

**50 Stephanie Street
Transportation Study
Toronto ON**

50 Stephanie Street Inc.



BURNSIDE

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Transportation Study
Toronto ON**

50 Stephanie Street Inc.

**R.J. Burnside & Associates Limited
1465 Pickering Parkway Suite 200
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**November 2025
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Transportation Study
November 2025

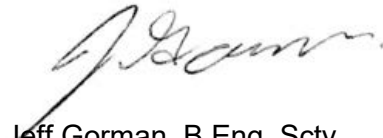
R.J. Burnside & Associates Limited

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Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by 50 Stephanie Street Inc. (the Client) to undertake a Transportation Study for a proposed apartment building located at 50 Stephanie Street, in the City of Toronto. The existing site is currently occupied by a 24-storey, 285-unit apartment building. The existing building will remain, and an 11-storey building with 163 apartments is proposed on the north side of the property resulting in a total of 448 units across the existing and proposed building. Existing vehicular access will continue to be provided from Beverley Street and Stephanie Street.

The following is a summary of our key findings.

Traffic Operations

Under existing and future conditions, all intersections are operating and will operate with excess capacity and a LOS of D or better, except for the following movements:

Queen Street West / Beverley Street

- Eastbound shared left / through movement operates over capacity with a LOS F during the PM peak hour.
- Southbound left turn movement operates with LOS F with excess capacity during the AM peak hour, due to high delays and operates over capacity with LOS F during the PM peak hour.
- Southbound right turn movement operates over capacity with LOS F during the PM peak hour.

Existing and future vehicle queues during both the AM and PM peak hours are and will continue to be within their respective storage capacities, except for the following movements:

- Eastbound shared left / through movement during the PM peak hour under existing conditions and continue to exceed into future conditions.
- Southbound left movement during both peak hours under existing conditions and continue to exceed into future conditions.
- Southbound right movement during the PM peak hour existing conditions and continue to exceed into future conditions.

Field observations and turning movement counts indicate that high pedestrian activity is contributing to extended queues for the affected movements. Operational and queuing issues are primarily under existing and background conditions. It is recommended that the City monitor this intersection for possible future improvements.

Queen Street West / John Street

The northbound left turn queue exceeds its storage capacity under existing conditions and will continue to do so under future conditions. It is recommended that the City monitor this intersection for possible future improvements.

Site Plan Review

The site and garage are well designed to accommodate all modes of travel. Access and circulation analyses confirms that all expected design vehicles can access the proposed loading spaces and the proposed underground garage.

Transportation Demand Management

To further facilitate other modes of travel and reduce vehicle trips and parking demand, the following TDM measures are proposed:

- Internal secured bicycle storage for residents.
- Outdoor bicycle racks strategically placed at ground level near main entrances / lobbies for visitors.
- Bicycle repair stations located adjacent to bicycle storage room(s).
- Sidewalk connections from the building's entrances to the existing external sidewalk network along Beverley Street and Stephanie Street.
- An information package will be provided to residents, which will include TTC maps and schedules, cycling and trail maps.
- Consideration of transit subsidy for residents via a preloaded PRESTO pass for first time purchasers and/or renters equivalent to a one-month TTC pass.
- Car share spaces will be provided in garage level P1 close the elevator lobbies.
- Parking spaces will not be bundled with any units.
- Significant parking supply reduction.

There is an existing non-auto use of 74% and these TDM measures are expected to further reduce vehicle trips, which will also reduce parking demand.

Bicycle Parking

The proposed bike parking supply will exceed the requirements of the Zoning By-law 569-2013 (ZBL).

Vehicle Parking

According to the ZBL, based on the site falling within "Parking Zone A", the proposed parking supply will not exceed the maximum resident parking requirement and will meet the minimum visitor parking requirement.

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A review of other developments shows a pattern of reduced parking requirements for similar developments in the City. Therefore, it is our opinion that the proposed parking supply will exceed future parking demand.

The proposed 11 accessible parking spaces will meet the requirements of the ZBL.

Loading

It is our opinion that one Type 'G' loading space will sufficiently accommodate the site's loading needs.

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- Appendix J Zoning By-law Excerpts

Abbreviations

The following summarizes abbreviations that are utilized within this report:

- Burnside – R.J. Burnside & Associates Limited
- City – City of Toronto
- ITE – Institute of Transportation Engineers
- TOR – Terms of Reference
- Traffic Movements:
 - LT – shared left-through movement
 - LTR – shared left-through-right movement
 - LR – shared left-right movement
 - TR – shared through-right movement
- Directions:
 - EB – Eastbound
 - SB – Southbound
 - NB – Northbound
 - WB – Westbound
- AWSC – All way stop controlled
- LUC – Land Use Code
- LOS – level of service
- v/c – volume to capacity ratio
- PHF – Peak Hour Factor

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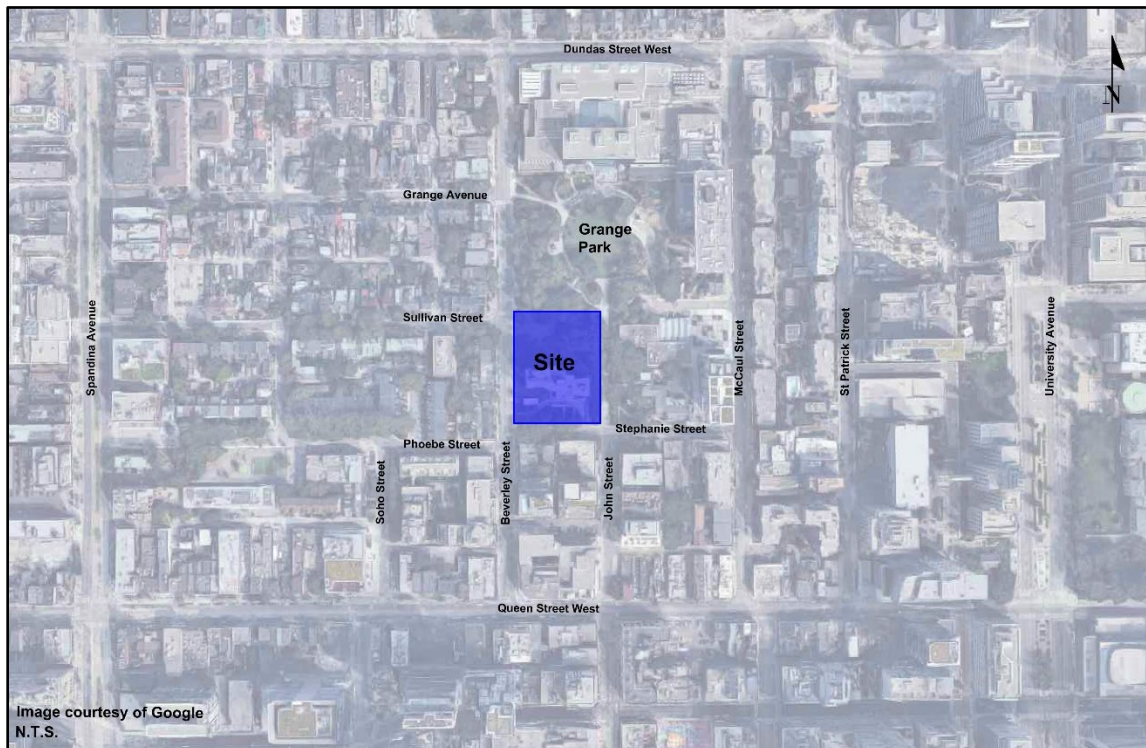
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1.0 Introduction

1.1 Background

R.J. Burnside & Associates Limited (Burnside) was retained by 50 Stephanie Street Inc. (the Client) to undertake a Transportation Study for a proposed apartment building located at 50 Stephanie Street, in the City of Toronto. The existing site is currently occupied by a 285-unit apartment building. The existing building will remain and an 11-storey building with 163 apartments is proposed on the north side of the property resulting in a total of 448 units. Existing access will also remain to Beverley Street and Stephanie Street. The location of the subject site is shown below in Figure 1.

Figure 1: Site Location



As a part of an Official Plan Amendment and Zoning By-Law Amendment application, Burnside was retained to undertake this Transportation Study.

1.2 Scope of Work

The following scope of work was confirmed with the City of Toronto (City) prior to the commencement of this study.

Active Transportation and Transit	Active Transportation and Transit Infrastructure
	Review of existing and future pedestrian, cycling and transit plans.
	Transportation Demand Management (TDM) Plan: Provide recommendations on feasible TDM strategies to discourage motor vehicle use.
Vehicular Intersection Operations	Analysis Scenarios
	- Existing traffic conditions. 2032 background traffic conditions. 2032 total traffic conditions (2032 background traffic plus site traffic).
	Analysis Time Periods
	Weekday AM Peak Period (7:00 AM to 9:00 AM).
	Weekday PM Peak Period (4:00 PM to 6:00 PM).
	Analysis Intersections
	- Beverley St / Queen St W - Beverley St / Stephanie St - Stephanie St / John St - Beverley St / Site Driveway - Stephanie Street / Site Driveways (two)
Parking and Loading Review	Review of vehicular, accessible, bicycle parking and loading supply.

The City's Traffic Impact Study Guidelines, dated July 2013, and Guidelines for Using Synchro, dated January 2021, were taken into consideration.

1.3 Multimodal Analysis Methodology

The estimated modal split for non-vehicular trips utilizes the 2022 Transportation Tomorrow Survey (TTS) within the local ward (TTS Ward 10), which the subject site resides in. The "Primary Mode of Travel" attribute from TTS was utilized and the following mode groups were considered in this study.

Mode Group	TTS Mode
Auto	- Auto driver - Auto passenger
Transit	- Transit excluding GO Rail - GO Rail only - Joint GO Rail and local transit - School bus
Cycle	Cycle
Walk	Walk

1.3.1 Vehicular Intersectional Analysis

Signalized and stop controlled intersection operations were assessed for intersections in the study area using the software program Synchro 12, which employs methodology from the Highway Capacity Manual (HCM 2000, HCM 2010 and HCM 6), published by the Transportation Research Board National Research Council.

Synchro 12 can analyze both signalized and unsignalized intersections in a road corridor or network considering the spacing, interaction, queues, and operations between intersections. The analysis utilizes the HCM 2000 methodology for all intersections with the exception of queue lengths for all-way stop-controlled intersections, which utilizes HCM 6 methodology since HCM 2000 does not report on this item.

2.0 Existing Conditions

2.1 Site Context

The site is located in the northeast quadrant of Beverley Street / Stephanie Street. The surrounding neighbourhood is composed of a mix of residential, commercial uses. The area is well-served by transit, with streetcar routes operating along Queen Street and Dundas Street, and Osgoode Subway Station (Line 1 – Yonge-University) located approximately 600 m (eight-minute walk) to the east. The site is currently occupied by an existing 24-storey rental apartment building on the south side of the property.

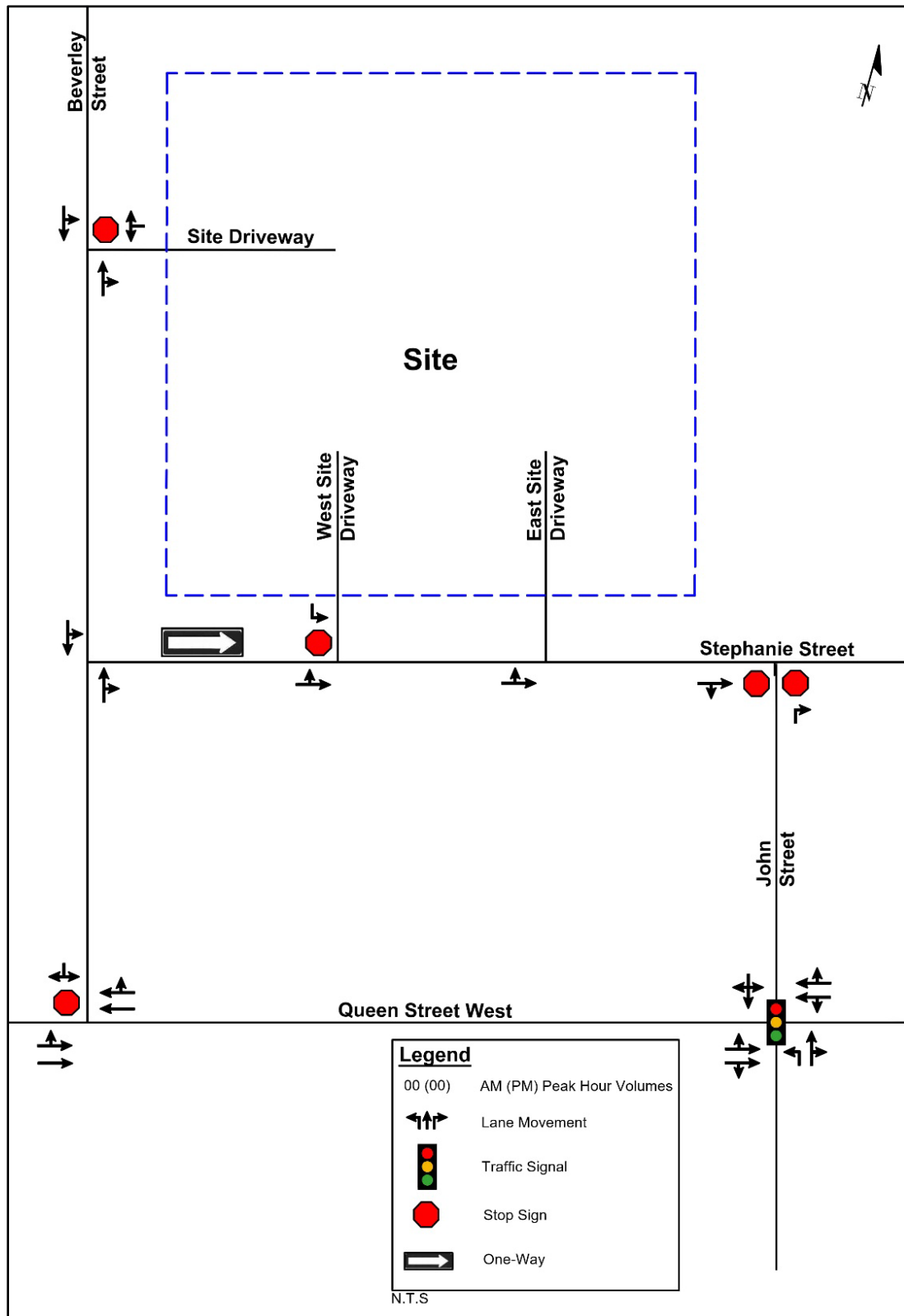
2.2 Road Network

The existing road network is described below and illustrated in Figure 2. All roads are under the jurisdiction of the City.

Queen Street West	Queen Street West is an east-west major arterial road with a four-lane urban cross-section, sidewalks on both sides, and a posted speed limit of 40 km/h. The centre two lanes are shared between street cars and vehicular traffic. Parking is permitted on both sides of the roadway.
Beverley Street	Beverley Street is a north-south minor arterial road, which terminates to the south at Queen Street West. It has a two-lane urban cross-section, sidewalks and bike lanes on both sides, and a posted speed limit of 30 km/h. On-street parking is available on the west side and stopping is prohibited on the east side of the roadway.
Stephanie Street	Stephanie Street is a one-way (eastbound) east-west local roadway between Beverley Street and McCaul Street with a two-lane urban cross section, sidewalks on both sides, and a posted speed limit of 30 km/h. A bicycle lane is provided on the north side of the roadway for bicycles in the westbound direction and bicycles in the eastbound direction share the roadway with vehicular traffic. Stopping is prohibited on both sides of the roadway.
John Street	John Street is a north-south collector road with its northerly terminus at Stephanie Street. It has a two-lane urban cross section with sidewalks and bike lanes on both sides, and a posted speed limit of 30 km/h. Parking is prohibited on the east side and permitted via pay and display on the west side of the roadway.

