

Land Use	Precinct 1	Precinct 2	Precinct 3	Precinct 4
Residential Uses				
Use	**X**	…		
Commercial Uses				
Use	**X**	…		

7 NEXT STEPS

7.1 ENGAGEMENT

In May 2021, the City of Mississauga in partnership with the consulting team will be moving forward with the second round of engagement to inform the development of the Parking Regulations Study. The second round of engagement is designed with the intent of gathering input from the City of Mississauga staff, parking providers, parking users, and decision-makers to finalize the proposed recommendations and outcomes of the study. More specifically, recommendations such as the proposed precinct considerations, rate changes, policy and bylaw amendments, etc. – the information outlined within this document – will be presented, reviewed, and revised (as necessary) based on the input received.

The engagement program on Part B of the project will be adapted to reflect the public health directions and new virtual engagement tools available to the City while maximizing the appropriate involvement of different audiences. Considering the influence of COVID-19 that continues to occur on engagement; the intent of the second round of engagement will be to leverage online information sharing and engagement platforms such as Have your say Mississauga as the means of sharing information and gathering input from audiences. In addition, there will be specific stakeholder workshops and committee meetings that are scheduled and facilitated to ensure that the appropriate information is gathered from each audience involved in the process. More specifically, this still includes:

- A virtual stakeholder meeting;
- On-demand public open house;
- Information sharing as noted previously through the City's Engagement HQ Page;
- Communication and outreach through existing social media channels;
- Outreach and communication to key stakeholders via email and phone as needed.

Once the information has been shared and input gathered, there will be a period of review by the consultant team and staff to determine the most appropriate means of responding to comments that are received. We understand the importance of this study in demonstrating the City and consultant team's ability to address any final concerns prior to confirmation. Once this has been completed and a final record of engagement input has been prepared, the study will be finalized, and the outcomes will be presented to Council for adoption.

7.2 DRAFT REGULATION

Results of the consultation with parking providers, parking users, and the general public will be reviewed with the City Project Team and where appropriate modifications will be made to each policy and parking requirement presented. These will be the foundation of the recommendation to Council in a Draft Regulations report.

GLOSSARY OF TERMS

Affordable Housing: Housing that costs less than 30% of the gross household income.

Automated Parking Systems: Mechanical systems or structures that increase parking densities by allowing vehicles to be parked on multiple levels stacked vertically, as well as parked in tight quarters.

Battery electric vehicles (BEV): A type of electric vehicle that uses only energy that is stored in a rechargeable battery pack and does not have a secondary source of propulsion.

Bicycle parking: safe and secure locations where people can park, store and lock their bicycles.

Bike share program: A shared transport service where bicycles are made available for shared use to individuals on a short-term basis for a fee.

Business Improvement Area: A defined area where businesses are required to pay an additional tax to fund projects that are within the district's boundaries.

Curbside Management: The collection of operating techniques, practices, and concepts used to allow a municipality to effectively allocate the use of their curbs and other areas of high demand. Curbside management strategies are intentional policy or zoning by-law practices that regulate the use and access of curbside space, especially as curbside areas can serve many purposes over a 24-hour period.

Electric Vehicles (EV): A vehicle that operates on an electric motor instead of an internal combustion engine that generates power by burning gases and fuel.

Electric Vehicle Supply Equipment (EVSE): electric vehicle supply equipment and its function are to supply electric energy to recharge electric vehicles. EVSEs are also known as EV charging stations, electric recharging points or just charging points. EVSEs can provide a charge for the operation of electric vehicles or plug-in hybrid electric-gasoline vehicles.

End of Trip facilities: Amenities that include showers, lockers, and restrooms or change rooms for cyclists, joggers, or walkers to encourage the use of alternative modes and active transportation for commuter trips.

Flexible Parking Structures: Parking spaces that can eventually be retrofitted or taken down and replaced in the future for a different use.

Fuel-cell electric vehicles (FCEV): An electric vehicle that uses a fuel cell sometimes in combination with a small battery to power its on-board electric motor.

Gross Floor Area (GFA): means the sum of the areas of each storey of a building, structure, or part thereof, above or below established grade, excluding storage below established grade and a parking structure above or below established grade, measured from the exterior of outside walls, or from the midpoint of common walls.

Heritage Buildings: Buildings that have architectural, aesthetical, historic or cultural value is declared as a heritage building by the planning authority.

Intensification Area: An area at a higher density than what currently exists through development, redevelopment, infill, and expansion of existing buildings of the area.

Maximum Parking: Establishes the upper limit on parking supply either at the site level or across an area.

GLOSSARY OF TERMS (CONTINUED)

Minimum Parking: Laws that require businesses and residences to provide at least a certain amount of parking off-street parking spaces.

Mobility Hub: A location with several transportation options and is a concentrated point for mixed uses which include transit, employment, housing, shopping, and recreation.

On-Street Parking Permit: used to permit overnight parking, typically for residential areas, to approved vehicles where individual properties carry insufficient levels of parking or to control undesirable parking practices from spillover demand from adjacent non-residential uses.

Parking Requirements: Laws that require buildings to include a fixed number of parking spaces based on an assumed demand for parking generated by the buildings' use.

Plug-in hybrid vehicles (PHEV): A vehicle that has a battery that can be recharged by plugging it into an external power source but can also be charged internally by using its onboard internal combustion engine-powered generator.

Public Parking: An area that is dedicated to or maintained for the parking of vehicles by the general public.

Rapid Transit: A form of high-speed urban passenger transportation, for example, subways.

Right-Sizing Parking: Finding a balance between parking supply and parking demand.

Second Units: Sometimes referred to as second suites, in-law suites, or accessory dwelling units, may take various forms, including basement apartments, coach houses (apartments above a detached garage), or similar structure A single, self-contained dwelling that is on the same lot as an already existing residential building.

Shared Mobility: Transportation services and resources that are shared among users, either at the same time or one after another. This includes public transit, micro-mobility, ridesharing, etc.

Shared Parking: Used to reduce the oversupply of parking spaces by permitting multiple developments to combine parking requirements to share a single parking facility.

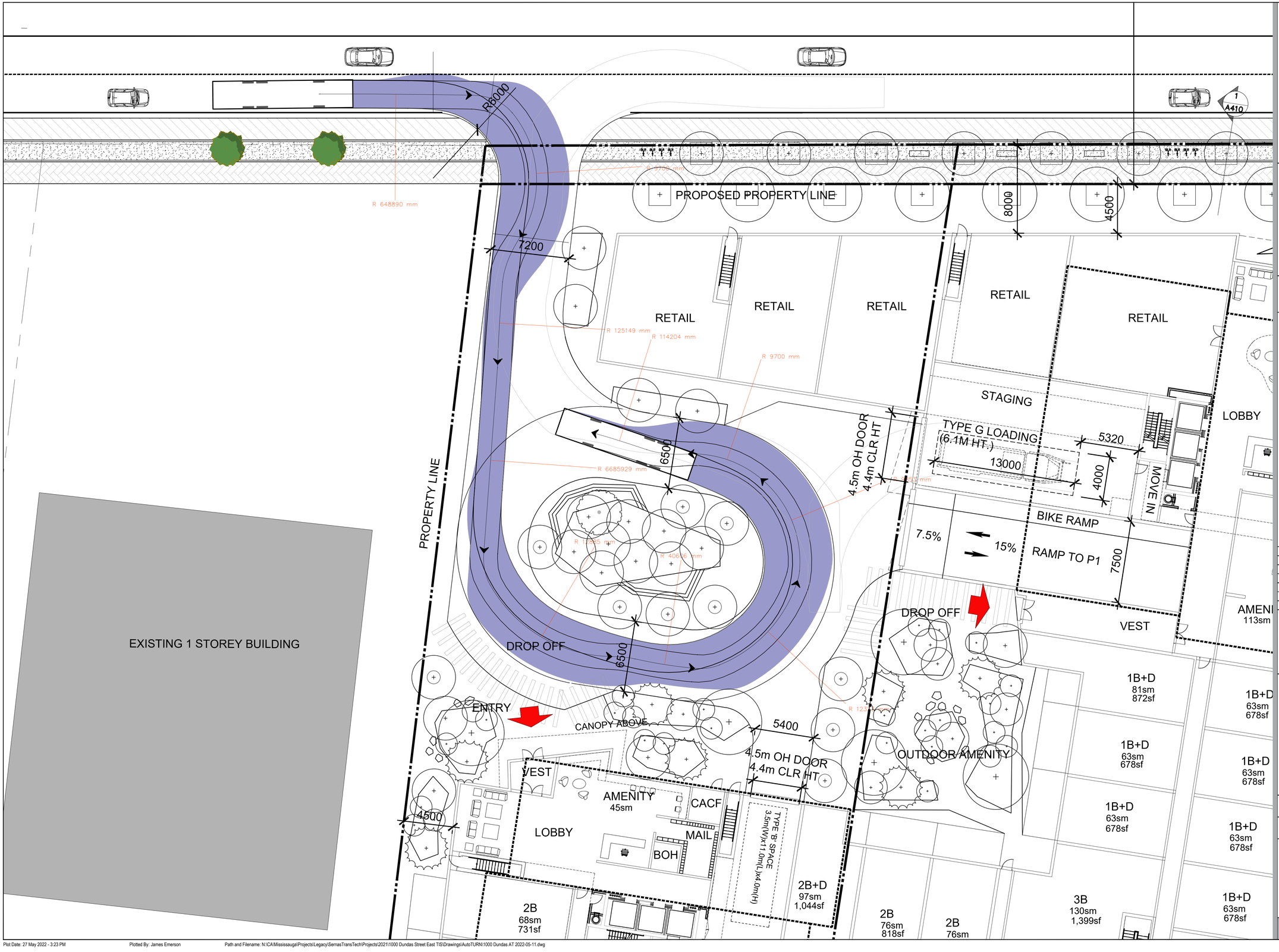
Transitional parking: Allows for parking requirements to be met in phases under provisions that are temporary (provided under conditions different from ultimate build-out). Typically, a market-driven solution to optimize the use of land for its highest and best use at a given time and would be implemented through a development phasing strategy within an area's master plan

Urban Growth Centre: Mixed-use, high-density, and public-transit-oriented developments which are meant to be focal points.

Walkability: The measure of how friendly an area is for walking. Factors that influence the walkability of an area include the availability of sidewalks, pedestrian rights-of-way, safety, etc.