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Figure 2: Existing Lane Configuration



2.3 Transit Service

The Toronto Transit Commission (TTC) provides streetcar service within the vicinity of the site 24 hours per day and seven days a week. The nearest streetcar stop is less than a 4 minute walk south from the site. In addition, the Osgoode subway station is located less than an 8-minute walk east of the site. The service frequency and hours of operation of all transit routes that serve the study area are summarized in Table 1 and illustrated in Figure 3.

Table 1: Transit Route Summary

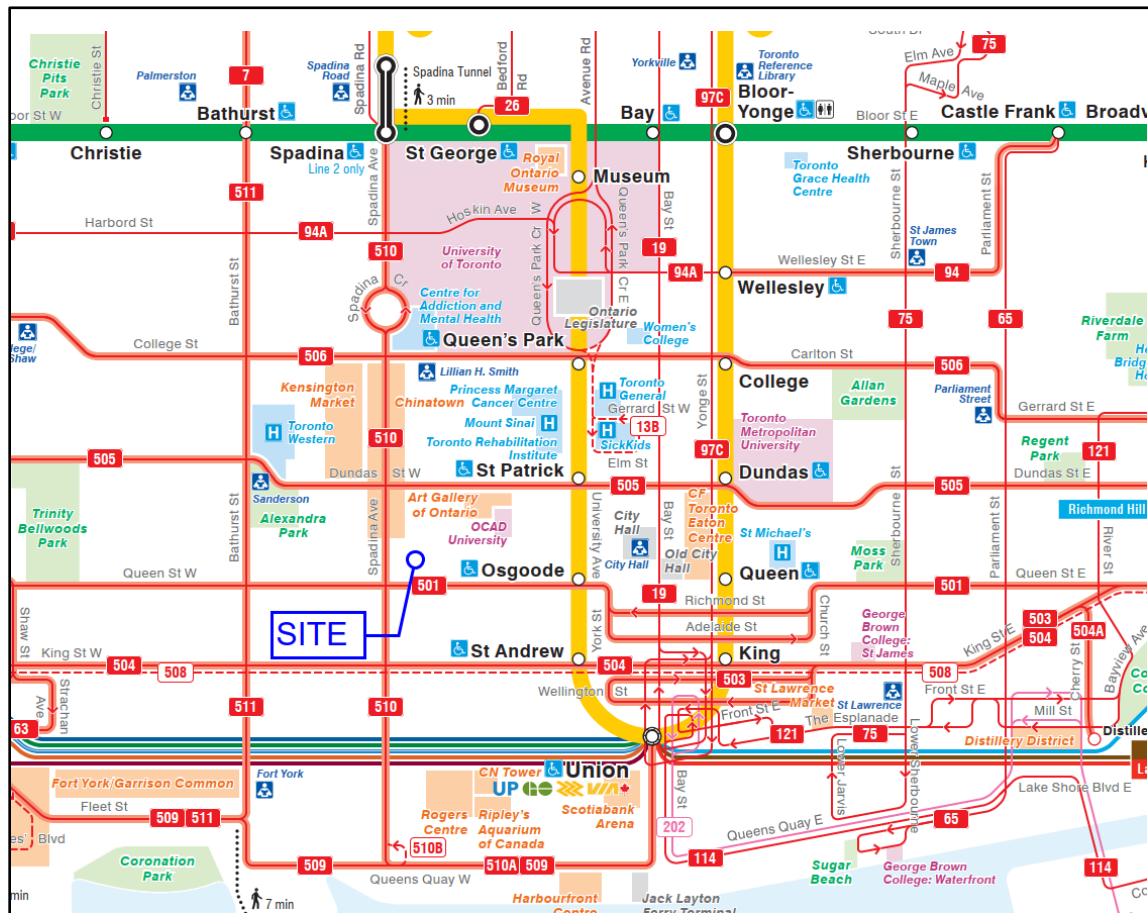
Route	Direction	Headways ¹	Days and Hours of Operation ²
501 (Queen)	Eastbound / Westbound	AM & PM Peak: 10 min	4:00AM – 2:00AM Monday to Sunday
504 (King)	Eastbound / Westbound	AM & PM Peak: 10 min	6:00 – 2:30 AM Monday to Friday 6:00 – 3:00 AM Saturday 9:00 – 3:00 AM Sunday
505 (Dundas)	Eastbound / Westbound	AM & PM Peak: 10 min	5:41 – 1:15 AM Monday to Friday 5:36 – 1:21 AM Saturday 8:29 – 1:20 AM Sunday
510 (Spadina)	Northbound / Southbound	AM & PM Peak: 10 min	5:39 – 1:39 AM Monday to Friday 5:39 – 1:46 AM Saturday 7:55 – 1:31 AM Sunday
301 (Queen Night Streetcar)	Eastbound / Westbound	30 min	2:00 – 5:00 AM Monday to Sunday
304 / 304A (King Night Streetcar)	Eastbound / Westbound	30 min	2:30 – 5:00 AM Monday to Sunday
Line 1 (Yonge University) at Osgoode Station	Northbound / Southbound	AM & PM Peak 2 to 3 min	6:04 – 1:53 AM Monday to Friday 6:12 – 1:50 AM Saturday 8:24 – 1:50 AM Sunday

¹ Headways are based on TTC service summary data from August 31, 2025, to October 11, 2025. AM Peak is 6:00 AM to 9:00 AM and PM Peak is 3:00 PM to 7:00 PM on weekdays only.

² Hours of operation are approximate and based on route schedules on the TTC website.

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Figure 3: TTC System Map



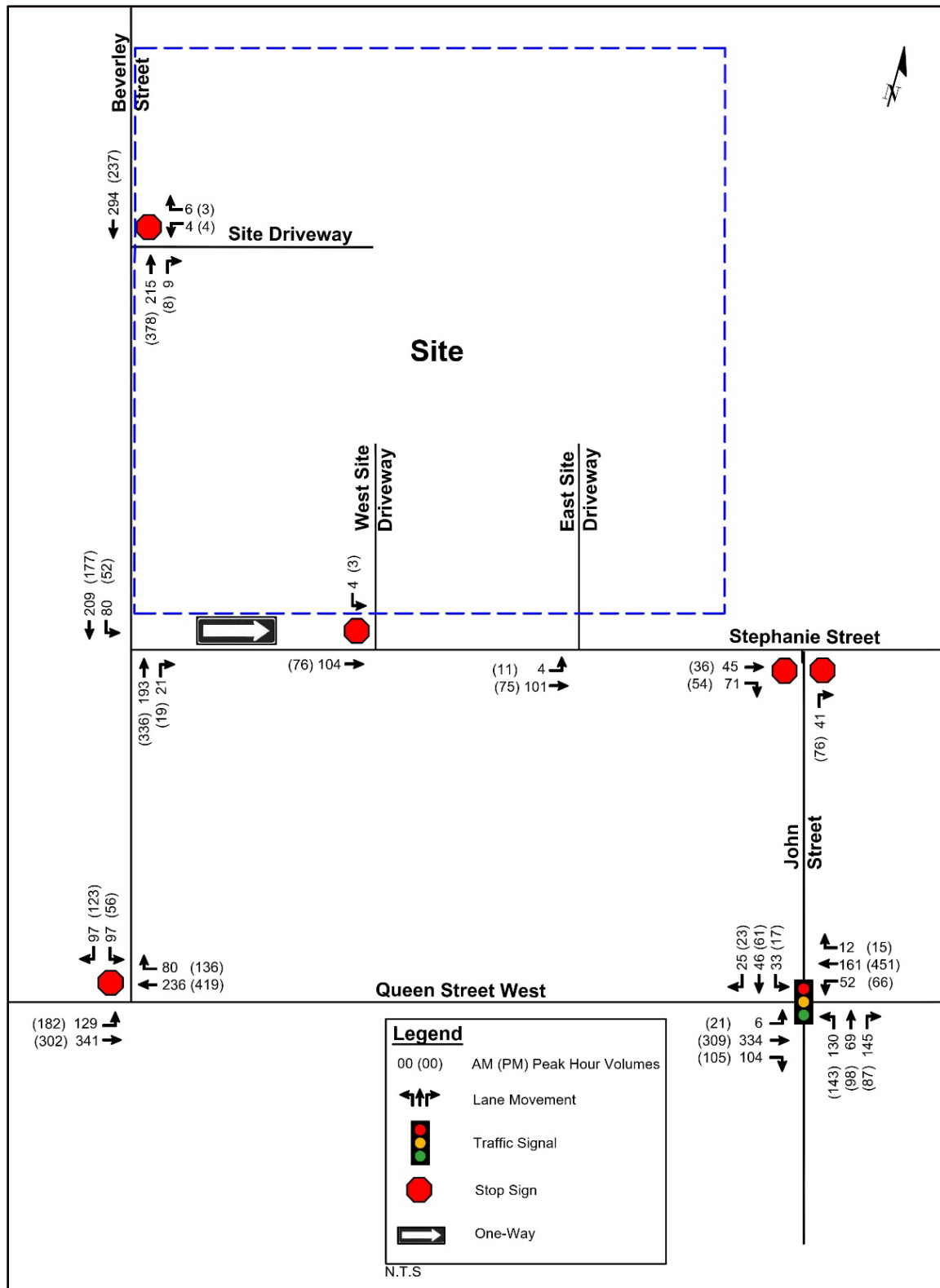
Source: TTC Systems Map, dated September 2025

2.4 Traffic Volumes

Existing traffic counts were conducted by Ontario Traffic Inc. (OTI) on behalf of Burnside, for the weekday morning (7:00 AM to 9:00 AM) and weekday afternoon (4:00 PM to 6:00 PM) peak periods on Thursday, May 22, 2025, at all study intersections. The weekday AM and PM peak periods were selected as these are the typical peak traffic periods for this type of development. Existing traffic volumes are illustrated in Figure 4 and all traffic counts and signal timing plans are provided in Appendix A.

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Figure 4: Existing Traffic Volumes



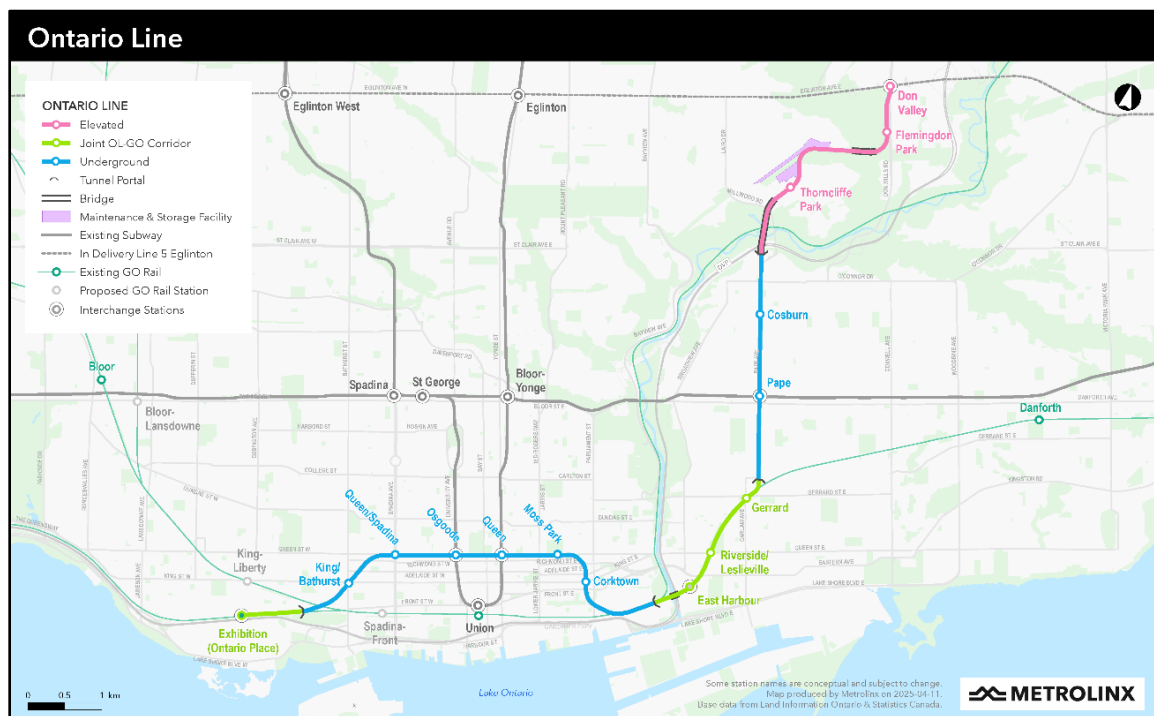
3.0 Future Background Conditions

Future background traffic consists of existing traffic, corridor growth, and traffic from other developments. Background traffic growth and traffic from other developments are discussed below. Future road network and transit improvements within the study horizon year are also discussed. The horizon year for this study is assumed to be 2032, five years after an assumed build out in 2027.

3.1 Future Transit Network

The Ontario Subway line is currently under construction and is to provide future connection from Exhibition Ontario Place to the west to Don Valley station to the east. The subject site will be within 500 m of both the future Queen / Spadina station and Osgoode station. A map of the future transit network is provided in Figure 5.

Figure 5: Future Ontario Line Map



Source: Metrolinx Ontario Line Website

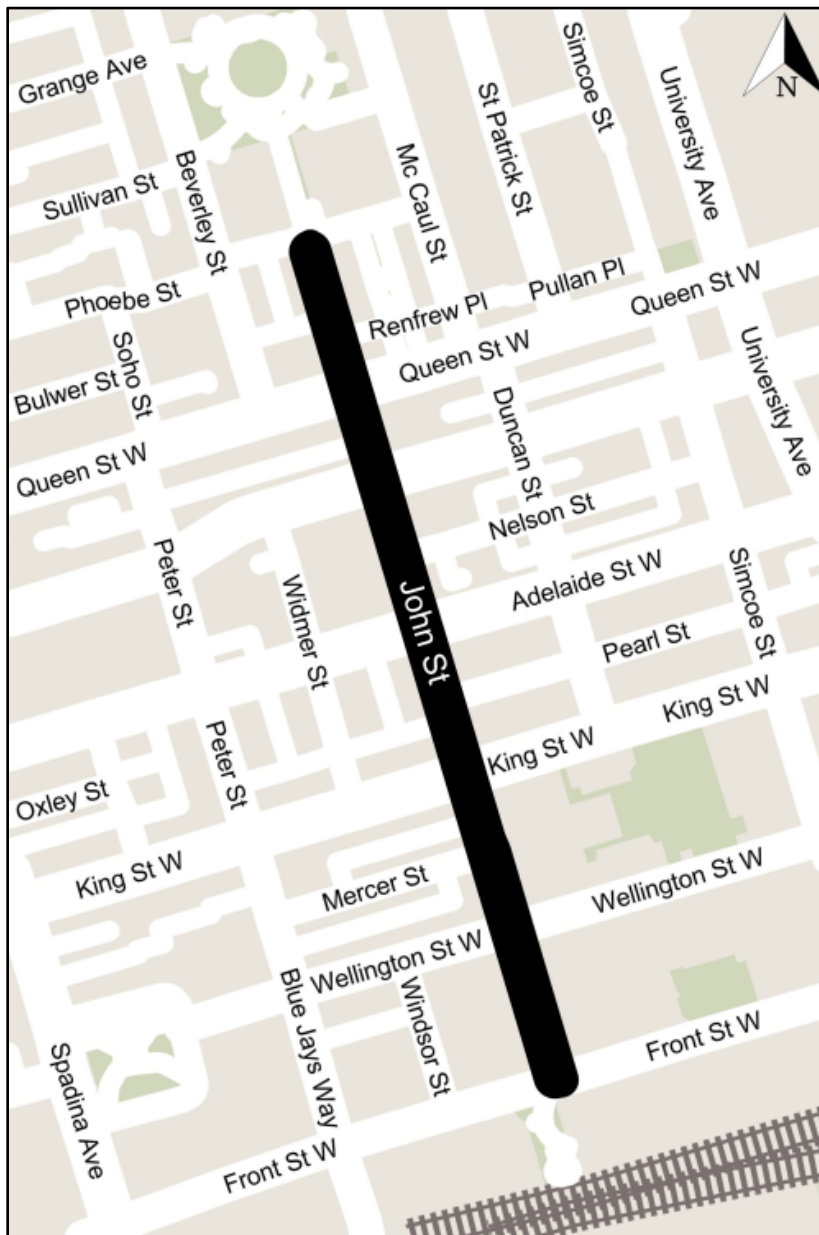
3.2 Active Transportation

A cycling improvement project is planned for Beverley Street, with implementation scheduled for 2030. No additional details regarding the scope or design of the project have been made available.

3.3 Future Road Network

The City is undertaking a road improvement project along John Street, from Front Street to Stephanie Street. The initiative aims to create a more pedestrian-friendly environment by widening sidewalks, reducing vehicular lanes, incorporating landscaping elements, and enhancing lighting and paving materials. Implementation is scheduled between 2027 and 2030. The extent of the planned improvements is illustrated in Figure 6.

Figure 6: John Street Corridor Improvement Area



Source: City of Toronto Infrastructure & Construction Projects

3.4 Background Traffic Growth

Historical counts from the City were reviewed and an overall negative growth rate was found on Queen Avenue West, Beverley Street, and John Street. As a result, following consultation with City staff, no growth was applied to any of the study roadways to be conservative. This was also consistent with the growth applied by other nearby background developments.

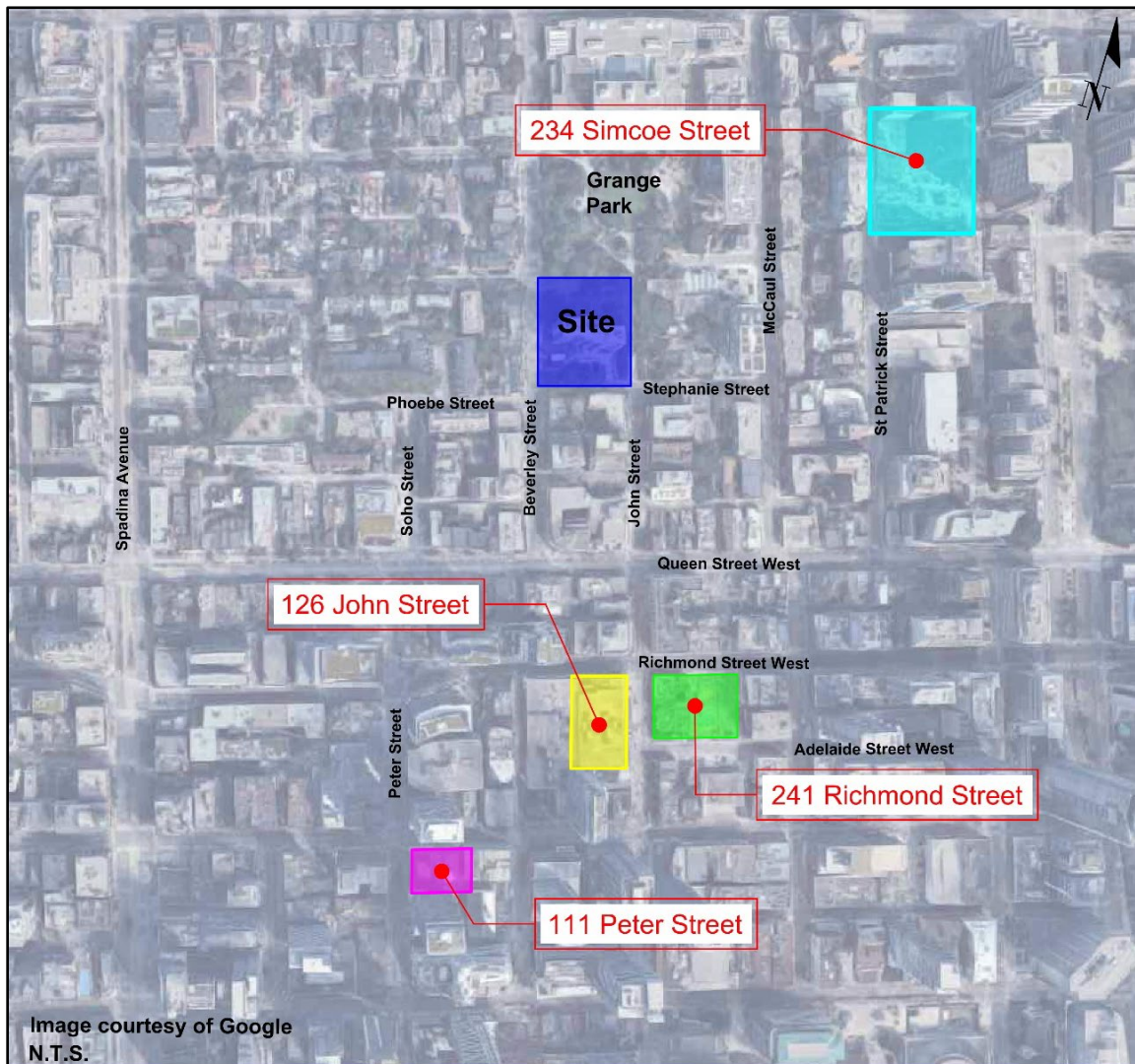
3.5 Background Developments

Background developments were identified within the proximity of the site based on the City's online development application website and consultation with City staff, which are summarized in Table 2. Excerpts of the site traffic figures from each development's traffic study are provided in Appendix B and locations of each development is shown in Figure 7.

Table 2: Background Developments

Address	Description	Source
126 John Street	- High-rise residential (613 units) - Retail (5,993 m²) - Office (16,527 m²) - Theatre (3,350 m²) - Daycare (1,315 m²)	126 John Street Urban Transportation Consideration Report, dated April 2019
241 Richmond Street	- High-rise residential (470 units) - Retail (1,410 m²)	241 John Street Urban Transportation Consideration Report, dated June 2021
234 Simcoe Street	- High-rise residential (382 units) - Retail (200 m²)	241 John Street Urban Transportation Consideration Report, dated June 2021
111 Peter Street	- High-rise residential (852 units) - Retail (1,481 m²)	111 Peter Street Transportation Impact Assessment, dated November 2024

Figure 7: Background Developments

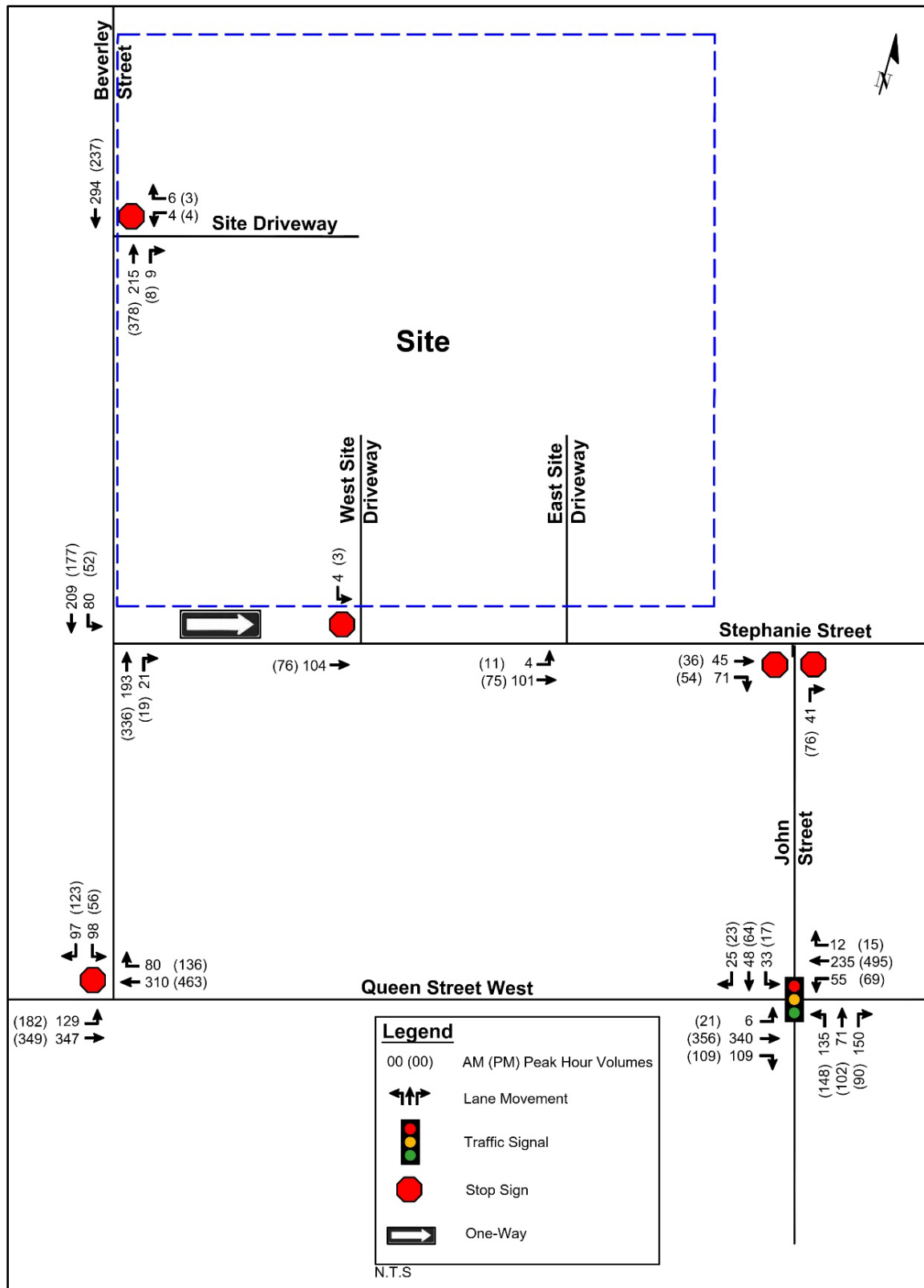


3.6 Background Traffic Volumes

Existing traffic shown in Figure 4 was added to the site traffic from background developments resulting in 2032 background traffic volumes, which are illustrated in Figure 8.

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Figure 8: 2032 Background Traffic Volumes



4.0 Proposed Development

The existing building on site will remain and an 11-storey building with 163 apartments is proposed north of the existing building for a total of 448 units. Access will be provided via the existing full movement driveway on Beverley Street and the two existing full movement driveways on Stephanie Street. The proposed site plan is shown in Figure 9.

4.1 Trip Generation

Trip generation was based on the existing trip rates captured from the site driveway counts, which are summarized as follows:

- AM Peak Hour: 0.07 total trips per unit with an inbound / outbound split of 43/57%.
- PM Peak Hour: 0.06 total trips per unit with an inbound / outbound split of 60/40%.

The above rates account for non-automobile trips such as transit use, walking and cycling, which are predominate travel modes in the study area. No further adjustments to the rates were applied.

The driveway trip generation rates were compared with the data contained in the publication Trip Generation Manual, 11th Edition, published by the Institute of Transportation Engineers (ITE) for land use code (LUC) 222 Multifamily Housing High – Rise. As ITE does not take into consideration non-automobiles trip, a review of 2022 Transportation Tomorrow Survey (TTS) data was used to determine the percentage of non-vehicular trips within the study area.

Based on the 2022 TTS, 74% of the trips made by residents within the area are non-vehicular trips. This was applied to the ITE trip rates with the following resulting rates:

- AM Peak Hour: 0.27 total trips per unit with an inbound / outbound split of 26/74%.
- PM Peak Hour: 0.32 total trips per unit with an inbound / outbound split of 62/38%.

The driveway trip generation rate was utilized in the analysis as it most accurately represents site conditions. The resulting total person trips, including all modes of travel are summarized in Table 3.

Figure 9: Site Plan

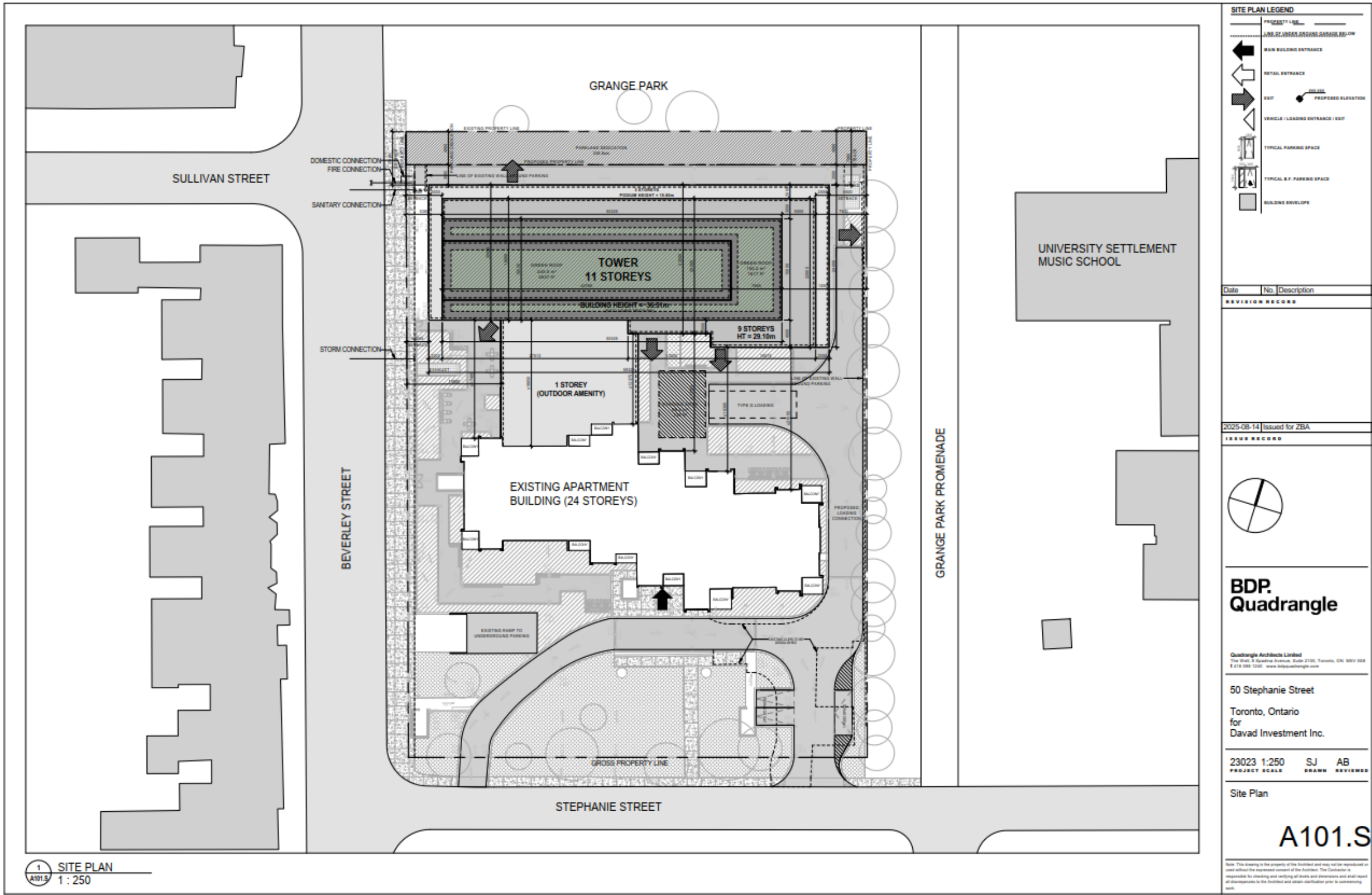


Table 3: Site Vehicle Trip Generation

Trip Type	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto + Passenger - 26%	5	7	12	5	3	8
Transit - 28%	5	8	13	5	3	8
Walk & Cycle - 42%	8	11	19	8	5	13
Other - 4%	1	1	2	1	0	1
Total Person Trips	19	27	46	19	12	31

It is projected that the subject development will generate a total of 46 two-way person trips during the weekday AM peak hour and 31 two-way person trips during the weekday PM peak hour. Of these, 12 and eight trips will be auto trips during the AM and PM peak hours, respectively.