Appendix F

AutoTURN Circulation Drawings



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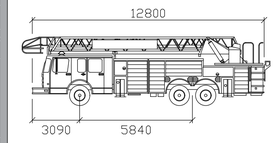

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Steering Angle	: 37.0

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	5/27/22

Author	J.E	Designer	J.E
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
-

Project
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Dundas Street East

Date May 27, 2022
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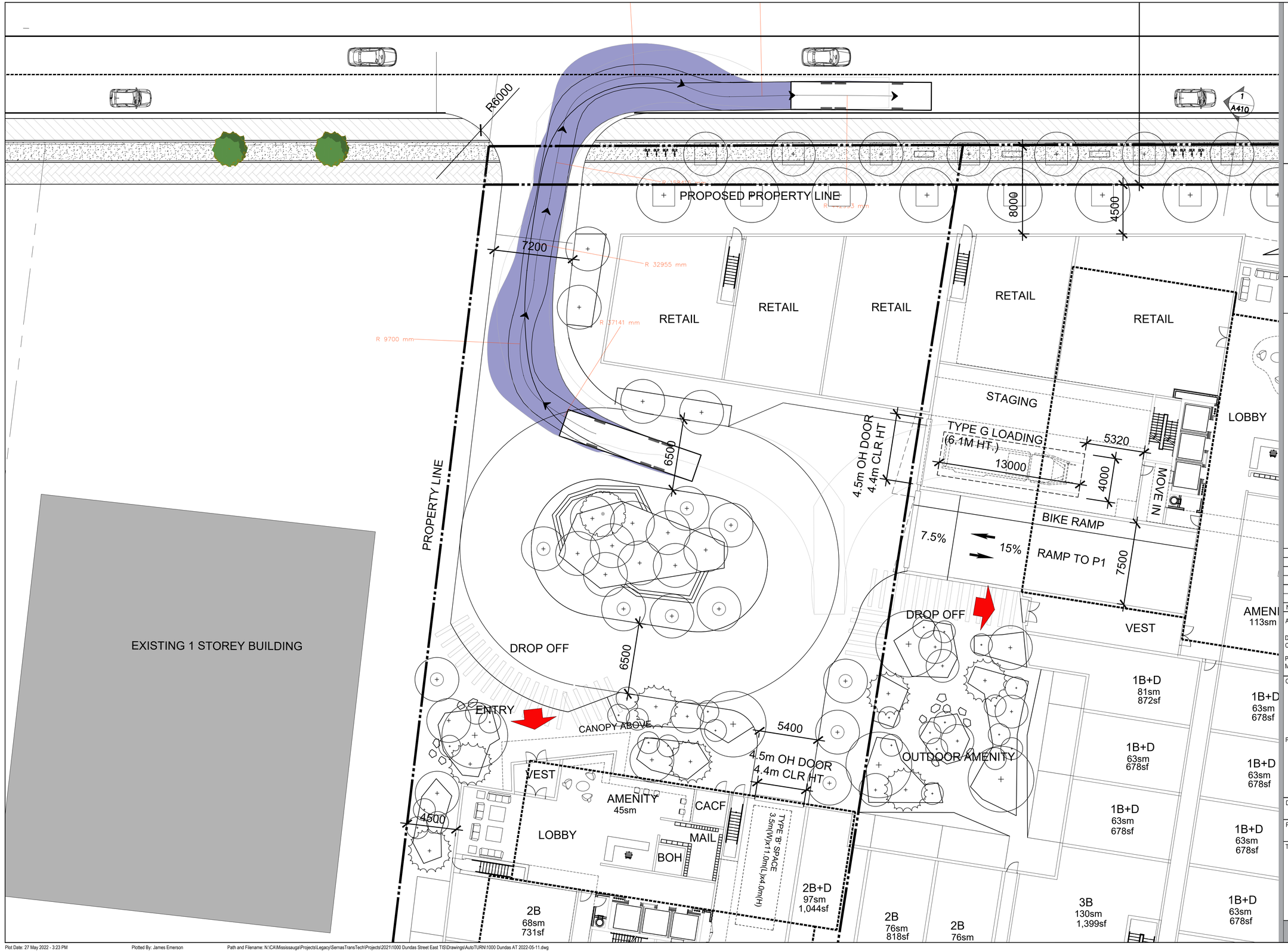
Title
VEHICLE MANEUVERING DIAGRAM - FIRE TRUCK (INBOUND)

Size
ANSI D

Sheet No.
AT-101



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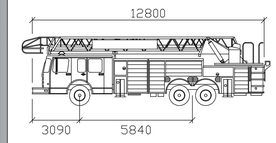

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Author	J.E	Designer	J.E
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
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Project
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Dundas Street East

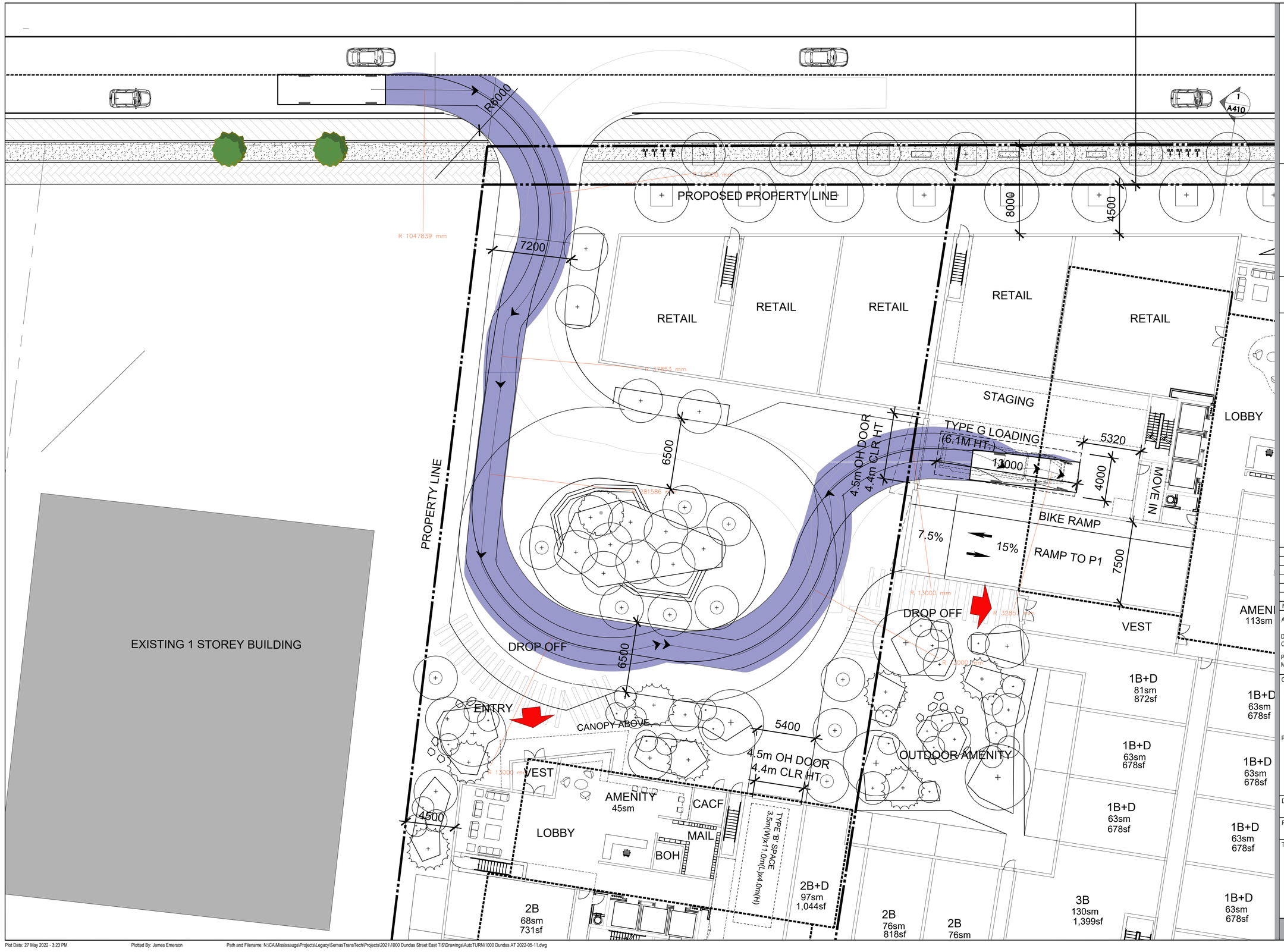
Date May 27, 2022
Scale NTS

Project No.
-

Title
VEHICLE MANEUVERING DIAGRAM - FIRE TRUCK (OUTBOUND)

Size ANSI D

Sheet No.
AT-102



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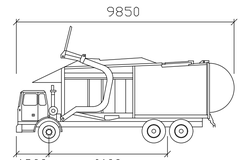

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Steering Angle	: 28.0

No.	Issue	Author	Checked	Approved	Date
1	First Submission	W.M	W.M		5/27/22

Author	J.E	Designer	J.E
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

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Date May 27, 2022

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Title

VEHICLE MANEUVERING DIAGRAM - WASTE TRUCK (INBOUND)

Size ANSI D

Sheet No. AT-103

EXISTING 1 STORey BUILDING

PROPERTY LINE

PROPOSED PROPERTY LINE

R6000

R 71387 mm

R 40985 mm

R 13000 mm

R 34343 mm

R 57483 mm

R 92475 mm

R 16231 mm

7200

8000

4500

RETAIL

RETAIL

RETAIL

RETAIL

RETAIL

STAGING

LOBBY

TYPE G LOADING
(6.1M HT.)

5320

13000

4000

MOVE IN

6500

4.5m OH DOOR
4.4m CLR HT

BIKE RAMP

7.5%

15%

RAMP TO P1

7500

DROP OFF

VEST

AMENI
113sm

1B+D
81sm
872sf

1B+D
63sm
678sf

1B+D
63sm
678sf

1B+D
63sm
678sf

1B+D
63sm
678sf

1B+D
63sm
678sf

1B+D
63sm
678sf

3B
130sm
1,399sf

2B
76sm
818sf

2B
76sm

OUTDOOR AMENITY

DROP OFF

6500

ENTRY

CANOPY ABOVE

5400

4.5m OH DOOR
4.4m CLR HT

VEST

AMENITY
45sm

CACF

LOBBY

MAIL

BOH

4500

TYPE 'B' SPACE
3.5m(W)x11.0m(L)x4.0m(H)

2B+D
97sm
1,044sf

2B
68sm
731sf

1 A410

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9850

1300 6100

Peel Garbage Front

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Width : 2770
Track : 2770
Lock to Lock Time 6.0
Steering Angle : 28.0

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	5/27/22

Author J.E | Designer J.E
Drafting Check W.M | Design Check W.M
Project Manager W.M | Project Director W.M

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Title
VEHICLE MANEUVERING DIAGRAM - WASTE TRUCK (OUTBOUND)

Size ANSI D

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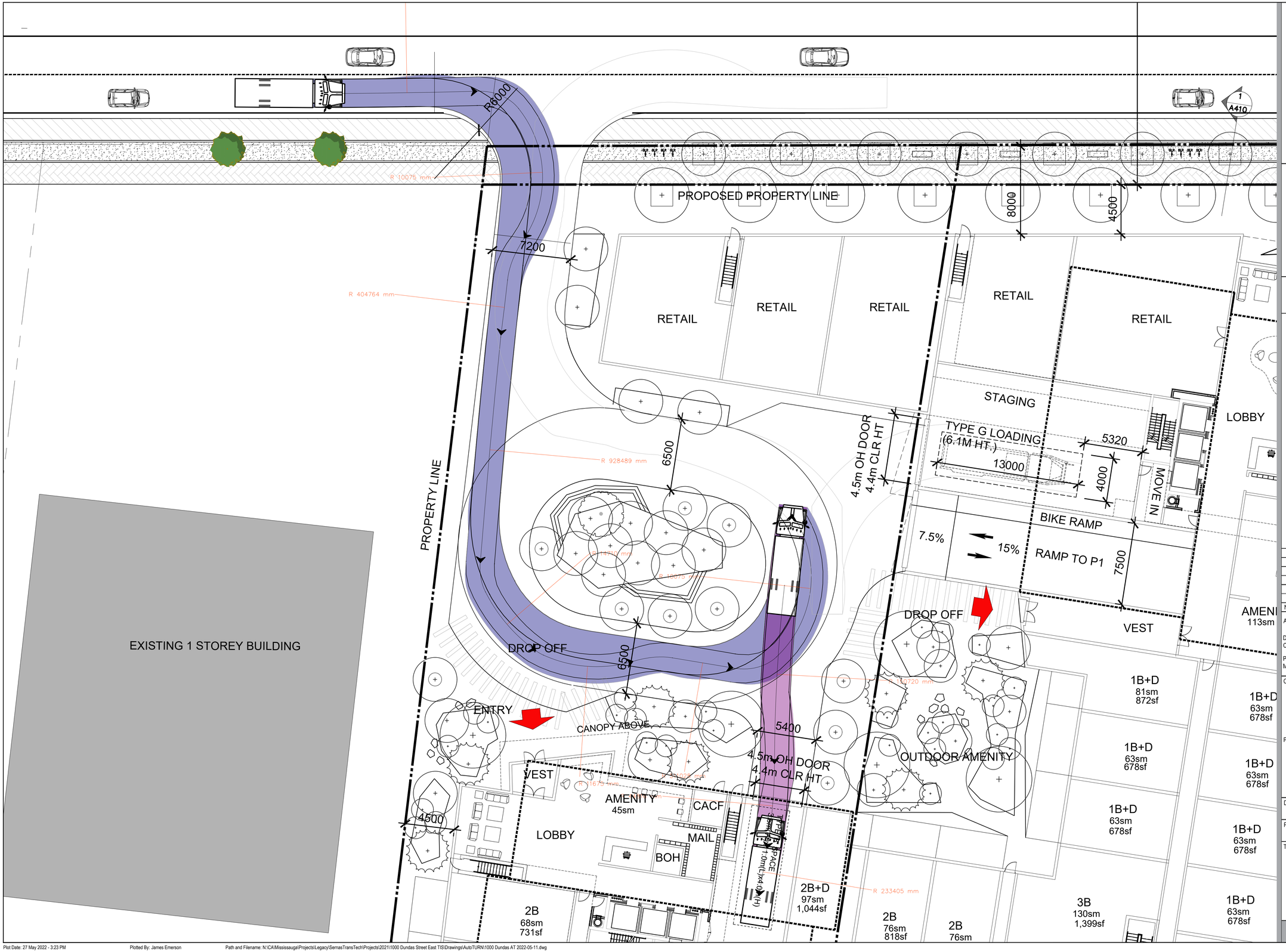