4.2 Vehicle Trip Distribution & Assignment

Trip distribution and assignment of new vehicle trips were based upon existing traffic patterns, the available road network, and 2022 Transportation Tomorrow Survey data. The estimated distribution for vehicle trips is summarized in Table 4.

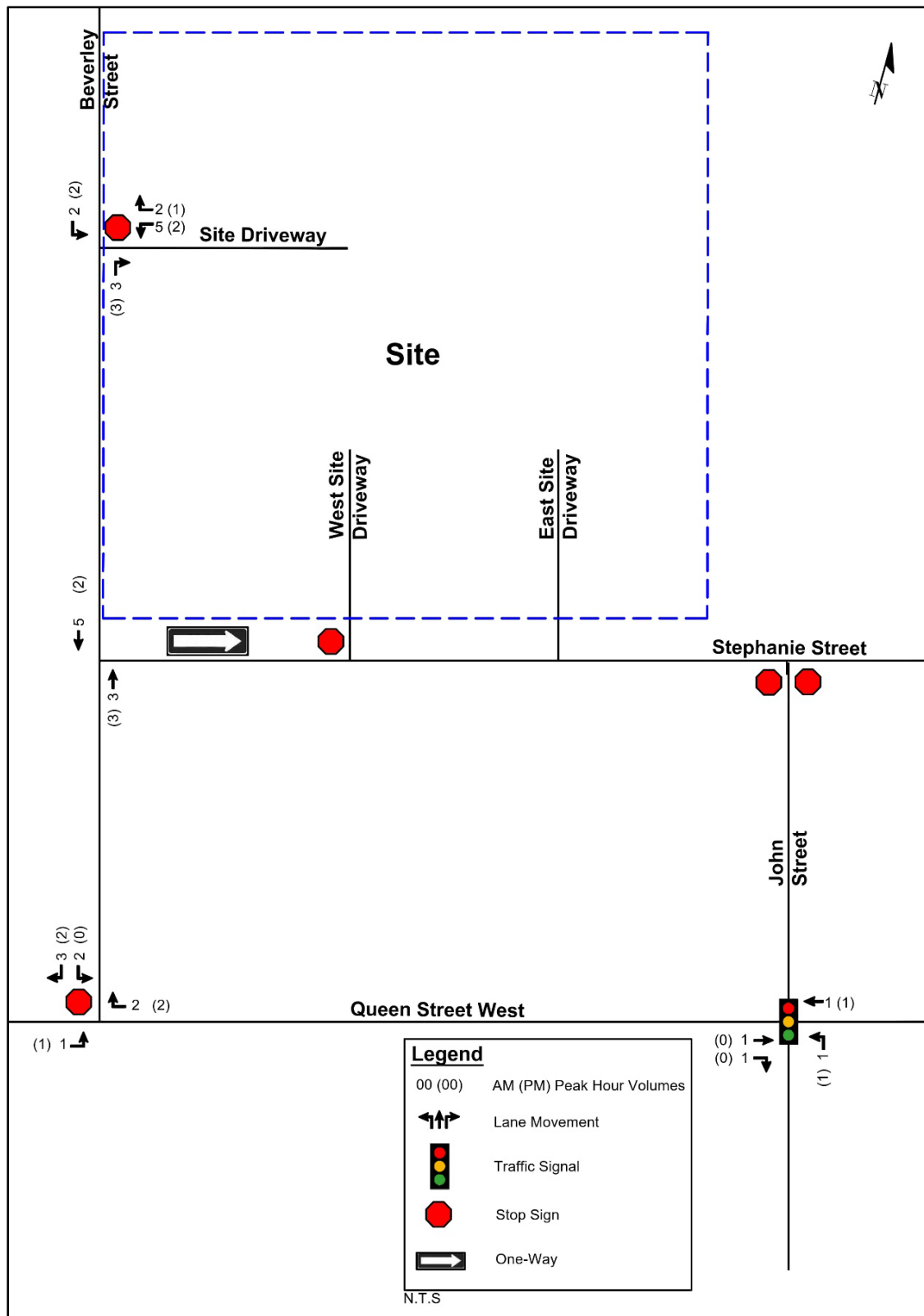
Table 4: Vehicle Trip Distribution

To / From	Via	Distribution
North	Beverley Street	35%
South	John Street	10%
East	Stephanie Street	5%
	Queen Street West	25%
West	Queen Street West	25%
Total		100%

The resulting vehicle trip assignment is shown Figure 10.

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Figure 10: Site Traffic Volumes

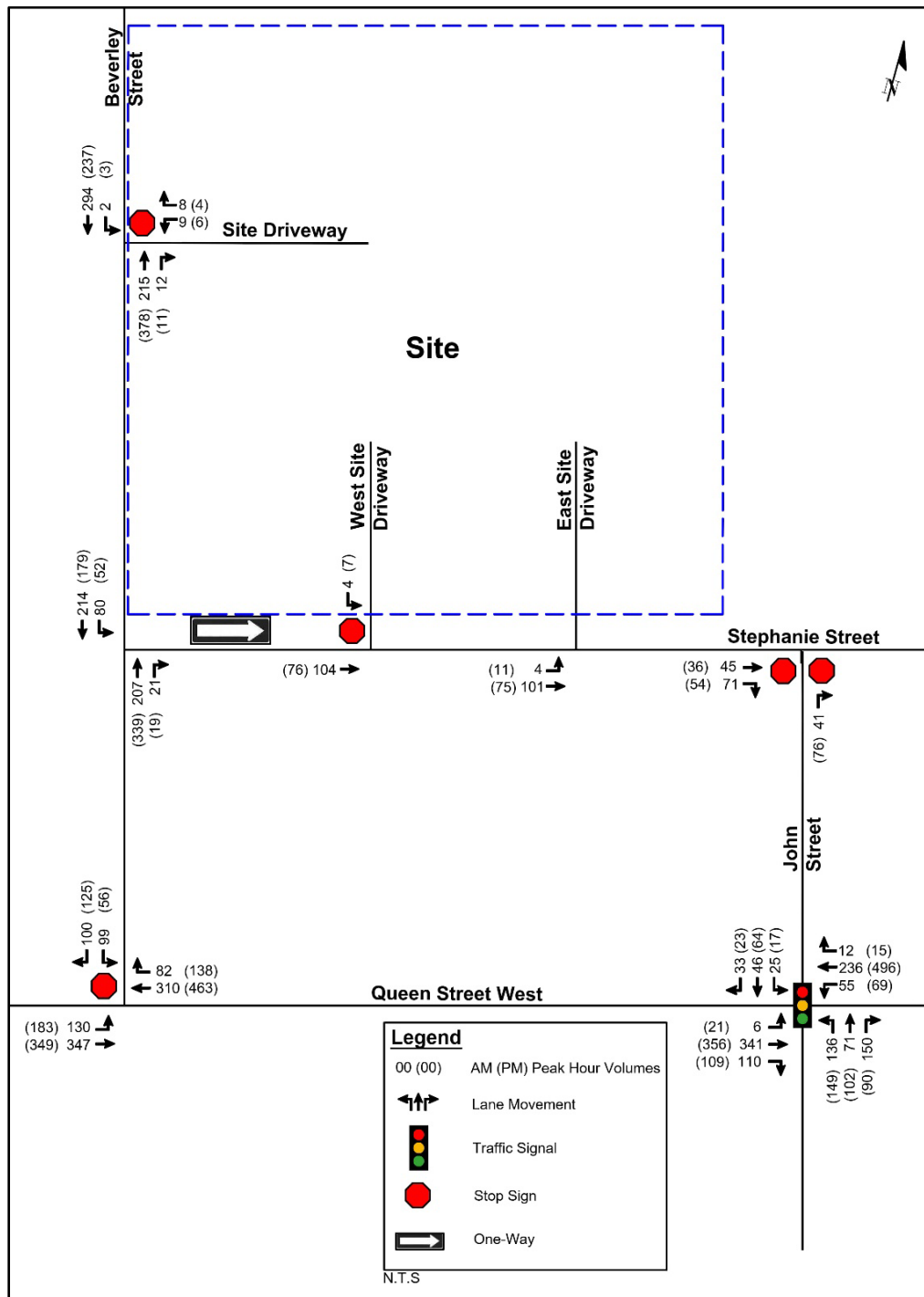


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5.0 Total Traffic Volumes

Total traffic volumes consist of background traffic volumes from Figure 8 plus site traffic from Figure 10. The resulting total 2032 traffic volumes are shown in Figure 11.

Figure 11: 2032 Total Traffic Volumes



6.0 Traffic Operations

Traffic operations analyses were conducted for existing and future traffic volumes for the weekday AM and PM peak hours at all study intersections. Queueing and delay were reviewed using Synchro's 50th and 95th percentile queue; however, 50th percentile queues were only provided for signalized intersections, as Synchro does not output 50th percentile queues for unsignalized intersections. A comparison of the existing storage / link distances and projected queues are summarized for all movements. Further details on the signalized and stop-controlled intersection analysis methodology are provided in Appendix C along with detailed Synchro and queue reports provided in Appendices D to F.

6.1 Queen Street West / Beverley Street

Existing and future traffic operations for the intersection of Queen Street West / Beverley Street are summarized in Table 5.

Table 5: Queen Street West / Beverley Street Unsignalized Intersection Operations

Movement	Existing Storage/ Link Distance (m)	Weekday AM Peak Hour				Weekday PM Peak Hour			
		v/c	LOS	95th Queue (m)	Delay (s)	v/c	LOS	95th Queue (m)	Delay (s)
2025 Existing Conditions									
EBLT	107	0.19	A	6	7	1.65	F	116	386
EBT	107	0.15	A	0	0	0.13	A	0	0
WBT	70	0.11	A	0	0	0.19	A	0	0
WBTR	70	0.11	A	0	0	0.18	A	0	0
SBL	20	0.70	F	32	70	Err ¹	F	Err ¹	Err ¹
SBR	125	0.22	B	7	15	2.41	F	107	794
2032 Background Conditions									
EBLT	107	0.20	A	6	7	1.72	F	120	418
EBT	107	0.15	A	0	0	0.16	A	0	0
WBT	70	0.14	A	0	0	0.21	A	0	0
WBTR	70	0.12	A	0	0	0.19	A	0	0
SBL	20	0.80	F	38	93	Err ¹	F	Err ¹	Err ¹
SBR	125	0.23	B	7	15	2.46	F	108	818
2032 Total Conditions									
EBLT	107	0.20	A	6	8	1.73	F	121	423
EBT	107	0.15	A	0	0	0.16	A	0	0
WBT	70	0.14	A	0	0	0.21	A	0	0
WBTR	70	0.12	A	0	0	0.20	A	0	0
SBL	20	0.82	F	39	97	Err ¹	F	Err ¹	Err ¹
SBR	125	0.24	B	8	15	2.50	F	110	835

¹ Synchro could not report a v/c ratio, queue, and / or delay

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Under existing and future conditions, during both peak hours, all movements operate with excess capacity and a LOS B or better, except for the following movements:

- Eastbound shared left / through movement operates over capacity with a LOS F during the PM peak hour.
- Southbound left turn movement operates with LOS F with excess capacity during the AM peak hour and operates over capacity with LOS F during the PM peak hour.
- Southbound right turn movement operates over capacity with LOS F during the PM peak hour.

It is not possible to have a volume-to-capacity (v/c) ratio greater than 1.0 under existing conditions, since current demand is being served. However, field observations during the traffic counts indicate that high pedestrian activity (736 pedestrians during the PM peak hour) is contributing to poor operations for the affected movements.

Under existing and future conditions, during both peak hours all queues are within their available storage and link distances, except for the following movements:

- Eastbound shared left / through movement during the PM peak hour will exceed its link distance under existing conditions and continue to exceed into future conditions.
- Southbound left movement during both peak hours will exceed its link distance under existing conditions and continue to exceed into future conditions.
- Southbound right movement during the PM peak hour will exceed its link distance under existing conditions and continue to exceed into future conditions.

Similarly, field observations and turning movement counts indicate that high pedestrian activity is contributing to extended queues for the affected movements.

These operational and queuing issues are primarily under existing and background conditions. Site traffic only contributes 1% of total volumes during the AM and PM peak hour at this intersection.

However, it appears that signalization of this intersection will improve operations. Therefore, a traffic signal warrant analysis, under Total 2032 conditions was conducted based on the methodology contained in Ontario Traffic Manual Book 12 (OTM Book 12), published by the Ministry of Transportation. The results are summarized in Table 6 and the detailed analysis is provided in Appendix G.

Table 6: Queen Street West / Beverley Street Signal Warrant Analysis

Justification	Justification 1 Minimum Vehicular Volume ¹		Justification 2 Delay to Cross Traffic ¹		Justification 3 Combination ²	
	1A	1B	2A	2B	3A	3B
Compliance	66%	37%	56%	52%	37%	52%
Justified	No		No		No	

¹ 1A and 2A are total intersection volumes while 1B and 2B are crossing (of the main road) volumes.

² 3A is Justification 1, while 3B is Justification 2.

For each justification, the lower percentage governs the warrant. A signal can be warranted by meeting the threshold for just one of the justifications, provided that it meets the required criteria for both categories. Specifically, the threshold for each justification is 120% for projected volumes, with the lowest percentage determining whether a signalized intersection is warranted. Based on the analysis, a traffic signal is not justified; however, a sensitivity analysis was conducted where the intersection has been analyzed as a signalized intersection under existing and future traffic conditions. The results are summarized in Table 7 and a Synchro report is provided in Appendix H.

Table 7: Queen Street West / Beverley Street Signalized Intersection Operations

Movement	Existing Storage/ Link Distance (m)	Weekday AM Peak Hour				Weekday PM Peak Hour			
		v/c	LOS (Delay s)	50th Queue (m)	95th Queue (m)	v/c	LOS (Delay [s])	50th Queue (m)	95th Queue (m)
2025 Existing Conditions									
Overall	-	0.34	B [15]	-	-	0.43	B [15]	-	-
EBLT	107	0.67	A [18]	24	36	0.88	A [18]	24	37
WBTR	70	0.30	A [14]	10	18	0.53	A [14]	21	32
SBL	20	0.12	A [8]	6	15	0.08	A [9]	4	11
SBR	125	0.07	A [8]	0	7	0.18	A [10]	7	20
2032 Background Conditions									
Overall	-	0.36	B [15]	-	-	0.48	B [16]	-	-
EBLT	107	0.68	A [18]	23	35	0.88	A [19]	28	42
WBTR	70	0.38	A [14]	14	22	0.53	A [14]	24	35
SBL	20	0.13	A [8]	6	15	0.08	A [10]	4	13
SBR	125	0.07	A [8]	0	7	0.20	A [11]	8	23
2032 Total Conditions									
Overall	-	0.36	B [14]	-	-	0.48	B [16]	-	-
EBLT	107	0.68	A [18]	23	35	0.89	A [19]	28	42
WBTR	70	0.38	A [14]	14	22	0.53	A [14]	24	35
SBL	20	0.13	A [8]	6	15	0.08	A [11]	4	13
SBR	125	0.07	A [8]	0	7	0.20	A [12]	8	23

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With signalization, under existing and future conditions during both peak hours, all movements will operate with excess capacity and a LOS B or better. All queues are projected to be within their existing storage and link distances. However, it is our opinion that signalization may not be feasible due to the close proximity to the signalized intersection of Queen Street West / John Street. Therefore, it is recommended that the City monitor this intersection for possible future improvements.

6.2 Queen Street West / John Street

Existing and future traffic operations for the intersection of Queen Street West / John Street are summarized in Table 8.

Table 8: Queen Street West / John Street Signalized Intersection Operations

Movement	Existing Storage/ Link Distance (m)	Weekday AM Peak Hour				Weekday PM Peak Hour			
		v/c	LOS (Delay [s])	50th Queue (m)	95th Queue (m)	v/c	LOS (Delay [s])	50th Queue (m)	95th Queue (m)
2025 Existing Conditions									
Overall	-	0.36	B [19]	0	0	0.43	B [18]	0	0
EBLT	75	0.28	A [0]	0	0	0.30	A [0]	0	0
EBTR	75	0.28	A [9]	16	23	0.30	A [8]	17	25
WBLT	96	0.17	A [0]	0	0	0.33	A [0]	0	0
WBTR	96	0.17	A [8]	9	14	0.33	A [8]	21	30
NBL	25	0.56	D [38]	23	41	0.70	D [49]	25	53
NBTR	75	0.44	C [32]	19	40	0.52	D [36]	27	48
SBLTR	145	0.31	C [30]	15	29	0.27	C [31]	14	28
2032 Background Conditions									
Overall	-	0.37	B [18]	-	-	0.46	B [18]		-
EBLT	75	0.29	A [0]	0	0	0.33	A [0]	0	0
EBTR	75	0.29	A [9]	17	24	0.33	A [8]	20	28
WBLT	96	0.22	A [0]	0	0	0.36	A [0]	0	0
WBTR	96	0.22	A [8]	13	18	0.36	A [9]	24	33
NBL	25	0.58	D [39]	24	42	0.72	D [51]	26	55
NBTR	75	0.46	C [33]	20	42	0.55	D [37]	29	51
SBLTR	145	0.33	C [30]	15	30	0.28	C [31]	14	29
2032 Total Conditions									
Overall	-	0.38	B [18]	-	-	0.46	B [18]	-	-
EBLT	75	0.29	A [0]	0	0	0.33	A [0]	0	0
EBTR	75	0.29	A [9]	17	24	0.33	A [8]	20	28
WBLT	96	0.22	A [0]	0	0	0.36	A [0]	0	0
WBTR	96	0.22	A [8]	13	18	0.36	A [9]	24	33
NBL	25	0.59	D [39]	24	43	0.73	D [51]	26	56
NBTR	75	0.46	C [33]	20	42	0.55	D [37]	29	51
SBLTR	145	0.33	C [30]	15	30	0.28	C [31]	14	29

Under existing and future conditions during both peak hours, all movements operate and will operate with excess capacity and a LOS D or better. All queues are currently and are projected to be within their existing storage and link distances except for the northbound left turn lane, which exceeds its storage capacity under existing conditions and will continue to do so under future conditions. Field observations for this movement found that excess queues utilize the adjacent northbound through/right turn lane due to excess storage capacity. It is recommended that the City monitor this intersection for possible future improvements.

6.3 Beverley Street / Stephanie Street

Existing and future traffic operations for the intersection of Beverley Street / Stephanie Street are summarized in Table 9.

Table 9: Beverley Street / Stephanie Street Unsignalized Intersection Operations

Movement	Existing Storage/ Link Distance (m)	Weekday AM Peak Hour				Weekday PM Peak Hour			
		v/c	LOS	95th Queue (m)	Delay (s)	v/c	LOS	95th Queue (m)	Delay (s)
2025 Existing Conditions									
NBTR	140	0.17	A	0	0	0.24	A	0	0
SBLT	90	0.09	A	3	3	0.06	A	2	3
2032 Background Conditions									
NBTR	140	0.17	A	0	0	0.24	A	0	0
SBLT	90	0.09	A	3	3	0.06	A	2	3
2032 Total Conditions									
NBTR	140	0.17	A	0	0	0.24	A	0	0
SBLT	90	0.09	A	3	3	0.06	A	2	3

Under existing and future conditions during both peak hours, all movements operate and will operate with excess capacity and a LOS A. All queues are currently and are projected to be within their existing storage and link distances.

6.4 Stephanie Street / John Street

Existing and future traffic operations for the intersection of Stephanie Street / John Street are summarized in Table 10.

Table 10: Stephanie Street / John Street Unsignalized Intersection Operations

Movement	Existing Storage/ Link Distance (m)	Weekday AM Peak Hour				Weekday PM Peak Hour			
		v/c	LOS	95th Queue (m)	Delay (s)	v/c	LOS	95th Queue (m)	Delay (s)
2025 Existing Conditions									
EBTR	75	0.10	A	0	0	0.07	A	0	0
NBR	145	0.08	A	2	10	0.11	A	3	3
2032 Background Conditions									
EBTR	75	0.10	A	0	0	0.07	A	0	0
NBR	145	0.08	A	2	10	0.11	A	3	10
2032 Total Conditions									
EBTR	75	0.10	A	0	0	0.07	A	0	0
NBR	145	0.08	A	2	10	0.11	A	3	10

Under existing and future conditions during both peak hours, all movements operate and will operate with excess capacity and a LOS A. All queues are currently and are projected to be within their existing storage and link distances.

6.5 Beverley Street / Site Driveway (Existing Garage Ramp)

Existing and future traffic operations for the intersection of Beverley Street / Site Driveway are summarized in Table 11.

Table 11: Beverley Street / Site Driveway Unsignalized Intersection Operations

Movement	Existing Storage/ Link Distance (m)	Weekday AM Peak Hour				Weekday PM Peak Hour			
		v/c	LOS	95th Queue (m)	Delay (s)	v/c	LOS	95th Queue (m)	Delay (s)
2025 Existing Conditions									
WBLR	10	0.02	B	1	12	0.02	B	1	15
NBTR	20	0.17	A	0	0	0.27	A	0	0
SBLT	65	0.00	A	0	0	0.00	A	0	0
2032 Background Conditions									
WBLR	10	0.02	B	1	12	0.02	B	1	15
NBTR	20	0.17	-	0	0	0.27	A	0	0
SBLT	65	0.00	-	0	0	0.00	A	0	0
2032 Total Conditions									
WBLR	10	0.05	B	2	13	0.03	C	1	15
NBTR	20	0.18	A	0	0	0.27	A	0	0
SBLT	65	0.00	A	1	0	0.00	A	1	0

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Under existing and future conditions during both peak hours, all movements operate and will operate with excess capacity and a LOS C or better. All queues are currently and are projected to be within their existing storage and link distances.

6.6 Stephanie Street / Site Driveway (East)

Existing and future traffic operations for the intersection of Stephanie Street / Site Driveway (East) are summarized in Table 12.

Table 12: Stephanie Street / East Driveway Unsignalized Intersection Operations

Movement	Existing Storage/ Link Distance (m)	Weekday AM Peak Hour				Weekday PM Peak Hour			
		v/c	LOS	95th Queue (m)	Delay (s)	v/c	LOS	95th Queue (m)	Delay (s)
2025 Existing Conditions									
EBLT	20	0.00	A	1	1	0.01	A	1	1
SBL	30	0.00	A	0	0	0.00	A	0	0
2032 Background Conditions									
EBLT	20	0.00	A	1	1	0.01	A	1	1
SBL	30	0.00	A	0	0	0.00	A	0	0
2032 Total Conditions									
EBLT	20	0.00	A	1	1	0.01	A	1	1
SBL	30	0.00	A	0	0	0.00	A	0	0

Under existing and future conditions during both peak hours, all movements operate and will operate with excess capacity and a LOS A. All queues are currently and are projected to be within their existing storage and link distances.

6.7 Stephanie Street / Site Driveway (West)

Existing and future traffic operations for the intersection of Stephanie Street / Site Driveway (West) are summarized in Table 13.

Table 13: Stephanie Street / West Driveway Unsignalized Intersection Operations

Movement	Existing Storage/ Link Distance (m)	Weekday AM Peak Hour				Weekday PM Peak Hour			
		v/c	LOS	95th Queue (m)	Delay (s)	v/c	LOS	95th Queue (m)	Delay (s)
2025 Existing Conditions									
EBT	55	0.09	A	0	0	0.06	A	0	0
SBL	20	0.01	A	1	10	0.01	A	1	10
2032 Background Conditions									
EBT	55	0.09	A	0	0	0.06	A	0	0
SBL	20	0.01	A	1	10	0.01	A	1	10
2032 Total Conditions									
EBTT	55	0.09	A	0	0	0.06	A	0	0
SBL	20	0.01	A	1	10	0.01	A	1	10

Under existing and future conditions during both peak hours, all movements operate and will operate with excess capacity and a LOS A. All queues are currently and are projected to be within their existing storage and link distances.

7.0 Site Plan Review

A high-level review of the proposed site plan was conducted to assess multimodal circulation and access. The site is designed to effectively accommodate pedestrians, cyclists, and vehicles. Sidewalks will connect all building entrances to the existing sidewalk network along Stephanie Street and Beverley Street. The two lobbies of the existing and new buildings, respectively, will be connected to provide easy access to the existing pick up / drop off areas adjacent to the existing building.

An access analysis for the proposed underground garage was performed using AutoTURN, with a focus on a PTAC (passenger car design vehicle). The analysis confirms that the garage design will accommodate the PTAC at all ramps and levels, as detailed in Appendix I.

An access analysis was also conducted for the proposed refuse pickup and loading spaces, considering the City's front-load refuse truck, City's oversized rear packer, and a delivery truck (HSU design vehicle), all of which were modelled using AutoTURN. The analysis, also provided in Appendix I, confirms that the proposed geometry will accommodate all expected design vehicles accessing the site.

8.0 Transportation Demand Management

The proposed site plan incorporates pedestrian and cyclist friendly design elements to discourage dependency on the single-occupant motor vehicle. This complements the City's overall transportation vision to achieve a greater sustainable transportation system

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by promoting and encouraging alternative modes of travel including walking, cycling and transit.

As noted in Section 2.3, the nearest streetcar stop is less than a four minute walk south from the site, provided by the TTC encouraging residents and visitors to utilize these nearby transit connections to reduce a reliance on automobiles. Combined, all these services provide 24 hours of service every day. In addition, TTS indicates that current non-auto use is 74%.

Table 14 summarizes the TDM measures proposed for this development along with associated trip reduction estimates. The trip reduction estimates are based on data from the Town of Oakville, the Region of Waterloo, the Vermont Agency of Transportation, City of Berkeley, California, California Air Pollution Control Officers Association, Delaware Department of Transportation, Oregon Department of Environmental Quality, the City of Sacramento and then Victoria Transportation Policy Institute.

Table 14: Proposed TDM Measures

Description	Trip Reduction	Comments
Internal secured bicycle storage (long-term)	0.5% to 1%	Internal secured bicycle storage within the building for residents
Bicycle storage (short-term)	0.5%	Strategically placed at ground level near the main entrance / lobby for visitors
Sidewalk Connections	0.5% to 2%	Sidewalk connections from the building's entrances to the existing external sidewalk network along Beverley Street and Stephanie Street
TDM information package	0.8% to 4%	The information package provided to residents will include TTC transit maps and schedules, cycling and trail maps
Transit Subsidy	2.5%	Transit subsidy for residents via a preloaded PRESTO pass for first time purchasers and / or renters equivalent to a one month TTC pass
Bicycle repair stations	1%	Located adjacent to bike storage room(s)
Carshare	1%	Car share spaces will be provided in garage level P1 close to one of the elevator lobbies
Unbundled resident parking	2.6% to 13%	Parking spaces will not be bundled with apartments
Parking supply reduction	Up to 30%	Parking rate reductions for resident and visitor parking to the City's parking maximums are recommended

There is an existing non-auto use of 74% within the neighbourhood and these TDM measures are expected to further reduce vehicle trips, which will also reduce parking demand.

9.0 Parking and Loading Supply Review

9.1 Bicycle Parking

There are 147 long-term bicycle spaces and 33 short-term bicycle spaces proposed. The City's Zoning By-law 569-2013 (ZBL) was reviewed to determine the bicycle parking requirements for short-term and long-term spaces, which are summarized in Table 15, based on the subject site located in Bicycle Zone 1. In addition, as per ZBL Section 230.5.10.11 (1), "Article 230.5.10. does not apply to a lawfully existing building that was not required to provide a bicycle parking space". Therefore, bicycle parking requirements only apply to the proposed building. Applicable excerpts from the ZBL are provided in Appendix J.

Table 15: Bicycle Parking Requirements

Proposed Use	ZBL Use	Type	Parking Rate	Required Spaces	Provided Spaces	Surplus / Deficit
Apartment Building (163 Units)	Apartment Building	Short-Term	0.20 space per unit	33	35	+1
		Long-Term	0.90 space per unit	147	191	+44

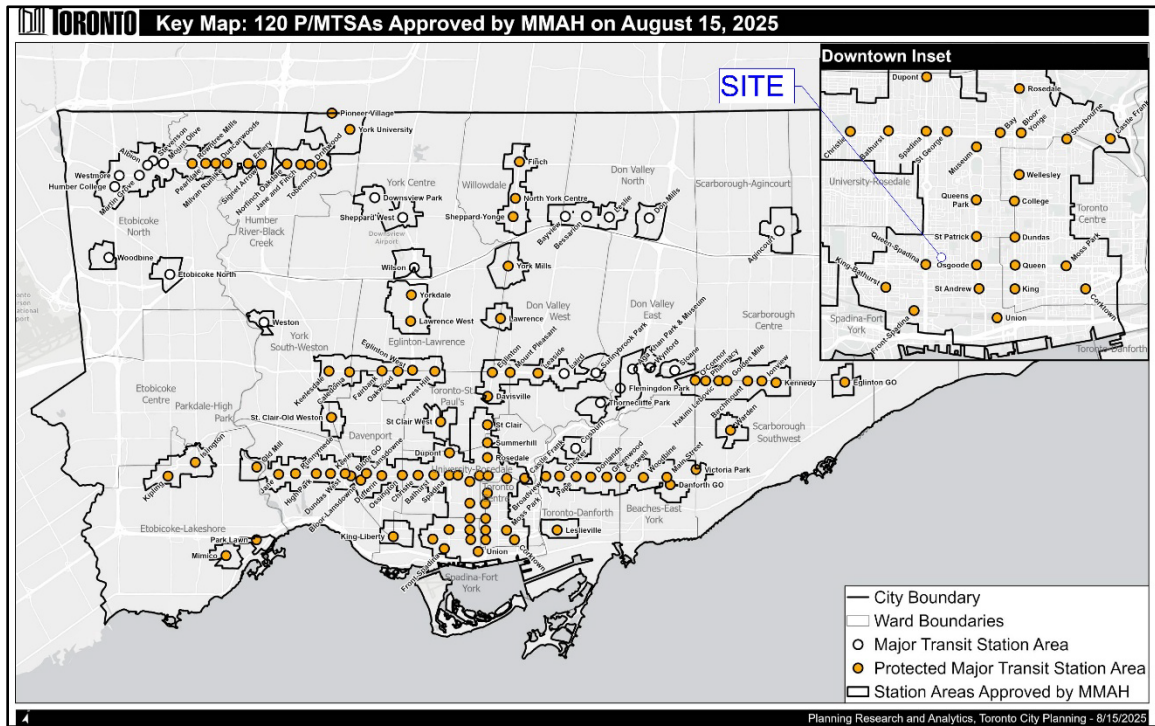
The proposed bicycle parking supply will exceed the ZBL requirements.