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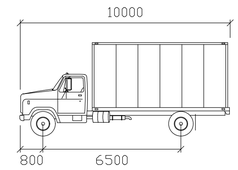

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Lock to Lock Time 6.0
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No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	5/27/22

Author J.E | Designer J.E
Drafting Check W.M | Design Check W.M
Project Manager W.M | Project Director W.M

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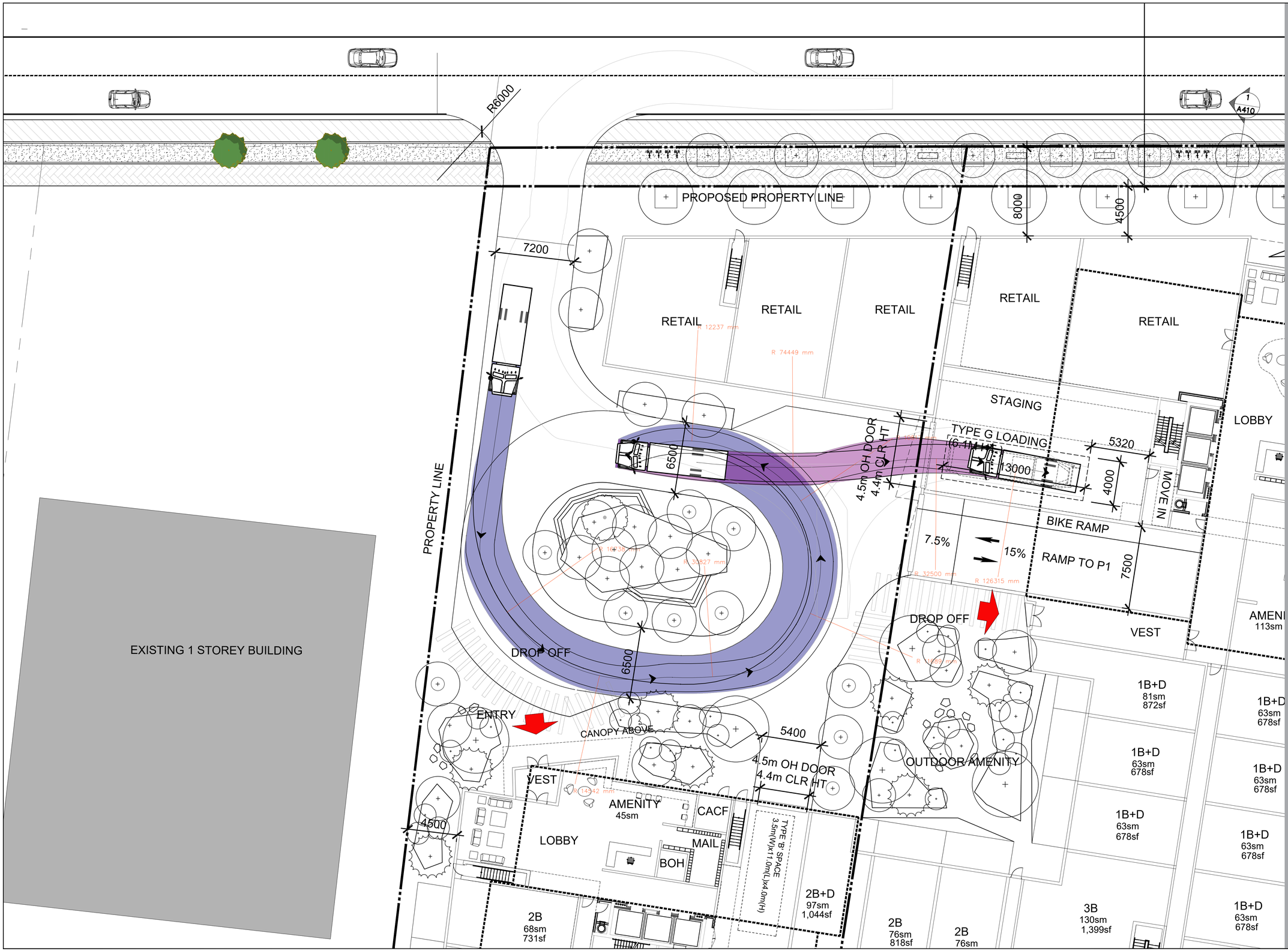
Title
VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (LOADING 1)

Size ANSI D

Sheet No. AT-105



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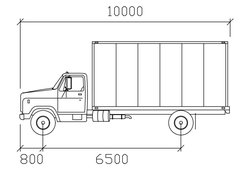

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Lock to Lock Time	6.0
Steering Angle	: 40.2

No.	Issue	Author	Checked	Approved	Date
1	First Submission	W.M	W.M	W.M	5/27/22

Author J.E | Designer J.E
Drafting Check W.M | Design Check W.M
Project Manager W.M | Project Director W.M

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Date May 27, 2022 | Scale NTS

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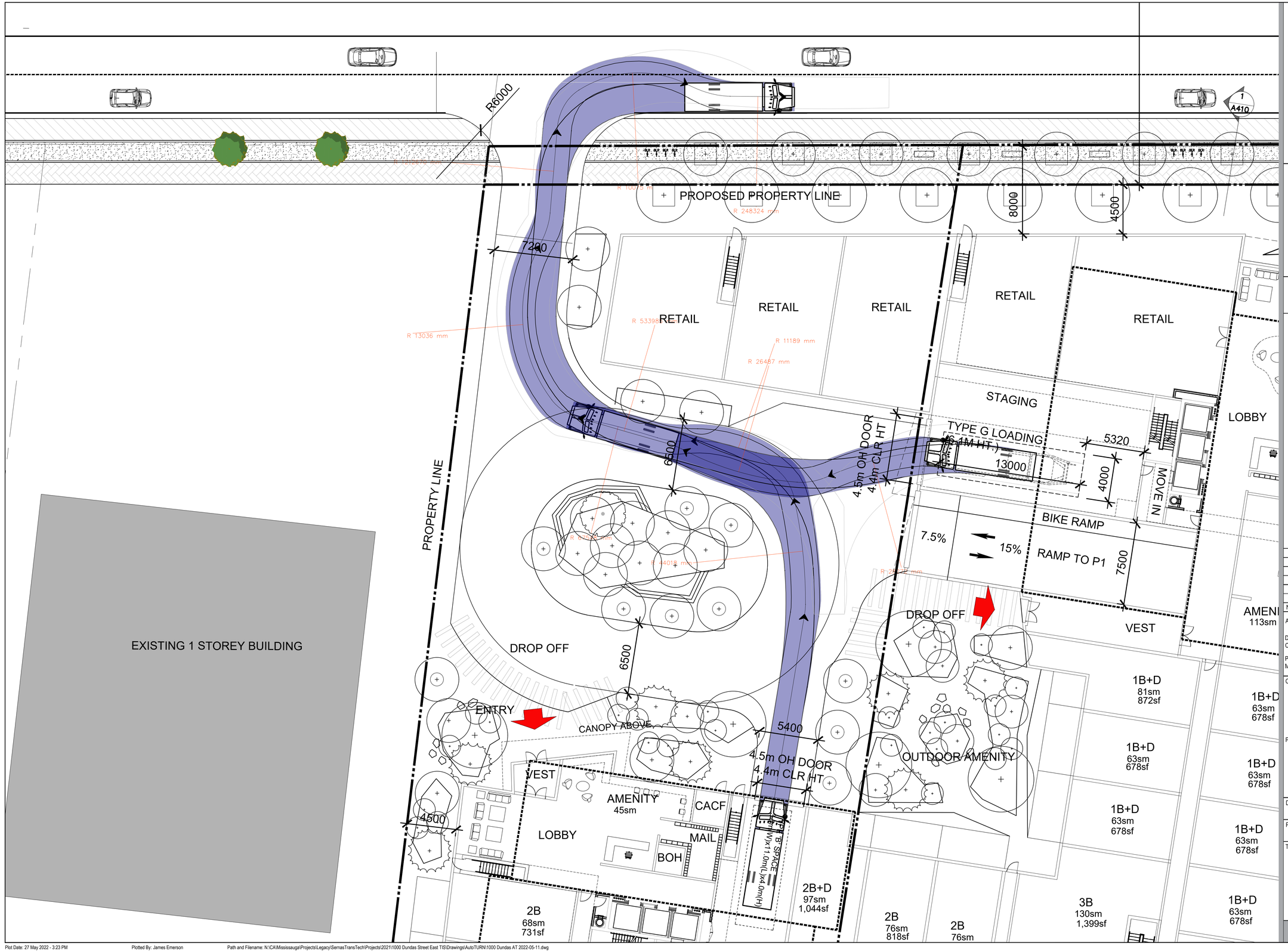
Title
VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (LOADING 2)

Size ANSI D

Sheet No.
AT-106



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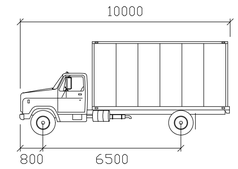

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Width	: 2600
Track	: 2600
Lock to Lock Time	6.0
Steering Angle	: 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	5/27/22

Author	J.E	Designer	J.E
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
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Project
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Date: May 27, 2022
Scale: NTS

Project No.
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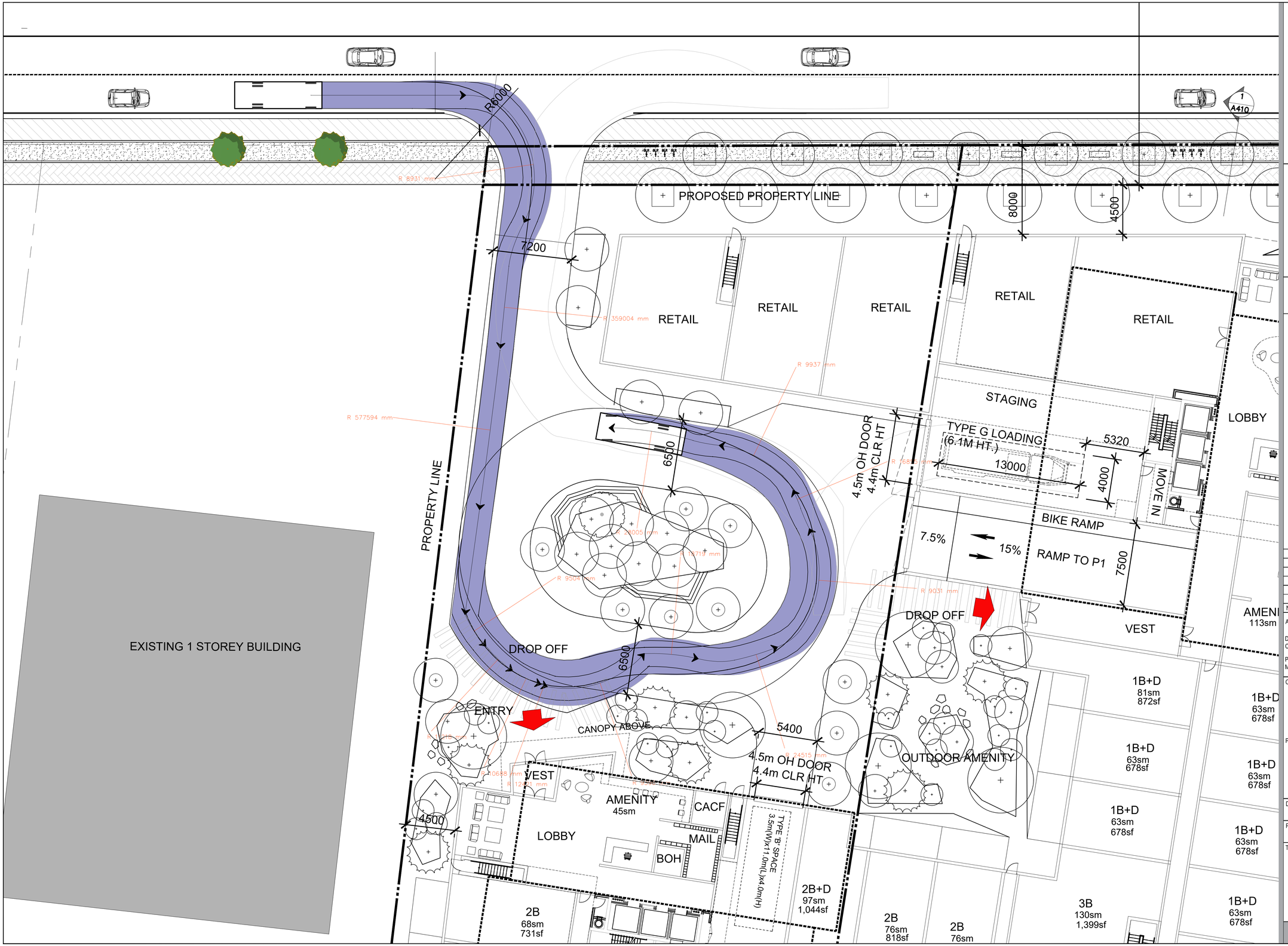
Title
VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (OUTBOUND)

Size
ANSI D

Sheet No.
AT-107



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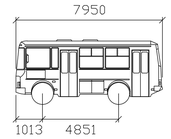

Oakville Para-Transit

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Lock to Lock Time	6.0
Steering Angle	: 32.9

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	5/27/22

Author	J.E	Designer	J.E
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

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1000 &1024
Dundas Street East

Date	Scale
May 27, 2022	NTS

Project No.
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Title

VEHICLE MANEUVERING DIAGRAM - PARATRANSIT (INBOUND)

Size
ANSI D

Sheet No.
AT-108

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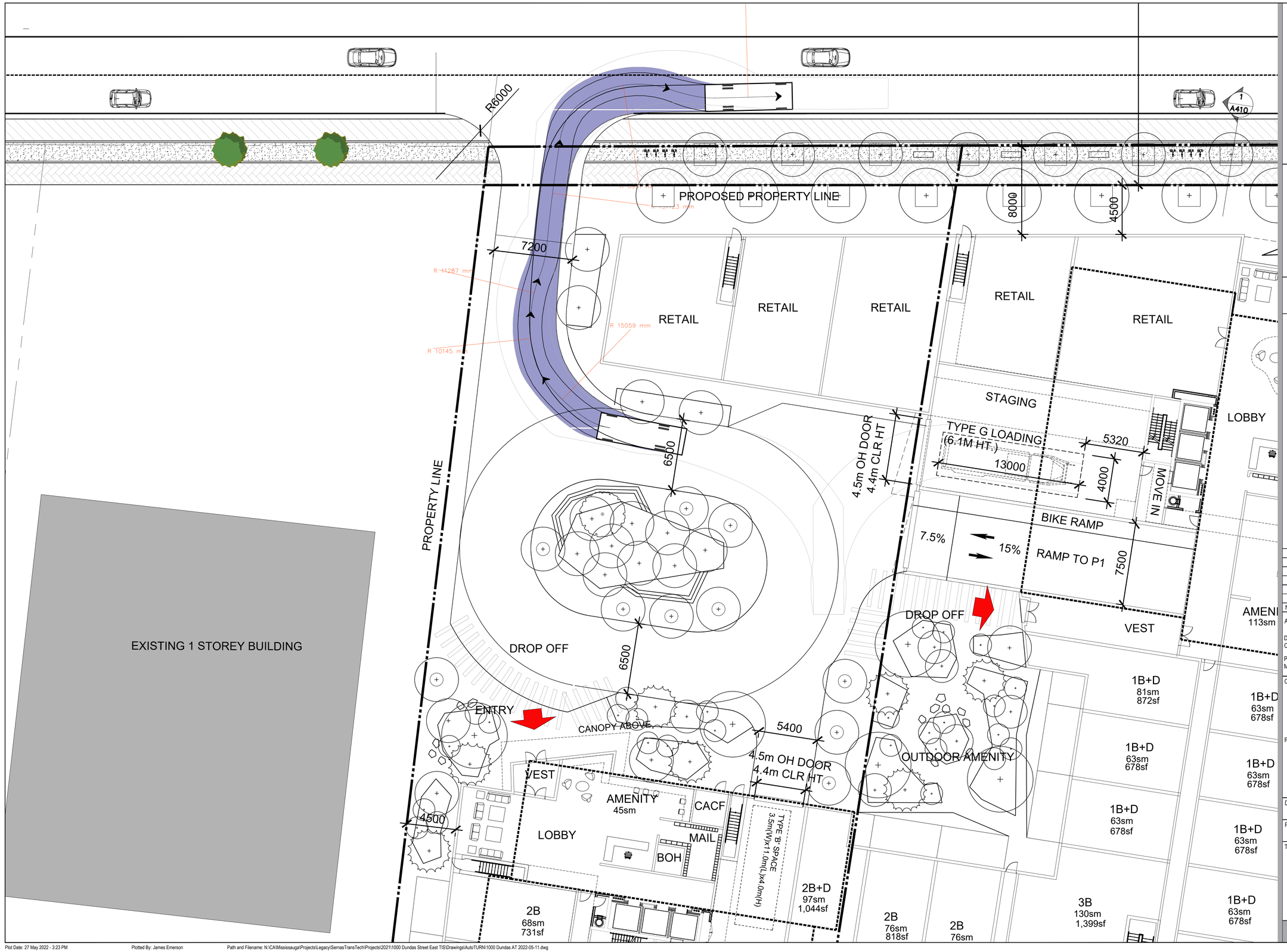

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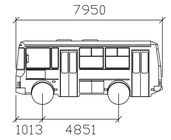

Oakville Para-Transit

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Width : 2438
Track : 2438
Lock to Lock Time 6.0
Steering Angle : 32.9

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Author	J.E	Designer	J.E
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
-

Project
1000 &1024
Dundas Street East

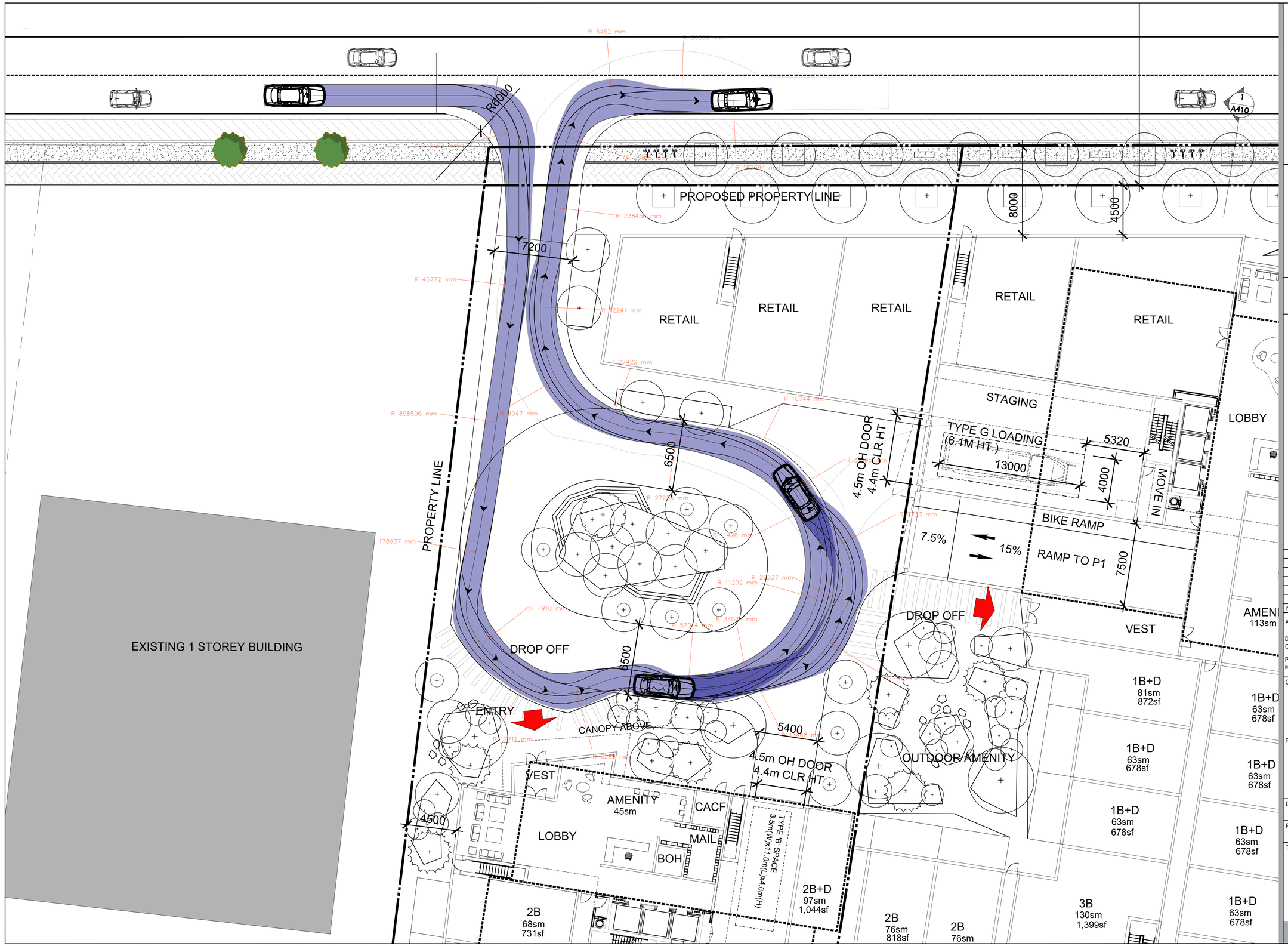
Date May 27, 2022
Scale NTS

Project No.
-

Title
VEHICLE MANEUVERING DIAGRAM - PARATRANSIT (OUTBOUND)

Size ANSI D

Sheet No.
AT-109



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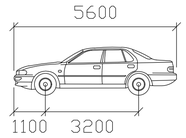

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No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	5/27/22

Author	J.E	Designer	J.E
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
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Project
1000 &1024
Dundas Street East