9.2 Vehicle Parking

The site is located within two Protected Major Transit Station Areas (PMTSA) as shown in Figure 12.

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Figure 12: Province Approved MTSA



Source: City of Toronto Official Plan Review

These PMTSAs were recently approved by the province and parking minimums are not required within their boundaries. However, as per City staff requirements a detailed parking review has been provided.

9.2.1 Zoning By-law Requirements

The ZBL applies to this site and was therefore reviewed to determine vehicle parking requirements. The ZBL has no minimum resident parking requirements, only maximum limits. However, a minimum visitor parking rate of two spaces plus 0.01 spaces per unit is required based on the site location being in Parking Zone 'A'. The subject development proposes seven visitor parking spaces, which will exceed the ZBL requirement. The maximum resident parking supply limits are summarized in Table 16 and the applicable excerpts from the ZBL are provided in Appendix J.

Table 16: Maximum Vehicle Parking Limits

Use	Units	Maximum Parking Rate (Space / Unit)	Maximum Space Limit	Supply	Under (-) / Over (+)
Bachelor (>45 m ²)	23	1.00	23	142	-142
One Bedroom	270	0.50	135		
Two Bedroom	136	0.80	108		
Three Bedroom or More	18	1.00	18		
Total Limit	447	0.64	284		

The proposed parking supply of 142 spaces for residents will not exceed the ZBL's maximum parking limits. However, despite compliance with the ZBL, justification of the proposed resident parking supply is provided below as per City staff requirements.

9.2.2 Resident Parking

A comparison was conducted of other similar developments with similar transit access and neighbourhood amenities, based on submitted and approved applications. The resident parking rates from these are summarized in Table 17.

Table 17: Resident Parking Rate Comparison

Location	Description	Available Transit	Rate (Space / Unit)	Rate Based On
50 Stephanie Street - Proposed Building	448 Apartments	TTC Streetcar & Subway	0.32	Proposed parking supply
50 Stephanie Street - Existing Building	285 Apartments	TTC Streetcar & Subway	0.24	Leased Parking Demand
164 Bathurst Street	155 Apartments 172 m ² Retail	TTC Streetcar & Subway	0.14	City Staff Report Recommendation dated, March 17, 2025
126 Peter Street	270 Apartments	TTC Streetcar & Subway	0.21	City Staff Report Recommendation dated, May 21, 2020
241 Richmond Street	459 Apartments 1,273 m ² Retail	TTC Streetcar & Subway	0.20	Site Specific By-law 851-2022
126 John Street	693 Apartments 8,462 m ² Retail	TTC Streetcar & Subway	0.17	City Staff Report Recommendation dated, February 5, 2021
147 Spadina Avenue	226 Apartments 351 m ² Retail	TTC Streetcar & Subway	0.13	City Staff Report Recommendation dated, September 29, 2023
234 Simcoe Street	902 Apartments	TTC Streetcar	0.22	Site Specific By-law 1251-2018

It is our opinion that the proxy sites show a pattern of reduced parking requirements for similar developments in the City with close proximity to an existing TTC Streetcar and subway routes. Therefore, it is our opinion that the proposed resident parking rate of 0.32 spaces / unit will exceed future parking demand.

9.2.3 Accessible Parking

According to the ZBL, the number of accessible parking spaces must not be less than 7% of the parking spaces provided based on the site location being in "Parking Zone 'A'". This will result in a minimum requirement of 11 spaces. The subject development proposes 11 accessible parking spaces, which will meet the ZBL requirement.

9.3 Loading

According to the ZBL, an apartment building containing 400 or more dwelling units is required to provide one Type 'G' and one Type 'C' loading space. While only one Type 'G' loading space is proposed, it is our opinion that this will sufficiently accommodate the site's loading needs. A Type 'G' loading space is designed to accommodate larger vehicles such as refuse collection trucks, while a Type 'C' loading space typically serves smaller delivery vehicles. Refuse collection is limited to scheduled pick-ups and outside of these times, the proposed Type 'G' loading space can also be used to accommodate deliveries that would otherwise utilize a Type 'C' space. Therefore, it is our opinion that the loading demand can be met by a single Type G' loading space without operational conflict.

10.0 Conclusions

10.1 Traffic Operations

Under existing and future conditions, all intersections are operating and will operate with excess capacity and a LOS of D or better, except for the following movements:

Queen Street West / Beverley Street

- Eastbound shared left / through movement operates over capacity with a LOS F during the PM peak hour.
- Southbound left turn movement operates with LOS F with excess capacity during the AM peak hour, due to high delays and operates over capacity with LOS F during the PM peak hour.
- Southbound right turn movement operates over capacity with LOS F during the PM peak hour.

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Existing and future vehicle queues during both the AM and PM peak hours are and will continue to be within their respective storage capacities, except for the following movements:

- Eastbound shared left / through movement during the PM peak hour under existing conditions and continue to exceed into future conditions.
- Southbound left movement during both peak hours under existing conditions and continue to exceed into future conditions.
- Southbound right movement during the PM peak hour existing conditions and continue to exceed into future conditions.

Field observations and turning movement counts indicate that high pedestrian activity is contributing to extended queues for the affected movements. Operational and queuing issues are primarily under existing and background conditions. Site traffic only contributes 1% of total volumes during the AM and PM peak hour at this intersection. It is recommended that the City monitor this intersection for possible future improvements.

Queen Street West / John Street

The northbound left turn queue exceeds its storage capacity under existing conditions and will continue to do so under future conditions. Field observations for this movement found that excess queues utilize the adjacent northbound through / right turn lane due to excess storage capacity. It is recommended that the City monitor this intersection for possible future improvements.

10.2 Site Plan Review

The site and garage are well designed to accommodate all modes of travel. Access and circulation analyses utilizing AutoTurn confirm that city refuse trucks can access the proposed loading spaces via the site driveways and the proposed underground garage will be able to accommodate passenger vehicles at all the ramps on all levels.

10.3 Transportation Demand Management

To further facilitate other modes of travel and reduce vehicle trips and parking demand, the following TDM measures are proposed:

- Internal secured bicycle storage for residents.
- Outdoor bicycle racks strategically placed at ground level near main entrances / lobbies for visitors.
- Bicycle repair stations located adjacent to bicycle storage room(s).
- Sidewalk connections from the building's entrances to the existing external sidewalk network along Beverley Street and Stephanie Street.
- An information package will be provided to residents, which will include TTC maps and schedules, cycling and trail maps.
- Consideration of transit subsidy for residents via a preloaded PRESTO pass for first time purchasers and/or renters. equivalent to a one-month TTC pass.

- Parking spaces will not be bundled with any units.
- Car share spaces will be provided in garage level P1 close the elevator lobbies.
- Significant parking supply reduction.

There is an existing non-auto use of 74% and these TDM measures are expected to further reduce vehicle trips, which will also reduce parking demand

10.4 Parking and Loading

Bicycle Parking

A total of 35 short-term bike spaces will be provided for visitors and will be located near the building's entrances, and 191 long-term resident bike spaces will be located within the building. The proposed bike parking supply will exceed the current requirements of the ZBL.

Vehicle Parking

A total of 142 parking spaces are proposed with 135 spaces for residents and seven spaces for visitors. According to the ZBL, based on the site falling within "Parking Zone A", the proposed supply will not exceed the maximum resident parking requirement and will meet the minimum visitor parking requirement.

A review was also conducted of other developments, which show a pattern of reduced parking requirements for similar development in the City and within close proximity to TTC Streetcar routes and t subway stations. Therefore, it is our opinion that the proposed parking supply will exceed future parking demand.

A total of 11 accessible spaces are proposed, which will meet the requirements of the ZBL.

Loading

An apartment building containing 400 or more dwelling units is required to provide one Type 'G' and one Type 'C' loading space. While only one Type 'G' loading space is proposed. It is our opinion that this will sufficiently accommodate the site's loading needs.



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Appendix A

Existing Traffic Volumes and Signal Timing Plans

Peak Hour Diagram

Specified Period

From: 07:00:00

To: 09:00:00

One Hour Peak

From: 08:00:00

To: 09:00:00

Intersection: Beverley St & Stephanie St - Phoebe St

Site Code: 2513200002

Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Beverley St runs N/S

North Approach

	Out	In	Total
	275	203	478
	11	15	26
	7	20	27
Totals	293	238	531

Beverley St

	3	3	0
	11	0	0
	198	77	0
Totals	212	80	0

↓ → ↻

East Approach

	Out	In	Total
	0	102	102
	0	2	2
	3	5	8
Totals	3	109	112

Phoebe St

			Totals	
6	2	23	31	
0	1	5	6	
1	0	3	4	

Peds: 5

Peds: 15



Peds: 35

Stephanie St

Totals			

Peds: 58

West Approach

	Out	In	Total
	31	0	31
	3	0	3
	7	4	11
Totals	41	4	45

Totals			
	180	20	0
	13	1	0
	14	0	1

Beverley St

South Approach

	Out	In	Total
	200	201	401
	14	11	25
	17	5	22
Totals	231	217	448

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Beverley St & Stephanie St - Phoebe St
Site Code: 2513200002
Count Date: May 22, 2025
Period: 07:00 - 09:00

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

Start Time	North Approach Beverley St						South Approach Beverley St						East Approach Stephanie St						West Approach Phoebe St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	11	31		0	1	42		42	5	0	8	47					7	0	7	0	1		5	8	97
08:15	20	35		0	1	55		53	5	0	11	58					8	0	7	3	1		2	11	124
08:30	15	71		0	1	86		51	5	0	18	56					10	0	8	0	2		4	10	152
08:45	34	75		0	2	109		61	6	1	21	68					10	0	9	3	0		4	12	189
Grand Total	80	212		0	5	292		207	21	1	58	229					35	0	31	6	4		15	41	562
Approach %	27.4	72.6		0	-	-		90.4	9.2	0.4	-	-					-	-	75.6	14.6	9.8		-	-	-
Totals %	14.2	37.7		0	-	52		36.8	3.7	0.2	-	40.7					0	-	5.5	1.1	0.7		-	7.3	-
PHF	0.59	0.71		0	-	0.67		0.85	0.88	0.25	-	0.84					0	-	0.86	0.5	0.5		0.85	0.74	-
Cars	77	198		0	-	275		180	20	0	-	200					0	-	23	5	3		31	-	506
% Cars	96.3	93.4		0	-	94.2		87	95.2	0	-	87.3					0	-	74.2	83.3	75		75.6	-	90
Trucks	0	11		0	-	11		13	1	0	-	14					0	-	2	1	0		3	-	28
% Trucks	0	5.2		0	-	3.8		6.3	4.8	0	-	6.1					0	-	6.5	16.7	0		7.3	-	5
Bicycles	3	3		0	-	6		14	0	1	-	15					0	-	6	0	1		7	-	28
% Bicycles	3.8	1.4		0	-	2.1		6.8	0	100	-	6.6					0	-	19.4	0	25		17.1	-	5
Peds					5	-					58	-					35	-					15	-	113
% Peds					4.4	-					51.3	-					31	-					13.3	-	-

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 17:00:00
To: 18:00:00

Intersection: Beverley St & Stephanie St - Phoebe St
Site Code: 2513200002
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Beverley St runs N/S

North Approach

	Out	In	Total
	204	348	552
	5	6	11
	24	39	63
Totals	233	393	626

Beverley St

	17	3	0
	3	2	0
	157	47	0
Totals	177	52	0

↓ → ↻

East Approach

	Out	In	Total
	0	74	74
	0	3	3
	6	7	13
Totals	6	84	90

Phoebe St

				Totals
	8	0	46	54 ↑
	1	0	9	10 →
	6	0	11	17 ↓

Peds: 20

Peds: 52



Peds: 54

Peds: 85

Stephanie St

Totals			

West Approach

	Out	In	Total
	66	0	66
	0	0	0
	15	9	24
Totals	81	9	90

Totals	↑	→	↻
	336	19	1
	6	1	0
	28	0	1

Beverley St

South Approach

	Out	In	Total
	320	168	488
	7	3	10
	34	24	58
Totals	361	195	556

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Beverley St & Stephanie St - Phoebe St
Site Code: 2513200002
Count Date: May 22, 2025
Period: 16:00 - 18:00

Peak Hour Data (17:00 - 18:00)

Start Time	North Approach Beverley St						South Approach Beverley St						East Approach Stephanie St						West Approach Phoebe St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
17:00	9	45		0	5	54		77	5	0	17	82					8	0	6	1	3		8	10	146
17:15	15	45		0	3	60		67	4	0	38	71					14	0	20	5	4		15	29	160
17:30	17	47		0	7	64		101	5	0	16	106					16	0	15	1	5		13	21	191
17:45	11	40		0	5	51		91	5	1	14	97					16	0	13	3	5		16	21	169
Grand Total	52	177		0	20	229		336	19	1	85	356					54	0	54	10	17		52	81	666
Approach %	22.7	77.3		0	-	-		94.4	5.3	0.3	-	-					-	-	66.7	12.3	21		-	-	-
Totals %	7.8	26.6		0		34.4		50.5	2.9	0.2		53.5					0		8.1	1.5	2.6			12.2	
PHF	0.76	0.94		0		0.89		0.83	0.95	0.25		0.84					0		0.68	0.5	0.85		0.7		0.87
Cars	47	157		0		204		302	18	0		320					0		46	9	11		66		590
% Cars	90.4	88.7		0		89.1		89.9	94.7	0		89.9					0		85.2	90	64.7		81.5		88.6
Trucks	2	3		0		5		6	1	0		7					0		0	0	0		0		12
% Trucks	3.8	1.7		0		2.2		1.8	5.3	0		2					0		0	0	0		0		1.8
Bicycles	3	17		0		20		28	0	1		29					0		8	1	6		15		64
% Bicycles	5.8	9.6		0		8.7		8.3	0	100		8.1					0		14.8	10	35.3		18.5		9.6
Peds					20	-					85	-					54	-					52	-	211
% Peds					9.5	-					40.3	-					25.6	-					24.6	-	

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: Beverley St & Queen St W
Site Code: 2513200001
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Queen St W runs E/W

North Approach

	Out	In	Total
	178	190	368
	10	14	24
	6	5	11
Totals	194	209	403

Beverley St

	0	6	0
	7	3	0
	90	88	0
Totals	97	97	0





East Approach

	Out	In	Total
	282	391	673
	23	31	54
	11	16	27
Totals	316	438	754

Queen St W

				Totals
0	0	0	0	0
2	11	116	129	129
10	28	303	341	341





Peds: 193

Peds: 0



Peds: 0

Queen St W

Totals			
0	0	0	0
80	74	3	3
236	208	20	8





Peds: 43

West Approach

	Out	In	Total
	419	298	717
	39	27	66
	12	8	20
Totals	470	333	803

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Beverley St & Queen St W
Site Code: 2513200001
Count Date: May 22, 2025
Period: 07:00 - 09:00