Date	Scale
May 27, 2022	NTS

Project No.
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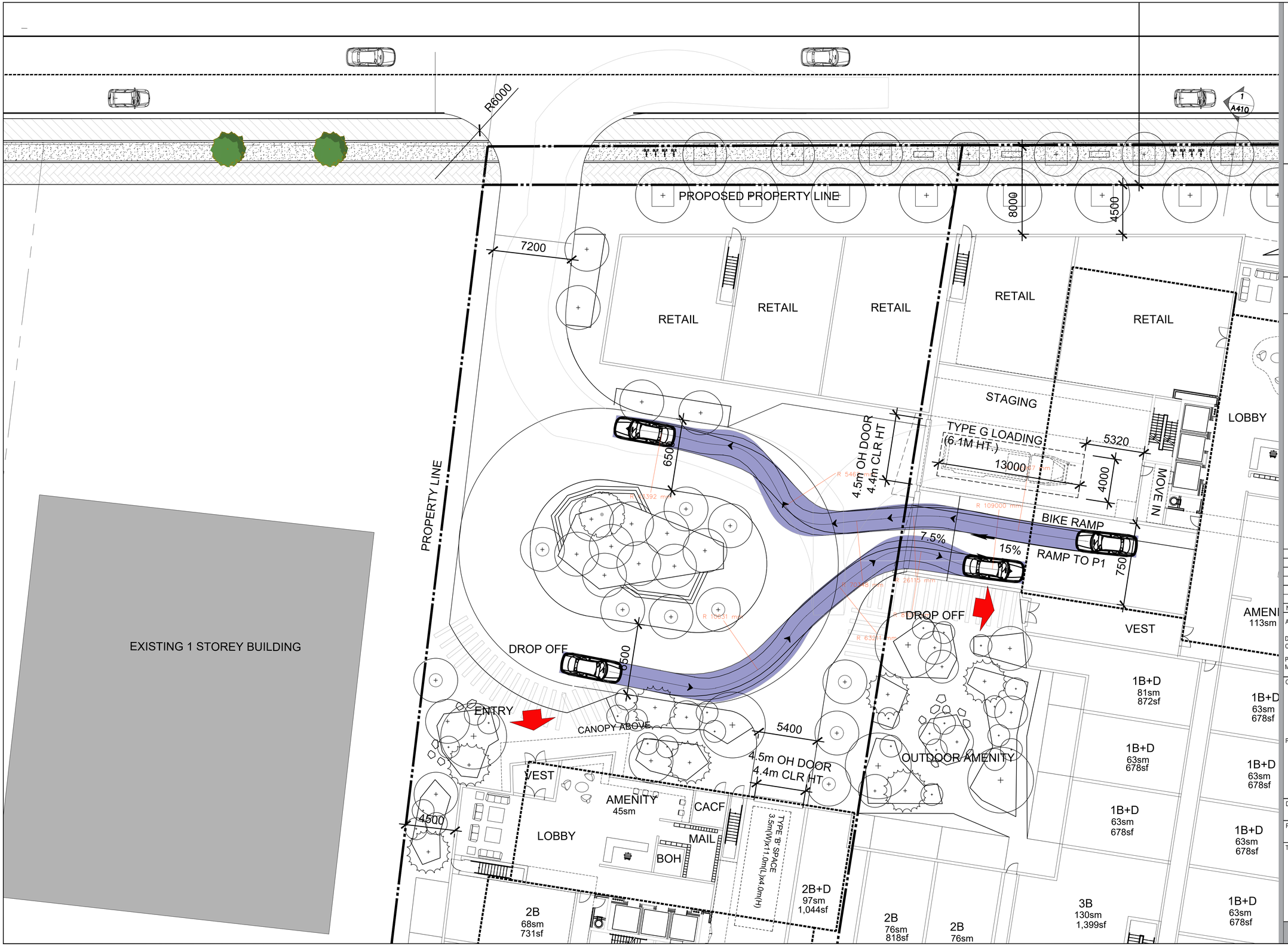
Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (ROUNDABOUT)

Size
ANSI D

Sheet No.
AT-110



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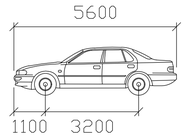

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Project Manager	W.M	Project Director	W.M

Client
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Dundas Street East

Date	Scale
May 27, 2022	NTS

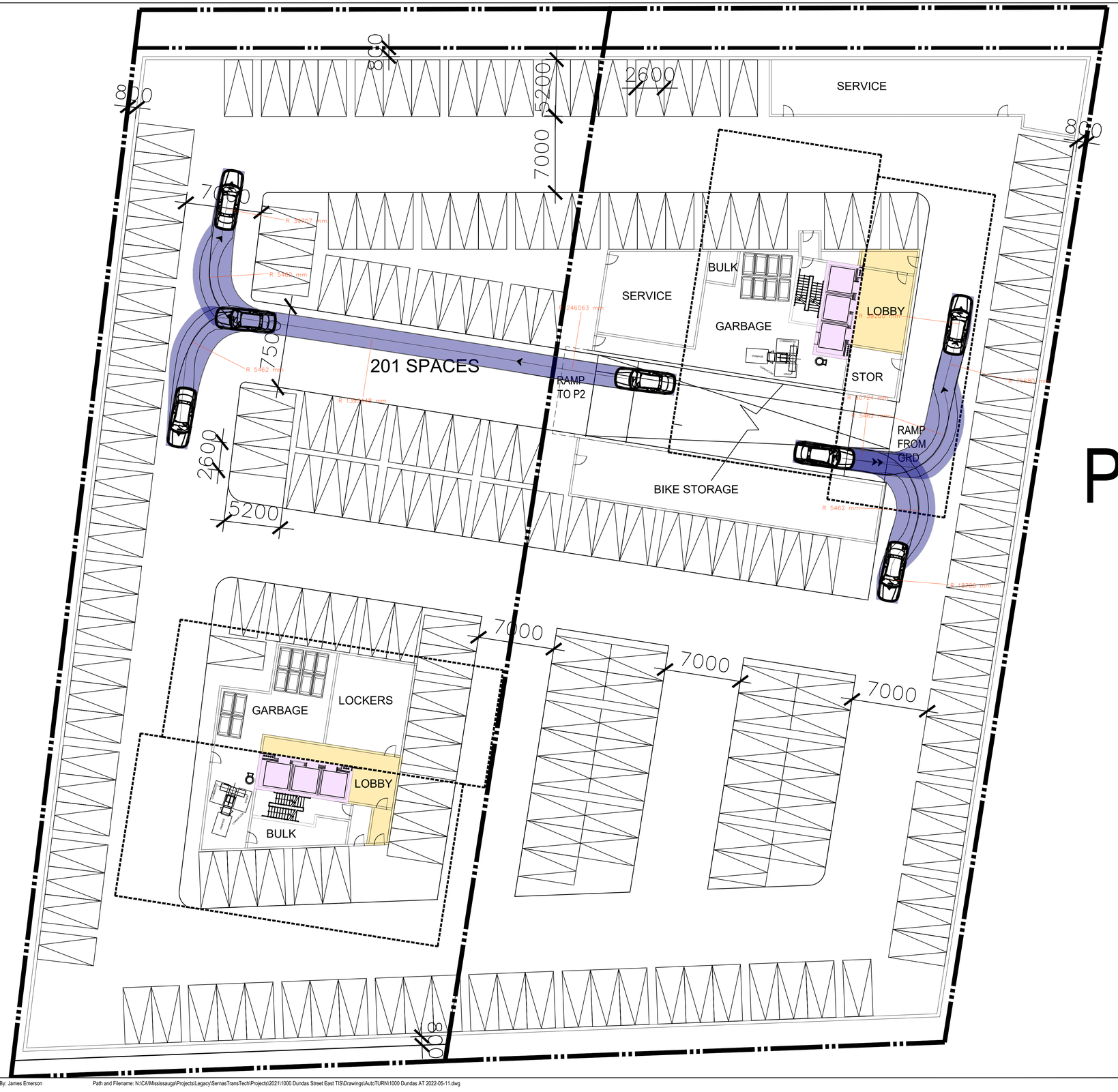
Project No.
-

Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (RAMP ENTRANCE)

Size
ANSI D

Sheet No.
AT-111

Plot Date: 27 May 2022 - 3:24 PM Plotted By: James Emerson Path and Filename: N:\CA\Mississauga\Projects\Legacy\SernasTransTech\Projects\2021\1000 Dundas Street East TIS\Drawings\AutoTURN\1000 Dundas AT 2022-05-11.dwg



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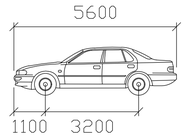

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Project Manager	W.M	Project Director	W.M

Client
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Project
1000 &1024
Dundas Street East

Date May 27, 2022
Scale NTS

Project No.
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Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (P1 RAMPS INBOUND)

Size
ANSI D

Sheet No.
AT-112

P1

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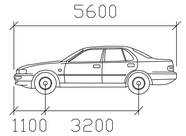

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Track	: 2000
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

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Project Manager	W.M	Project Director	W.M

Client
-

Project
1000 &1024
Dundas Street East

Date: May 27, 2022
Scale: NTS

Project No.
-

Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (P1 RAMPS OUTBOUND)

Size
ANSI D

Sheet No.
AT-113

P2

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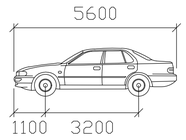

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Lock to Lock Time	: 6.0
Steering Angle	: 35.9

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Project Manager	W.M	Project Director	W.M

Client
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Project
1000 &1024
Dundas Street East

Date May 27, 2022
Scale NTS

Project No.
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Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (P2 RAMPS INBOUND)

Size ANSI D

Sheet No.
AT-114

P2

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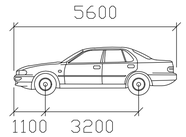

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Width	: 2000
Track	: 2000
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

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Client
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Project
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Dundas Street East

Date May 27, 2022

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Project No.
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Title
VEHICLE MANEUVERING DIAGRAM - PTAC VEHICLE (P2 RAMPS OUTBOUND)

Size ANSI D

Sheet No.
AT-115

Appendix G

Proxy Site Parking Data

December 10, 2020 Reference No. 11116840

City Planning Strategies Division
Planning and Building Department
City of Mississauga

Attention: Brandon Williams, BES, M.PL.
Planner, City Planning Strategies

RE: Parking Assessment
86-90 Dundas Street East
Mississauga Ontario
Related file no. SP 19-130 W7
Previous file no. OZ 16/008 (*approved*)

Subsequent to our meeting and email correspondence received on Thursday December 3rd, 2020 GHD is pleased to provide the following requested information in support the parking reduction for the proposal at 86-90 Dundas Street East in the City of Mississauga.

APPROVED PARKING RATES

Through the approval of Official Plan and Zoning By-law Amendment Applications (File No. OZ 16/008) relating to the subject property the following parking rates were approved by City Council:

- Minimum number of resident parking spaces per One Bedroom Dwelling Unit:
  - **0.9 spaces per unit**
- Minimum number of resident parking spaces per Two Bedroom Dwelling Unit:
  - **1.0 spaces per unit**
- The maximum number of required resident parking spaces that may be provided using stacked parking spaces:
  - **15 parking spaces**
- For visitor component, a shared parking arrangement may be used for the calculation of required visitor/ non – residential parking in accordance with the following:
  - **0.15 visitor spaces per unit**

RESIDENTIAL UNIT BREAKDOWN

The latest site plan and underground parking arrangement for the subject development proposes 336 dwelling units and 321 m^2 of ground floor commercial area, which remains unchanged from previous approval. However, now the Owners are seeking a change in unit type mixture, for example: several one bedroom plus den units – propose to be converted to two-bedroom units.

A summary of approved bedroom mix in comparison to the proposed bedroom mixture is found below:

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Use	Unit Breakdown Proposed via OZ 16/008 W7 Approval	Unit Breakdown Currently Proposed	City Approved Parking Rates
Resident Parking	294 One bedroom units - 265 spaces	190 One bedroom units - 171 spaces	0.9 per unit
	42 Two bedroom units - 42 spaces	146 Two bedroom units - 146 spaces	1.0 per unit
Visitor Parking	336 units – 50 spaces	336 units – 50 spaces	0.15 per unit
Commercial	321 m^2	321 m^2	To be shared with residential visitor
Parking Required	357 parking spaces	367 parking spaces	n/a
Parking Provided	357 parking spaces	342 parking spaces	
Parking Relief Requested	n/a	25 parking spaces	n/a

The proposed parking supply of this site is 342 parking spaces which represents is a reduction of 25 spaces from the currently approved rates. The proposed parking supply for residents is an overall rate of 0.87 spaces per unit as opposed to an overall rate of 0.94 spaces per unit as required based on the currently approved parking rates.

Attached hereto is an updated site and underground parking plans illustrating the proposed parking supply of 342 parking spaces, in addition to the site and underground parking plans which accompanied the OZ 16/008 W7 approval.

SALES DATA

As of December 9, 2020, a total of 285 (84%) units have been sold resulting in a total of 51 units remaining unsold. Each unit is offered one spot as an option to purchase at a cost of $35,354 plus HST. Additional spaces can be purchased if requested.

Of the 307 residential parking spaces currently approved for the site, a total of 210 spaces (68%) have been sold. The remaining 97 parking spaces remain available for purchase with the 51 unsold units remaining.

At this time, there are currently no buyers on a waiting list given the significant number of unsold parking spaces.

PARKING ASSESSMENT

The existing demand for residential parking spaces for the subject site based on up to date sales data is approximately 0.74 spaces per unit. With only 51 units remaining for sale, parking can be provided at the time of purchase for these unsold units at a rate of 1.55 spaces per unit which exceeds both the existing demand of 0.74 spaces per unit based on the current demand for parking spaces at time of sale and the currently approved parking rate of 0.94 spaces per unit approved via OZ 16/008 W7.

With the expectation that the parking demand continues at the current rate of approximately 0.74 spaces per unit for the remaining unsold units, the required parking will be approximately 40 parking spaces resulting in a surplus of 44 parking spaces for the site.

Consequently, there is an expectation that the parking demand for the site will remain considerably less than the proposed parking provision and as a result, no negative impact on the site is expected including the potential for illegal parking activities and overflow parking within the adjacent neighbourhood.

CONCLUSION

The proposed site specific TDM measures for the proposed site which include a reduction in the parking supply from the currently approved parking rates is consistent with the Region of Peel Official Plan which aims to increase the use of transit in order to increase the sustainability of the transportation system and help maximize the use of existing transportation infrastructure.

It is clear from the sales demand of 0.74 spaces per unit that current purchasers of units in this building are already anticipating the availability of two high-order transit corridors with the Dundas Street BRT and Hurontario LRT that will provide enhanced transit service in the future for area residents. As for the City's request for a parking study of a suitable proxy site, given the inherent difficulties in locating an appropriate proxy site which includes both a comparable unit mix with access to similar amenities and transit service and being granted access to the secure parking areas for survey purposes, it is our opinion that the sales data summarized above provides a more accurate understanding of the expected parking demand for the site than can ever be provided by completing a proxy survey of another site.

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

Respectfully Submitted,

GHD

William Maria, P. Eng.
Senior Project Manager

Dhaval Harpal, Dipl. T.
Transportation Planner

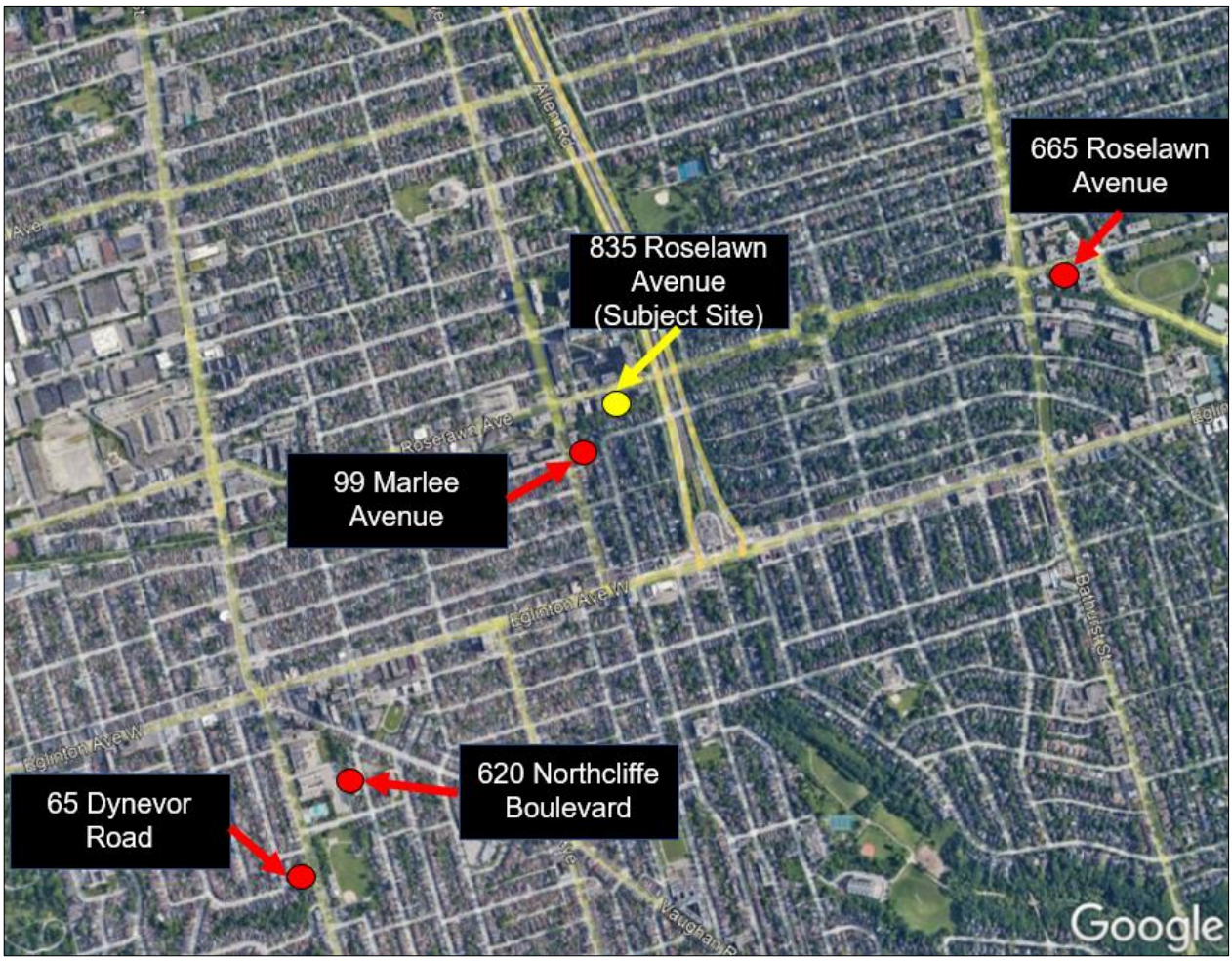
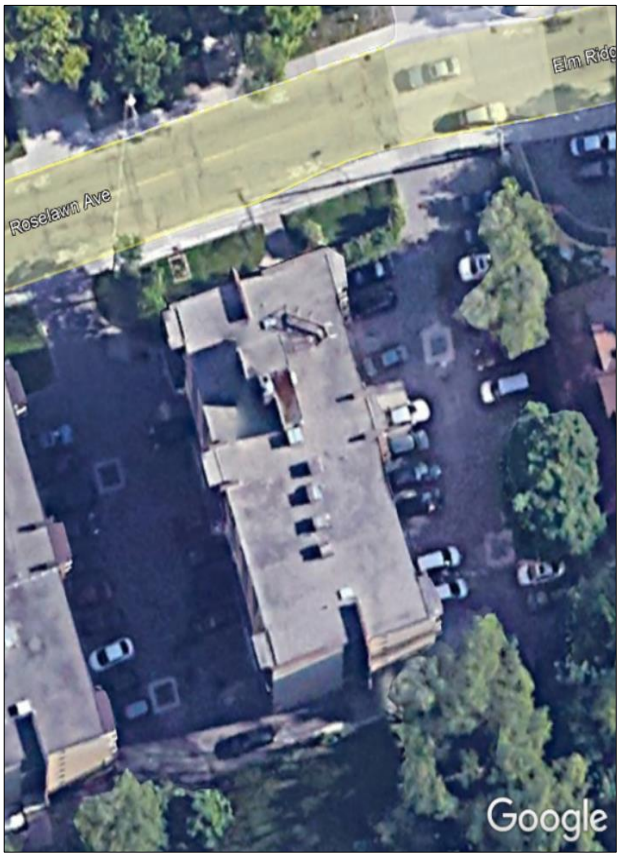


Figure 1 **Subject Site and Proxy Site Locations**

835 Roselawn Avenue (Subject Site)

Table 1 835 Roselawn Avenue Site Statistics

Total Units	39
Leased Units	35
Vacant Units	4
Total Parking	42
Vacant Parking	14
Non-resident Parking	3



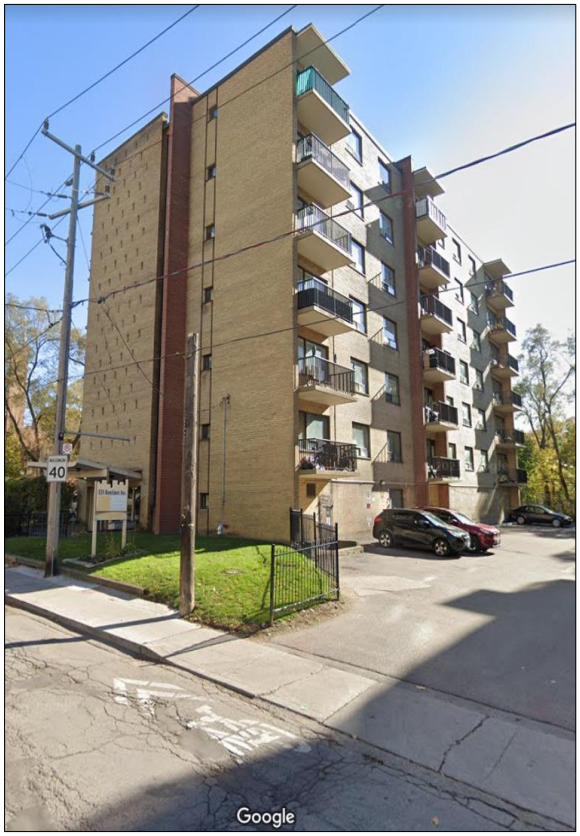


Figure 2 & 3 835 Roselawn Avenue Aerial and Street View

665 Roselawn Avenue

Table 2 665 Roselawn Avenue Site Statistics

Total Units	174
Leased Units	159
Vacant Units	19
Total Parking	84
Vacant Parking	28
Non-resident Parking	1

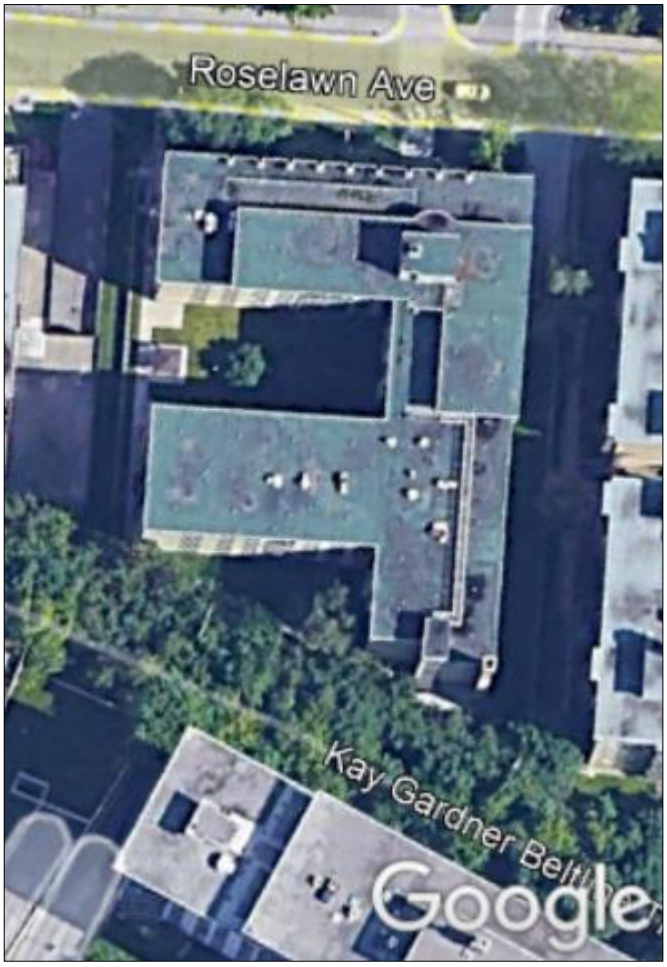


Figure 4 635 Roselawn Avenue Aerial View

Figure 5 665 Roselawn Avenue Street View

99 Marlee Avenue

Table 3 99 Marlee Avenue Site Statistics

Total Units	59
Leased Units	52
Vacant Units	7
Total Parking	43
Vacant Parking	14
Non-resident Parking	3