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

Start Time	North Approach Beverley St						South Approach						East Approach Queen St W						West Approach Queen St W						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	13		18	0	28	31					3			46	21	0	0	67	36	86		0	0	122	220
08:15	26		18	0	50	44					13			50	18	0	0	68	25	84		0	0	109	221
08:30	30		31	0	46	61					9			66	21	0	0	87	32	98		0	0	130	278
08:45	28		30	0	69	58					18			74	20	0	0	94	36	73		0	0	109	261
Grand Total	97		97	0	193	194					43	0		236	80	0	0	316	129	341		0	0	470	980
Approach %	50		50	0	-	-					-	-		74.7	25.3	0	-	-	27.4	72.6		0	-	-	-
Totals %	9.9		9.9	0	19.8	-					0	-		24.1	8.2	0	-	32.2	13.2	34.8		0	-	48	-
PHF	0.81		0.78	0	0.8	-					0	-		0.8	0.95	0	-	0.84	0.9	0.87		0	-	0.9	0.88
Cars	88		90	0	178	-					0	-		208	74	0	-	282	116	303		0	-	419	879
% Cars	90.7		92.8	0	91.8	-					0	-		88.1	92.5	0	-	89.2	89.9	88.9		0	-	89.1	89.7
Trucks	3		7	0	10	-					0	-		20	3	0	-	23	11	28		0	-	39	72
% Trucks	3.1		7.2	0	5.2	-					0	-		8.5	3.8	0	-	7.3	8.5	8.2		0	-	8.3	7.3
Bicycles	6		0	0	6	-					0	-		8	3	0	-	11	2	10		0	-	12	29
% Bicycles	6.2		0	0	3.1	-					0	-		3.4	3.8	0	-	3.5	1.6	2.9		0	-	2.6	3
Peds					193	-					43	-					0	-					0	-	236
% Peds					81.8	-					18.2	-					0	-					0	-	-

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 16:45:00
To: 17:45:00

Intersection: Beverley St & Queen St W
Site Code: 2513200001
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Queen St W runs E/W

North Approach

	Out	In	Total
	142	264	406
	2	4	6
	38	53	91
Totals	182	321	503

Beverley St

	24	11	3
	2	0	0
	97	45	0
Totals	123	56	3





East Approach

	Out	In	Total
	466	287	753
	30	29	59
	59	42	101
Totals	555	358	913

Queen St W

				Totals
	0	0	7	7
	31	2	149	182
	31	29	242	302





Peds: 18

Peds: 736



Peds: 8

Peds: 173

Queen St W

Totals			
0	0	0	0
136	115	2	19
419	351	28	40





West Approach

	Out	In	Total
	398	455	853
	31	30	61
	62	64	126
Totals	491	549	1040

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Beverley St & Queen St W
Site Code: 2513200001
Count Date: May 22, 2025
Period: 16:00 - 18:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Beverley St						South Approach						East Approach Queen St W						West Approach Queen St W						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:45	13		32	1	150	46					31			102	30	0	3	132	48	84		2	4	134	312
17:00	10		35	1	181	46					43			90	26	0	4	116	40	55		0	3	95	257
17:15	18		29	1	192	48					47			113	32	0	0	145	39	75		4	6	118	311
17:30	15		27	0	213	42					52			114	48	0	1	162	55	88		1	5	144	348
Grand Total	56		123	3	736	182					173	0		419	136	0	8	555	182	302		7	18	491	1228
Approach %	30.8		67.6	1.6	-	-					-	-		75.5	24.5	0	-	-	37.1	61.5		1.4	-	-	-
Totals %	4.6		10	0.2	14.8						0			34.1	11.1	0	45.2		14.8	24.6		0.6		40	
PHF	0.78		0.88	0.75	0.95						0			0.92	0.71	0	0.86		0.83	0.86		0.44		0.85	0.88
Cars	45		97	0	142						0			351	115	0	466		149	242		7		398	1006
% Cars	80.4		78.9	0	78						0			83.8	84.6	0	84		81.9	80.1		100		81.1	81.9
Trucks	0		2	0	2						0			28	2	0	30		2	29		0		31	63
% Trucks	0		1.6	0	1.1						0			6.7	1.5	0	5.4		1.1	9.6		0		6.3	5.1
Bicycles	11		24	3	38						0			40	19	0	59		31	31		0		62	159
% Bicycles	19.6		19.5	100	20.9						0			9.5	14	0	10.6		17	10.3		0		12.6	12.9
Peds					736	-					173	-					8	-					18	-	935
% Peds					78.7	-					18.5	-					0.9	-					1.9	-	

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: Stephanie St & Site Driveway (west)
Site Code: 2513200006
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Stephanie St runs E/W

North Approach

	Out	In	Total
	4	0	4
	0	0	0
	3	0	3
	7	0	7

Site Driveway (west)

	0	0
	0	0
	4	0
Totals	4	0

→ ↻

East Approach

	Out	In	Total
	0	106	106
	0	2	2
	5	10	15
	5	118	123

Stephanie St

				Totals
	0	0	0	0
	10	2	102	114

↻ →

Peds: 18

Peds: 44



Peds: 0

Peds: 35

Stephanie St

Totals			

West Approach

	Out	In	Total
	102	0	102
	2	0	2
	10	8	18
	114	8	122

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Stephanie St & Site Driveway (west)
 Site Code: 2513200006
 Count Date: May 22, 2025
 Period: 07:00 - 09:00

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

	North Approach Site Driveway (west)						South Approach						East Approach Stephanie St						West Approach Stephanie St						Total Vehicl es
Start Time	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	1			0	9	1					7					0	0	0	17			4	17	18	
08:15	1			0	10	1					9					0	0	0	27			5	27	28	
08:30	1			0	10	1					7					0	0	0	26			4	26	27	
08:45	1			0	15	1					12					0	0	0	44			5	44	45	
Grand Total	4	0				44	4	35				0	0				0	114				18	114	118	
Approach %	100	0				-		-					-					0	100		-				
Totals %	3.4	0				3.4		0					0					0	96.6		96.6				
PHF	1	0				1		0					0					0	0.65		0.65				0.66
Cars	4	0				4		0					0					0	102		102				106
% Cars	100	0				100		0					0					0	89.5		89.5				89.8
Trucks	0	0				0		0					0					0	2		2				2
% Trucks	0	0				0		0					0					0	1.8		1.8				1.7
Bicycles	0	0				0		0					0					0	10		10				10
% Bicycles	0	0				0		0					0					0	8.8		8.8				8.5
Peds		44				-		35				-		0				-		18				-	97
% Peds		45.4				-		36.1				-		0				-		18.6				-	

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 17:00:00
To: 18:00:00

Intersection: Stephanie St & Site Driveway (west)
Site Code: 2513200006
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Stephanie St runs E/W

North Approach

	Out	In	Total
	7	0	7
	0	0	0
	2	2	4
	9	2	11

Site Driveway (west)

	0	0
	0	0
	7	0
Totals	7	0

East Approach

	Out	In	Total
	0	80	80
	0	3	3
	24	15	39
	24	98	122

Stephanie St

			Totals
2	0	0	2 
15	3	73	91 

Peds: 44

Peds: 72



Peds: 56

Peds: 0

Stephanie St

Totals			

West Approach

	Out	In	Total
	73	0	73
	3	0	3
	17	26	43
	93	26	119

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Stephanie St & Site Driveway (west)
 Site Code: 2513200006
 Count Date: May 22, 2025
 Period: 16:00 - 18:00

Peak Hour Data (17:00 - 18:00)

	North Approach Site Driveway (west)						South Approach						East Approach Stephanie St						West Approach Stephanie St						Total Vehicl es		
Start Time	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total			
17:00	2				0	11	2											0	0	0	19				11	19	21
17:15	1				0	15	1											0	0	0	24				9	24	25
17:30	3				0	23	3											0	0	1	27				13	28	31
17:45	1				0	23	1											0	0	1	21				11	22	23
Grand Total	7				0	72	7											0	0	2	91				44	93	100
Approach %	100				0	-												-	-	2.2	97.8				-		
Totals %	7				0	7												0	0	2	91				93		
PHF	0.58				0	0.58												0	0	0.5	0.84				0.83	0.81	
Cars	7				0	7												0	0	0	73				73	80	
% Cars	100				0	100												0	0	0	80.2				78.5	80	
Trucks	0				0	0												0	0	0	3				3	3	
% Trucks	0				0	0												0	0	0	3.3				3.2	3	
Bicycles	0				0	0												0	0	2	15				17	17	
% Bicycles	0				0	0												0	0	100	16.5				18.3	17	
Peds					72	-												56	-						44	-	172
% Peds					41.9	-												32.6	-						25.6	-	

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: Stephanie St & John St
Site Code: 2513200003
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Stephanie St runs E/W

East Approach

	Out	In	Total
	0	72	72
	0	3	3
	1	11	12
	1	86	87

Stephanie St

			Totals
7	1	37	45 →
8	1	62	71 ↓

Peds: 71

Peds: 112



Peds: 69

Peds: 15

Stephanie St

Totals			

West Approach

	Out	In	Total
	99	0	99
	2	0	2
	15	3	18
	116	3	119

Totals		
	41	4
	35	4
	2	0
	4	0

John St

South Approach

	Out	In	Total
	39	66	105
	2	1	3
	6	8	14
	47	75	122

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Stephanie St & John St
Site Code: 2513200003
Count Date: May 22, 2025
Period: 07:00 - 09:00

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

	North Approach						South Approach John St						East Approach Stephanie St						West Approach Stephanie St						Total Vehicl es						
Start Time					Peds	Total					Peds	Total					Peds	Total					Peds	Total							
08:00					17						8	0	3	8					10	0					13	8			29	21	29
08:15					11						6	0	2	6					19	0					9	16			25	25	31
08:30					21						13	1	3	14					18	0					8	18			31	26	40
08:45					22						14	3	7	17					22	0					15	29			27	44	61
Grand Total					71	0					41	4	15	45					69	0					45	71	112	116	161		
Approach %					-						91.1	8.9	-						-						38.8	61.2	-				
Totals %					0						25.5	2.5	28						0						28	44.1	72				
PHF					0						0.73	0.33	0.66						0						0.75	0.61	0.66	0.66			
Cars					0						35	4	39						0						37	62	99	138			
% Cars					0						85.4	100	86.7						0						82.2	87.3	85.3	85.7			
Trucks					0						2	0	2						0						1	1	2	4			
% Trucks					0						4.9	0	4.4						0						2.2	1.4	1.7	2.5			
Bicycles					0						4	0	4						0						7	8	15	19			
% Bicycles					0						9.8	0	8.9						0						15.6	11.3	12.9	11.8			
Peds					71	-					15	-							69	-					112	-		267			
% Peds					26.6	-					5.6	-							25.8	-					41.9	-					

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 17:00:00
To: 18:00:00

Intersection: Stephanie St & John St
Site Code: 2513200003
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Stephanie St runs E/W

East Approach

	Out	In	Total
	0	95	95
	0	5	5
	5	12	17
	5	112	117

Stephanie St

			Totals
2	5	29	36 →
13	0	41	54 ↓

Peds: 105

Peds: 196



Peds: 76

Peds: 26

Stephanie St

Totals			

West Approach

	Out	In	Total
	70	0	70
	5	0	5
	15	23	38
	90	23	113

Totals	76	2
	66	0
	0	0
	10	2

South Approach

	Out	In	Total
	66	41	107
	0	0	0
	34	19	53
	100	60	160

John St

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Stephanie St & John St
Site Code: 2513200003
Count Date: May 22, 2025
Period: 16:00 - 18:00

Peak Hour Data (17:00 - 18:00)

	North Approach						South Approach John St						East Approach Stephanie St						West Approach Stephanie St						Total Vehicl es					
Start Time	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total						
17:00					19						14	0	6	14					21	0					10	9		46	19	33
17:15					32						20	0	14	20					25	0					9	16		43	25	45
17:30					25						26	0	4	26					17	0					10	16		50	26	52
17:45					29						16	2	2	18					13	0					7	13		57	20	38
Grand Total					105	0					76	2	26	78					76	0					36	54	196	90	168	
Approach %					-						97.4	2.6	-						-						40	60	-			
Totals %					0						45.2	1.2	46.4						0						21.4	32.1	53.6			
PHF					0						0.73	0.25	0.75						0						0.9	0.84	0.87	0.81		
Cars					0						66	0	66						0						29	41	70	136		
% Cars					0						86.8	0	84.6						0						80.6	75.9	77.8	81		
Trucks					0						0	0	0						0						5	0	5	5		
% Trucks					0						0	0	0						0						13.9	0	5.6	3		
Bicycles					0						10	2	12						0						2	13	15	27		
% Bicycles					0						13.2	100	15.4						0						5.6	24.1	16.7	16.1		
Peds					105	-					26	-							76	-					196	-		403		
% Peds					26.1	-					6.5	-							18.9	-					48.6	-				

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: John St & Queen St W
Site Code: 2513200004
Count Date: May 22, 2025

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Queen St W runs E/W

North Approach

	Out	In	Total
	92	83	175
	6	3	9
	9	7	16
Totals	107	93	200

John St

	1	7	1	0
	0	1	4	1
	25	34	28	5
Totals	26	42	33	6






East Approach

	Out	In	Total
	196	455	651
	19	40	59
	12	19	31
Totals	227	514	741

Queen St W

				Totals
	1	0	2	3
	0	0	6	6
	13	29	292	334
	12	3	89	104

Peds: 149

Peds: 93



Peds: 160

Peds: 272

Queen St W

Totals			
	2	0	1
	12	10	2
	161	141	15
	52	45	1

West Approach

	Out	In	Total
	389	284	673
	32	26	58
	26	10	36
Totals	447	320	767

				
Totals	130	69	145	1
	116	62	135	0
	11	0	6	0
	3	7	4	1

John St

South Approach

	Out	In	Total
	313	168	481
	17	5	22
	15	26	41
Totals	345	199	544

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: John St & Queen St W
Site Code: 2513200004
Count Date: May 22, 2025
Period: 07:00 - 09:00

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

Start Time	North Approach John St						South Approach John St						East Approach Queen St W						West Approach Queen St W						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	8	11	5	0	14	24	27	14	27	0	44	68	13	38	3	0	24	54	1	75	24	0	30	100	246
08:15	9	8	4	0	21	21	25	14	33	1	55	73	14	34	1	1	41	50	0	88	26	1	37	115	259
08:30	9	7	6	0	33	22	35	14	37	0	76	86	14	45	5	1	50	65	1	96	30	0	41	127	300
08:45	7	16	11	6	25	40	43	27	48	0	97	118	11	44	3	0	45	58	4	75	24	2	41	105	321
Grand Total	33	42	26	6	93	107	130	69	145	1	272	345	52	161	12	2	160	227	6	334	104	3	149	447	1126
Approach %	30.8	39.3	24.3	5.6	-	-	37.7	20	42	0.3	-	-	22.9	70.9	5.3	0.9	-	-	1.3	74.7	23.3	0.7	-	-	-
Totals %	2.9	3.7	2.3	0.5	9.5	11.5	6.1	12.9	0.1	30.6	4.6	14.3	1.1	0.2	20.2	0.5	29.7	9.2	0.3	39.7					
PHF	0.92	0.66	0.59	0.25	0.67	0.76	0.64	0.76	0.25	0.73	0.93	0.89	0.6	0.5	0.87	0.38	0.87	0.87	0.38	0.88	0.88				
Cars	28	34	25	5	92	116	62	135	0	313	45	141	10	0	196	6	292	89	2	389					990
% Cars	84.8	81	96.2	83.3	86	89.2	89.9	93.1	0	90.7	86.5	87.6	83.3	0	86.3	100	87.4	85.6	66.7	87					87.9
Trucks	4	1	0	1	6	11	0	6	0	17	1	15	2	1	19	0	29	3	0	32					74
% Trucks	12.1	2.4	0	16.7	5.6	8.5	0	4.1	0	4.9	1.9	9.3	16.7	50	8.4	0	8.7	2.9	0	7.2					6.6
Bicycles	1	7	1	0	9	3	7	4	1	15	6	5	0	1	12	0	13	12	1	26					62
% Bicycles	3	16.7	3.8	0	8.4	2.3	10.1	2.8	100	4.3	11.5	3.1	0	50	5.3	0	3.9	11.5	33.3	5.8					5.5
Peds					93					272					160					149					674
% Peds					13.8					40.4					23.7					22.1					

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 17:00:00
To: 18:00:00

Intersection: John St & Queen St W
Site Code: 2513200004
Count Date: May 22, 2025