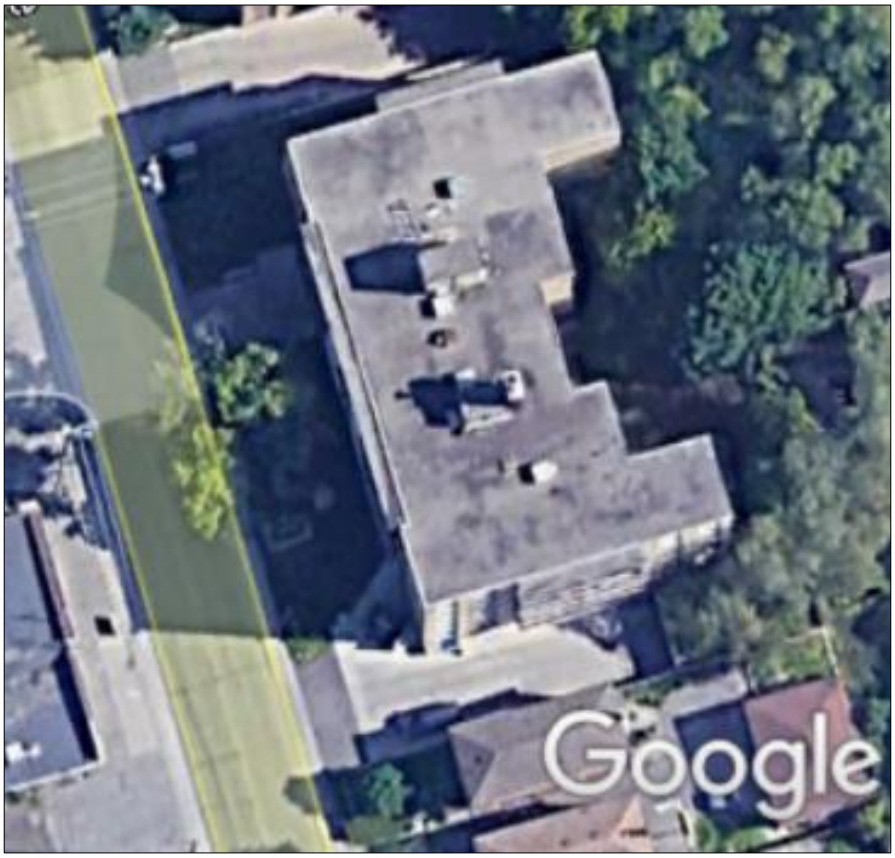


Figure 6 99 Marlee Avenue Aerial View

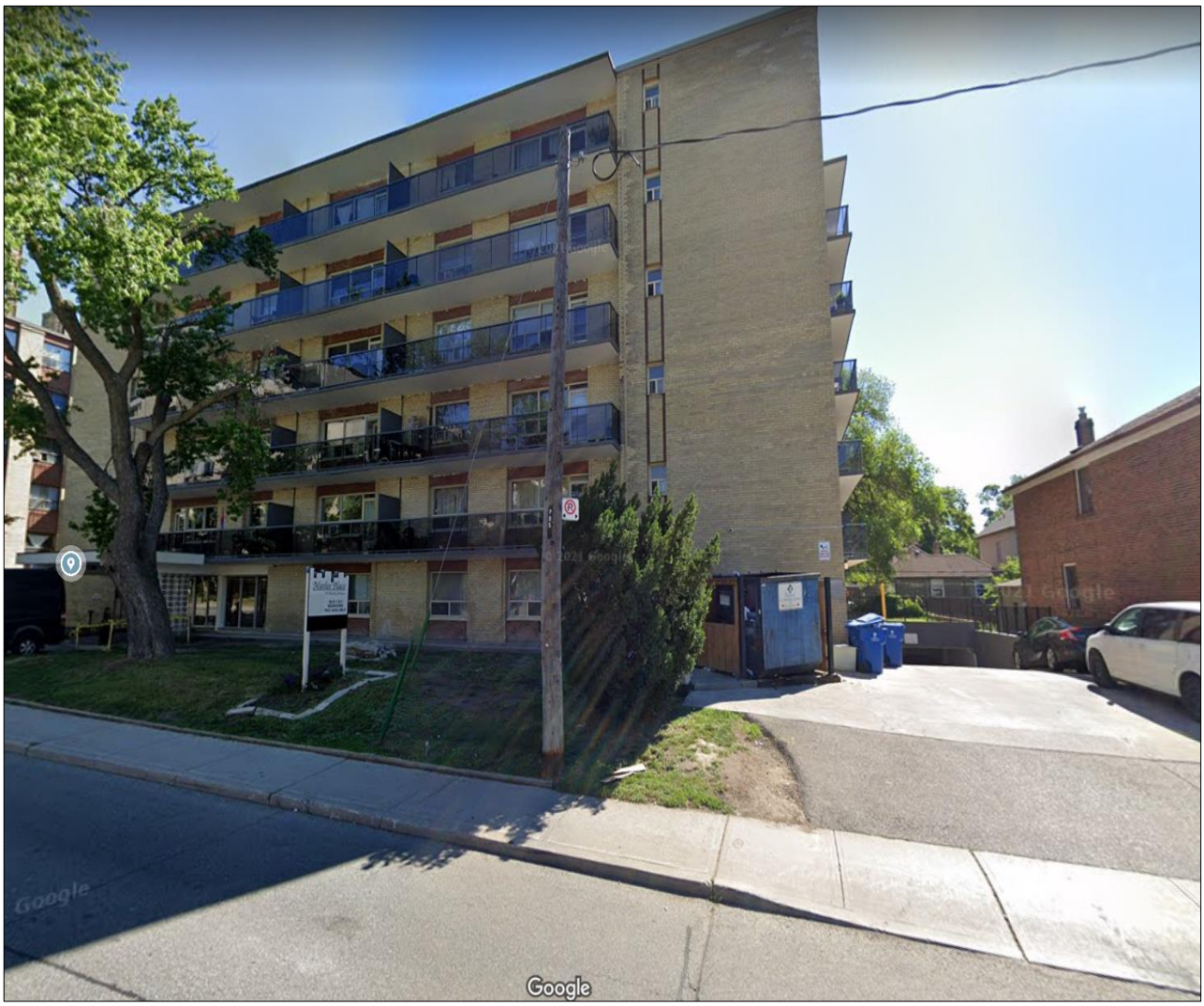


Figure 7 99 Marlee Avenue Street View

620 Northcliffe Boulevard

Table 4 620 Northcliffe Boulevard Site Statistics

Total Units	140
Leased Units	125
Vacant Units	19
Total Parking	55
Vacant Parking	31

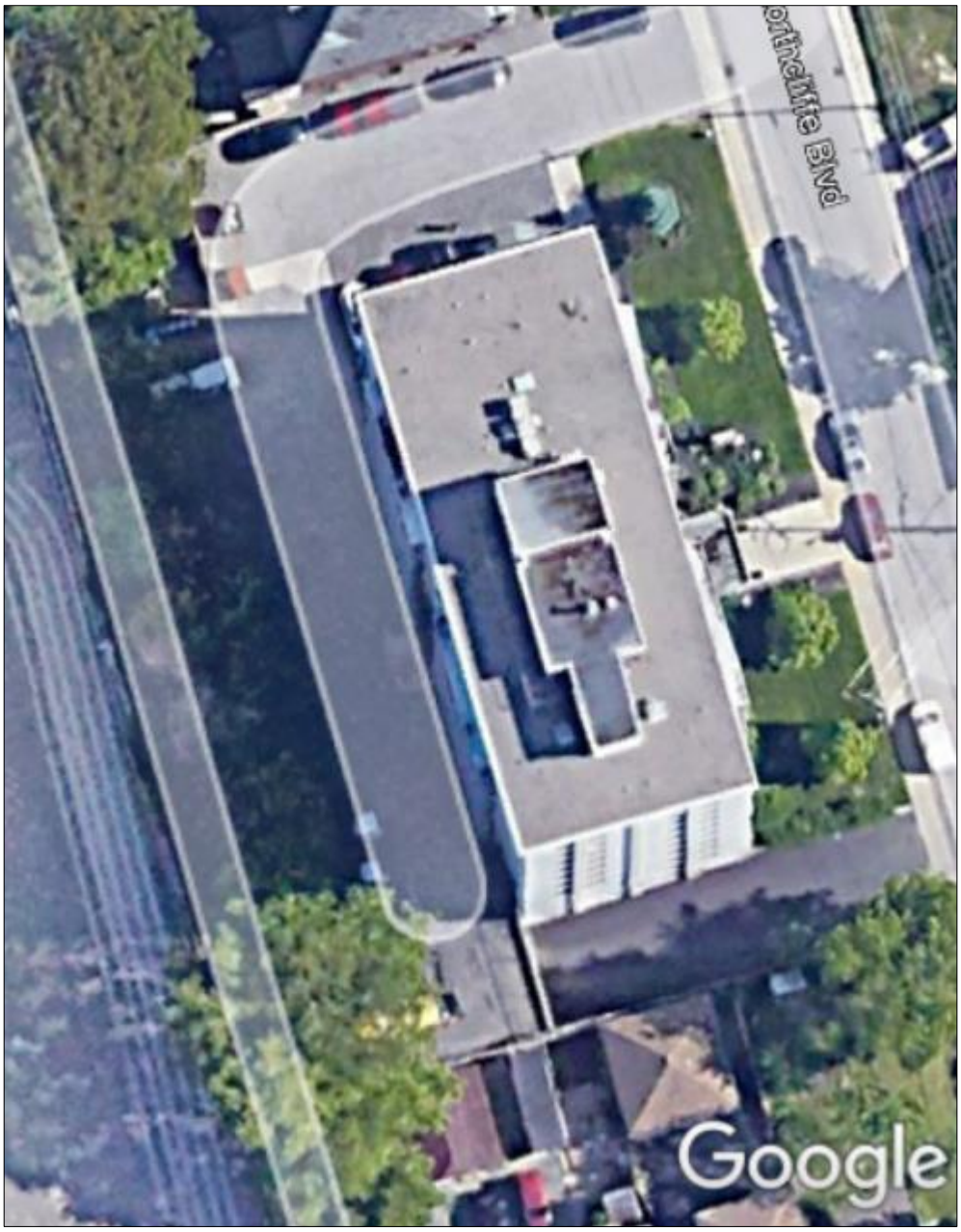


Figure 8 620 Northcliffe Boulevard Aerial View

Figure 9 620 Northcliffe Boulevard Street View

65 Dynevor Road

Table 5 65 Dynevor Road Site Statistics

Total Units	180
Leased Units	148
Vacant Units	36
Total Parking	69
Vacant Parking	45

Figure 10 65 Dynevor Road Aerial View

Figure 11 65 Dynevor Road Street View

Parking & Locker Directory

Property=99m

Property	Description	Unit	
99m	Parking Under Ground	VACANT	1
99m	Parking Under Ground	104	2
99m	Parking Under Ground	106	3
99m	Parking Under Ground	VACANT	4
99m	Parking Under Ground	304	5
99m	Parking Under Ground	504	6
99m	Parking Under Ground	VACANT	7
99m	Parking Under Ground	308	8
99m	Parking Under Ground	602	9
99m	Parking Under Ground	604	10
99m	Parking Under Ground	408	11
99m	Parking Under Ground	VACANT	12
99m	Parking Under Ground	602	13
99m	Parking Under Ground	203	14
99m	Parking Under Ground	310	15
99m	Parking Under Ground	501	16
99m	Parking Under Ground	306	17
99m	Parking Under Ground	506	18
99m	Parking Under Ground	607	19
99m	Parking Under Ground	610	20
99m	Parking Under Ground	VACANT	21
99m	Parking Under Ground	307	22
99m	Parking Under Ground	401	23
99m	Parking Under Ground	103	24
99m	Parking Under Ground	NTP-ALL	25
99m	Parking Under Ground	NTP-ALL	26
99m	Parking Under Ground	601	27
99m	Parking Under Ground	601	28
99m	Parking Under Ground	608	29
99m	Parking Under Ground	508	30
99m	Parking Under Ground	201	31
99m	Parking Under Ground	VACANT	32
99m	Parking Under Ground	206	33
99m	Parking Under Ground	VACANT	34
99m	Parking Under Ground	VACANT	35
99m	Parking Under Ground	VACANT	36
99m	Parking Under Ground	301	37
99m	Parking Under Ground	VACANT	38
99m	Parking Under Ground	VACANT	39
99m	Parking Under Ground	VACANT	40
99m	Parking Under Ground	VACANT	41
99m	Parking Under Ground	VACANT	42
99m	Parking Under Ground	NTP-ALL	43

Vacant	14
NTP-ALL	3
Spaces	43
Vacant+NTP	17
Parking used	26
Space/Unit	0.5

99 Marlee Avenue

			Updated
Total Units	59		59
Leased Units	52		52
Vacant Units	7		
Total Parking	43		43
Vacant Parking	14		
Non-resident Parking	3		
Visitors		2 or 3?	2
			24

spaces/unit	0.728814
non visitor/	0.694915
visitors/unit	0.033898
demand	0.461538

Parking & Locker Directory

Property=.65d

Property	Description	Unit	
65d	Parking Above Ground - Visitor	VACANT	1
65d	Parking Above Ground - Visitor	VACANT	2
65d	Parking Above Ground - Visitor	VACANT	3
65d	Parking Above Ground - Visitor	VACANT	4
65d	Parking Above Ground - Visitor	VACANT	5
65d	Parking Above Ground - Visitor	VACANT	6
65d	Parking Above Ground - Visitor	VACANT	7
65d	Parking Above Ground	607	8
65d	Parking Above Ground	708	9
65d	Parking Above Ground	310	10
65d	Parking Above Ground	704	11
65d	Parking Above Ground	VACANT	12
65d	Parking Above Ground	VACANT	13
65d	Parking Above Ground	906	14
65d	Parking Above Ground	801	15
65d	Parking Above Ground	505	16
65d	Parking Above Ground	VACANT	17
65d	Parking Above Ground	809	18
65d	Parking Above Ground	210	19
65d	Parking Above Ground	901	20
65d	Parking Above Ground	VACANT	21
65d	Parking Above Ground	210	22
65d	Parking Above Ground	VACANT	23
65d	Parking Above Ground	VACANT	24
65d	Parking Above Ground	203	25
65d	Parking Above Ground	VACANT	26
65d	Parking Under Ground	204	27
65d	Parking Under Ground	VACANT	28
65d	Parking Under Ground	601	29
65d	Parking Under Ground	VACANT	30
65d	Parking Under Ground	610	31
65d	Parking Under Ground	VACANT	32
65d	Parking Under Ground	VACANT	33
65d	Parking Under Ground	VACANT	34
65d	Parking Under Ground	VACANT	35
65d	Parking Under Ground	VACANT	36
65d	Parking Under Ground	VACANT	37
65d	Parking Under Ground	VACANT	38
65d	Parking Under Ground	510	39
65d	Parking Under Ground	VACANT	40
65d	Parking Under Ground	VACANT	41
65d	Parking Under Ground	VACANT	42
65d	Parking Under Ground	VACANT	43
65d	Parking Under Ground	501	44
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65d	Parking Under Ground	VACANT	46
65d	Parking Under Ground	VACANT	47
65d	Parking Under Ground	B002	48
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65d	Parking Under Ground	VACANT	50
65d	Parking Under Ground	VACANT	51
65d	Parking Under Ground	VACANT	52
65d	Parking Under Ground	VACANT	53
65d	Parking Under Ground	503	54
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65d	Parking Under Ground	VACANT	56
65d	Parking Under Ground	VACANT	57
65d	Parking Under Ground	VACANT	58
65d	Parking Under Ground	110	59
65d	Parking Under Ground	110	60
65d	Parking Under Ground	VACANT	61
65d	Parking Under Ground	VACANT	62
65d	Parking Under Ground	VACANT	63
65d	Parking Under Ground	810	64
65d	Parking Under Ground	VACANT	65
65d	Parking Under Ground	VACANT	66
65d	Parking Under Ground	910	67
65d	Parking Under Ground	709	68
65d	Parking Under Ground	VACANT	69

Vacant	45
Spaces	69
Vacant+NTP	45
Parking used	24
Space/Unit	0.162

65 Dynevor		Updated
Total Units	~~180~~	90
Leased Units	~~148~~	54
Vacant Units	36	
Total Parking	69	69
Vacant Parking	45	
Visitors		5
		19

spaces/unil	0.766667
non visitor/	0.711111
visitors/unil	0.055556
demand	0.351852

Parking & Locker Directory

Property=.620n

Property	Description	Unit	
620n	Parking Above Ground	VACANT	1
620n	Parking Above Ground	VACANT	2
620n	Parking Above Ground	VACANT	3
620n	Parking Above Ground	VACANT	4
620n	Parking Above Ground	VACANT	5
620n	Parking Above Ground	901	6
620n	Parking Above Ground	VACANT	7
620n	Parking Above Ground	VACANT	8
620n	Parking Above Ground	VACANT	9
620n	Parking Above Ground	VACANT	10
620n	Parking Above Ground	VACANT	11
620n	Parking Above Ground	504	12
620n	Parking Above Ground	904	13
620n	Parking Above Ground	VACANT	14
620n	Parking Above Ground	VACANT	15
620n	Parking Above Ground	VACANT	16
620n	Parking Above Ground	104	17
620n	Parking Above Ground	205	18
620n	Parking Above Ground	VACANT	19
620n	Parking Above Ground	VACANT	20
620n	Parking Above Ground	VACANT	21
620n	Parking Above Ground	VACANT	22
620n	Parking Under Ground	VACANT	23
620n	Parking Under Ground	VACANT	24
620n	Parking Under Ground	VACANT	25
620n	Parking Under Ground	306	26
620n	Parking Under Ground	VACANT	27
620n	Parking Under Ground	705	28
620n	Parking Under Ground	VACANT	29
620n	Parking Under Ground	VACANT	30
620n	Parking Under Ground	503	31
620n	Parking Under Ground	VACANT	32
620n	Parking Under Ground	508	33
620n	Parking Under Ground	508	34
620n	Parking Under Ground	VACANT	35
620n	Parking Under Ground	VACANT	36
620n	Parking Under Ground	203	37
620n	Parking Under Ground	203	38
620n	Parking Under Ground	VACANT	39
620n	Parking Under Ground	VACANT	40
620n	Parking Under Ground	402	41
620n	Parking Under Ground	402	42
620n	Parking Under Ground	VACANT	43
620n	Parking Under Ground	908	44
620n	Parking Under Ground	VACANT	45
620n	Parking Under Ground	808	46
620n	Parking Under Ground	401	47
620n	Parking Under Ground	903	48
620n	Parking Under Ground	VACANT	49
620n	Parking Under Ground	505	50
620n	Parking Under Ground	505	51
620n	Parking Under Ground	506	52
620n	Parking Under Ground	905	53
620n	Parking Under Ground	901	54

Vacant	31
NTP-ALL	0
Spaces	54
Vacant+NTP	31
Parking used	23
Space/Unit	0.184

620 Northcliffe		Updated
Total Units	140	70
Leased Units	125	51
Vacant Units	19	
Total Parking	55	55
Vacant Parking	31	
Visitors		4
		20

spaces/unit	0.785714
non visitor/unit	0.728571
visitors/unit	0.057143
demand	0.392157

Parking & Locker Directory

Property=.665r

Property	Description	Unit	
665r	Parking Under Ground	305	1
665r	Parking Under Ground	505	2
665r	Parking Under Ground	202	3
665r	Parking Under Ground	VACANT	4
665r	Parking Under Ground	302	5
665r	Parking Under Ground	201	6
665r	Parking Under Ground	307	7
665r	Parking Under Ground	201	8
665r	Parking Under Ground	VACANT	9
665r	Parking Under Ground	109	10
665r	Parking Under Ground	VACANT	11
665r	Parking Under Ground	110	12
665r	Parking Under Ground	VACANT	13
665r	Parking Under Ground	503	14
665r	Parking Under Ground	VACANT	15
665r	Parking Under Ground	NTP-43	16
665r	Parking Under Ground	411	17
665r	Parking Under Ground	VACANT	18
665r	Parking Under Ground	118	19
665r	Parking Under Ground	402	20
665r	Parking Under Ground	216	21
665r	Parking Under Ground	218	22
665r	Parking Under Ground - Down	VACANT	23
665r	Parking Under Ground	417	24
665r	Parking Under Ground	102	25
665r	Parking Under Ground	514	26
665r	Parking Under Ground	VACANT	27
665r	Parking Under Ground	515	28
665r	Parking Under Ground	VACANT	29
665r	Parking Under Ground	208	30
665r	Parking Under Ground	518	31
665r	Parking Under Ground	VACANT	32
665r	Parking Under Ground	VACANT	33
665r	Parking Under Ground	VACANT	34
665r	Parking Under Ground	VACANT	35
665r	Parking Under Ground	515	36
665r	Parking Under Ground	218	37
665r	Parking Under Ground	VACANT	38
665r	Parking Under Ground	VACANT	39
665r	Parking Under Ground	VACANT	40
665r	Parking Under Ground	212	41
665r	Parking Under Ground	115	42
665r	Parking Under Ground	515	43
665r	Parking Under Ground	218	44
665r	Parking Under Ground	107	45
665r	Parking Under Ground	VACANT	46
665r	Parking Under Ground	VACANT	47
665r	Parking Under Ground	312	48
665r	Parking Under Ground	NTP-43	49
665r	Parking Under Ground	501	50
665r	Parking Under Ground	114	51
665r	Parking Under Ground	318	52
665r	Parking Under Ground	VACANT	53
665r	Parking Under Ground	209	54
665r	Parking Under Ground	VACANT	55
665r	Parking Under Ground	111	56
665r	Parking Under Ground	412	57
665r	Parking Under Ground	412	58
665r	Parking Under Ground	412	59
665r	Parking Under Ground	103	60
665r	Parking Under Ground	210	61
665r	Parking Under Ground	315	62
665r	Parking Under Ground	VACANT	63
665r	Parking Under Ground	VACANT	64
665r	Parking Under Ground	512	65
665r	Parking Under Ground	VACANT	66
665r	Parking Under Ground	418	67
665r	Parking Under Ground	112	68
665r	Parking Under Ground	PH-02	69
665r	Parking Under Ground	VACANT	70
665r	Parking Under Ground	217	71
665r	Parking Under Ground	104	72
665r	Parking Under Ground	VACANT	73
665r	Parking Under Ground	VACANT	74
665r	Parking Under Ground	408	75
665r	Parking Under Ground	PH-01	76
665r	Parking Under Ground	504	77
665r	Parking Under Ground	205	78
665r	Parking Under Ground	205	79
665r	Parking Under Ground	110	80
665r	Parking Under Ground	VACANT	81
665r	Parking Under Ground - Down	VACANT	82
665r	Parking Under Ground	105	83

Vacant	28
NTP	1
Spaces	83
Vacant+NTP	29
Parking used	54
Space/Unit	0.34

665 Roselawn

		Updated
Total Units	174	87
Leased Units	159	68
Vacant Units	19	
Total Parking	84	80
Vacant Parking	28	
Non-resident Parking	1	
Visitors		0
		51

spaces/unit	0.91954
non visitor/unit	0.91954
visitors/unit	0
demand	0.75