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Queen St W runs E/W

North Approach

	Out	In	Total
	46	79	125
	0	1	1
	55	54	109
Totals	101	134	235

John St

	14	33	8	0
	0	0	0	0
	9	28	9	0
Totals	23	61	17	0






East Approach

	Out	In	Total
	431	283	714
	27	25	52
	75	106	181
Totals	533	414	947

Queen St W

				Totals
	2	0	0	2
	9	0	12	21
	73	24	212	309
	42	3	60	105






Peds: 377

Peds: 420



Peds: 325

Peds: 739

Queen St W

Totals			
1	0	0	1
15	7	1	7
451	389	23	39
66	35	3	28






West Approach

	Out	In	Total
	284	494	778
	27	30	57
	126	95	221
Totals	437	619	1056

				
Totals	143	98	87	2
	96	60	62	0
	7	0	1	0
	40	38	24	2

John St

South Approach

	Out	In	Total
	218	123	341
	8	6	14
	104	105	209
Totals	330	234	564

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: John St & Queen St W
Site Code: 2513200004
Count Date: May 22, 2025
Period: 16:00 - 18:00

Peak Hour Data (17:00 - 18:00)

Start Time	North Approach John St						South Approach John St						East Approach Queen St W						West Approach Queen St W						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
17:00	1	13	3	0	122	17	29	22	23	0	179	74	27	94	2	0	81	123	6	66	22	1	87	95	309
17:15	8	14	11	0	96	33	42	38	17	1	182	98	16	103	1	1	72	121	4	88	34	0	102	126	378
17:30	3	14	3	0	110	20	38	18	17	1	181	74	7	129	8	0	79	144	2	87	18	0	89	107	345
17:45	5	20	6	0	92	31	34	20	30	0	197	84	16	125	4	0	93	145	9	68	31	1	99	109	369
Grand Total	17	61	23	0	420	101	143	98	87	2	739	330	66	451	15	1	325	533	21	309	105	2	377	437	1401
Approach %	16.8	60.4	22.8	0	-	-	43.3	29.7	26.4	0.6	-	-	12.4	84.6	2.8	0.2	-	-	4.8	70.7	24	0.5	-	-	-
Totals %	1.2	4.4	1.6	0	7.2	10.2	7	6.2	0.1	23.6	4.7	32.2	1.1	0.1	38	1.5	22.1	7.5	0.1	31.2					
PHF	0.53	0.76	0.52	0	0.77	0.85	0.64	0.73	0.5	0.84	0.61	0.87	0.47	0.25	0.92	0.58	0.88	0.77	0.5	0.87	0.93				
Cars	9	28	9	0	46	96	60	62	0	218	35	389	7	0	431	12	212	60	0	284	979				
% Cars	52.9	45.9	39.1	0	45.5	67.1	61.2	71.3	0	66.1	53	86.3	46.7	0	80.9	57.1	68.6	57.1	0	65	69.9				
Trucks	0	0	0	0	0	7	0	1	0	8	3	23	1	0	27	0	24	3	0	27	62				
% Trucks	0	0	0	0	0	4.9	0	1.1	0	2.4	4.5	5.1	6.7	0	5.1	0	7.8	2.9	0	6.2	4.4				
Bicycles	8	33	14	0	55	40	38	24	2	104	28	39	7	1	75	9	73	42	2	126	360				
% Bicycles	47.1	54.1	60.9	0	54.5	28	38.8	27.6	100	31.5	42.4	8.6	46.7	100	14.1	42.9	23.6	40	100	28.8	25.7				
Peds					420					739					325					377					1861
% Peds					22.6					39.7					17.5					20.3					

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: Stephanie St & Site Driveway (east)
Site Code: 2513200005
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Stephanie St runs E/W

North Approach

	Out	In	Total
	0	4	4
	0	0	0
	2	0	2
	2	4	6

Site Driveway (east)

	1	0
	0	0
	0	0
Totals	1	0

East Approach

	Out	In	Total
	0	99	99
	0	2	2
	4	13	17
	4	114	118

Stephanie St

			Totals	
0	0	4	4	
12	2	99	113	

Peds: 40

Peds: 4



Peds: 17

Peds: 37

Stephanie St

Totals			
---------------	---	---	---

West Approach

	Out	In	Total
	103	0	103
	2	0	2
	12	5	17
	117	5	122

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Stephanie St & Site Driveway (east)
 Site Code: 2513200005
 Count Date: May 22, 2025
 Period: 07:00 - 09:00

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

Start Time	North Approach Site Driveway (east)						South Approach						East Approach Stephanie St						West Approach Stephanie St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0				8	0					8						5	0	1	20			2	21	21
08:15	0				7	0					4						2	0	2	24			1	26	26
08:30	1				8	1					7						5	0	0	26			0	26	27
08:45	0				17	0					18						5	0	1	43			1	44	44
Grand Total	1				40	1					37	0					17	0	4	113			4	117	118
Approach %	100				0	-					-						-		3.4	96.6			-		
Totals %	0.8				0	0.8					0						0		3.4	95.8			99.2		
PHF	0.25				0	0.25					0						0		0.5	0.66			0.66		0.67
Cars	0				0	0					0						0		4	99			103		103
% Cars	0				0	0					0						0		100	87.6			88		87.3
Trucks	0				0	0					0						0		0	2			2		2
% Trucks	0				0	0					0						0		0	1.8			1.7		1.7
Bicycles	1				0	1					0						0		0	12			12		13
% Bicycles	100				0	100					0						0		0	10.6			10.3		11
Peds					40	-					37	-					17	-					4	-	98
% Peds					40.8	-					37.8	-					17.3	-					4.1	-	

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 17:00:00
To: 18:00:00

Intersection: Stephanie St & Site Driveway (east)
Site Code: 2513200005
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Stephanie St runs E/W

North Approach

	Out	In	Total
	0	11	11
	0	0	0
	3	3	6
Totals	3	14	17

Site Driveway (east)

	3	0
	0	0
	0	0
Totals	3	0

East Approach

	Out	In	Total
	0	70	70
	0	5	5
	27	21	48
Totals	27	96	123

Stephanie St

				Totals
	0	0	11	11 
	18	5	70	93 

Peds: 4

Peds: 49



Peds: 11

Peds: 63

Stephanie St

Totals			

West Approach

	Out	In	Total
	81	0	81
	5	0	5
	18	24	42
Totals	104	24	128

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Stephanie St & Site Driveway (east)
Site Code: 2513200005
Count Date: May 22, 2025
Period: 16:00 - 18:00

Peak Hour Data (17:00 - 18:00)

	North Approach Site Driveway (east)						South Approach						East Approach Stephanie St						West Approach Stephanie St						Total Vehicles	
Start Time	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
17:00	0			0	8	0						14						4	0	3	21			0	24	24
17:15	2			0	15	2						27					3	0	1	24			1	25	27	
17:30	0			0	15	0						15					2	0	3	27			2	30	30	
17:45	1			0	11	1						7					2	0	4	21			1	25	26	
Grand Total	3			0	49	3					63	0						11	0	11	93		4	104	107	
Approach %	100			0		-					-	-						-	-	10.6	89.4		-			
Totals %	2.8			0		2.8					0	0						0	0	10.3	86.9		97.2			
PHF	0.38			0		0.38					0	0						0	0	0.69	0.86		0.87	0.89		
Cars	0			0		0					0	0						0	0	11	70		81	81		
% Cars	0			0		0					0	0						0	0	100	75.3		77.9	75.7		
Trucks	0			0		0					0	0						0	0	0	5		5	5		
% Trucks	0			0		0					0	0						0	0	0	5.4		4.8	4.7		
Bicycles	3			0		3					0	0						0	0	0	18		18	21		
% Bicycles	100			0		100					0	0						0	0	0	19.4		17.3	19.6		
Peds					49	-					63	-						11	-				4	-	127	
% Peds					38.6	-					49.6	-						8.7	-				3.1	-		

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: Beverley St & Underground Garage Driveway
Site Code: 2513200007
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Beverley St runs N/S

North Approach

	Out	In	Total
	270	199	469
	10	15	25
	15	8	23
Totals	295	222	517

Beverley St

	15	0	0
	10	0	0
	269	0	1
Totals	294	0	1

↓ ↘ ↻

East Approach

	Out	In	Total
	10	9	19
	0	0	0
	0	0	0
Totals	10	9	19

Peds: 6



Underground Garage Driveway

Totals			
0	0	0	0
6	6	0	0
4	4	0	0

↻ ↙ ↓

	215	9	3
	192	9	2
	15	0	1
	8	0	0
Totals	215	9	3

↑ ↘ ↻

Beverley St

South Approach

	Out	In	Total
	203	275	478
	16	11	27
	8	18	26
Totals	227	304	531

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Beverley St & Underground Garage Driveway
Site Code: 2513200007
Count Date: May 22, 2025
Period: 07:00 - 09:00

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

	North Approach Beverley St						South Approach Beverley St						East Approach Underground Garage Driveway						West Approach						Total Vehicl es
Start Time	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	42		0	2	42		47	1	1	0	49	1		2	0	8	3					1		94
08:15	0	52		0	0	52		55	1	1	1	57	2		1	0	8	3					0		112
08:30	0	90		0	3	90		56	3	0	0	59	1		2	0	10	3					6		152
08:45	0	110		1	1	111		57	4	1	0	62	0		1	0	11	1					0		174
Grand Total	0	294		1	6	295		215	9	3	1	227	4		6	0	37	10					7	0	532
Approach %	0	99.7		0.3	-	-		94.7	4	1.3	-	-	40		60	0	-	-					-	-	-
Totals %	0	55.3		0.2	-	55.5		40.4	1.7	0.6	-	42.7	0.8		1.1	0	-	1.9					0	-	-
PHF	0	0.67		0.25	-	0.66		0.94	0.56	0.75	-	0.92	0.5		0.75	0	-	0.83					0	-	0.76
Cars	0	269		1	-	270		192	9	2	-	203	4		6	0	-	10					0	-	483
% Cars	0	91.5		100	-	91.5		89.3	100	66.7	-	89.4	100		100	0	-	100					0	-	90.8
Trucks	0	10		0	-	10		15	0	1	-	16	0		0	0	-	0					0	-	26
% Trucks	0	3.4		0	-	3.4		7	0	33.3	-	7	0		0	0	-	0					0	-	4.9
Bicycles	0	15		0	-	15		8	0	0	-	8	0		0	0	-	0					0	-	23
% Bicycles	0	5.1		0	-	5.1		3.7	0	0	-	3.5	0		0	0	-	0					0	-	4.3
Peds					6	-					1	-					37	-					7	-	51
% Peds					11.8	-					2	-					72.5	-					13.7	-	-

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 17:00:00
To: 18:00:00

Intersection: Beverley St & Underground Garage Driveway
Site Code: 2513200007
Count Date: May 22, 2025

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Beverley St runs N/S

North Approach

	Out	In	Total
	201	344	545
	6	7	13
	34	33	67
Totals	241	384	625

Beverley St

	34	0	0
	5	0	1
	198	1	2
Totals	237	1	3

Peds: 6



Peds: 3

Totals	378	8	1
	339	8	1
	6	0	0
	33	0	0

Beverley St

East Approach

	Out	In	Total
	7	9	16
	0	0	0
	0	0	0
Totals	7	9	16

Underground Garage Driveway

Totals			
0	0	0	0
3	3	0	0
4	4	0	0

South Approach

	Out	In	Total
	348	203	551
	6	5	11
	33	35	68
Totals	387	243	630

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Beverley St & Underground Garage Driveway
 Site Code: 2513200007
 Count Date: May 22, 2025
 Period: 16:00 - 18:00

Peak Hour Data (17:00 - 18:00)

	North Approach Beverley St						South Approach Beverley St						East Approach Underground Garage Driveway						West Approach						Total Vehicl es				
Start Time	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total					
17:00	0	59		0	0	59		71	3	1	0	75	1		0	0	15	1					5		135				
17:15	1	58		2	2	61		90	1	0	3	91	2		0	0	18	2					15		154				
17:30	0	68		1	2	69		117	2	0	0	119	1		1	0	15	2					8		190				
17:45	0	52		0	2	52		100	2	0	0	102	0		2	0	18	2					7		156				
Grand Total	1	237		3	6	241		378	8	1	3	387	4		3	0	66	7					35	0	635				
Approach %	0.4	98.3		1.2		-		97.7	2.1	0.3		-	57.1		42.9	0		-					-						
Totals %	0.2	37.3		0.5		38		59.5	1.3	0.2		60.9	0.6		0.5	0		1.1					0						
PHF	0.25	0.87		0.38		0.87		0.81	0.67	0.25		0.81	0.5		0.38	0		0.88					0		0.84				
Cars	1	198		2		201		339	8	1		348	4		3	0		7					0		556				
% Cars	100	83.5		66.7		83.4		89.7	100	100		89.9	100		100	0		100					0		87.6				
Trucks	0	5		1		6		6	0	0		6	0		0	0		0					0		12				
% Trucks	0	2.1		33.3		2.5		1.6	0	0		1.6	0		0	0		0					0		1.9				
Bicycles	0	34		0		34		33	0	0		33	0		0	0		0					0		67				
% Bicycles	0	14.3		0		14.1		8.7	0	0		8.5	0		0	0		0					0		10.6				
Peds						6	-						3	-						66	-						35	-	110
% Peds						5.5	-						2.7	-						60	-						31.8	-	

LOCATION: Queen St W & John St MODE/COMMENT: FT with TSP* TCS: 1461 PREPARED BY / DATE: RanaJamil Iftikhar / Jaunary 18, 2021 CHECKED BY / DATE: IMPLEMENTATION DATE: January 18, 2021								ATO / DISTRICT / WARD: Area 1 / Toronto & East York / Ward 10 COMPUTER SYSTEM: TransSuite CONTROLLER/CABINET TYPE: Peek ATC-1000 / TS2 T1 CONFLICT FLASH: Red & Red DESIGN WALK SPEED: 1.0 m/s (FDW based on full crossing at 1.2 m/s) CHANNEL/DROP: 4003/33 FIRMWARE VERSION: 3.018.1.2976								N ↑	
NEMA Phase		OFF	AM	PM	NGHT	WKND	Gardiner Closure	Phase Mode (Fixed/Demanded or Callable)	Remarks								
		All Other Times	06:30-09:30 M-F	15:00-19:00 M-F	23:00-06:30 Daily	09:00-21:00 Sat & Sun											
		Local Plan Pattern 1 Split Table	Pattern 1 Split 1	Pattern 2 Split 2	Pattern 3 Split 3	Pattern 4 Split 4				Pattern 5 Split 5	Pattern 16 Split 16						
1		WLK FDW MIN MAX1 AMB ALR SPLIT							Pedestrian Minimums: EWWK = 7 sec, EWFD = 10 sec NSWK = 7 sec, NSFD = 12 sec *See back for TSP instructions TSP re-enabled on October 6, 2017 for EB and WB:								
2	Queen St W 	WLK 7 FDW 10 MIN 17 MAX1 51 AMB 3.0 ALR 2.4 SPLIT	57	61	63	59	57	65	Fixed POZ activated by Request Loop (max extension of 30 secs in Green/WLK) TSP temporarily disabled on January 18, 2021 during bus replacement for 501 Queen routes.								
3		WLK FDW MIN MAX1 AMB ALR SPLIT															
4	John St 	WLK 7 FDW 12 MIN 19 MAX1 21 AMB 3.0 ALR 3.0 SPLIT	27	29	27	25	27	29	Fixed (Truncation allowable to PED min)								
5		WLK FDW MIN MAX1 AMB ALR SPLIT															
6	Queen St W 	WLK 7 FDW 10 MIN 17 MAX1 51 AMB 3.0 ALR 2.4 SPLIT	57	61	63	59	57	65	Fixed POZ activated by Request Loop (max extension of 30 secs in Green/WLK)								
7		WLK FDW MIN MAX1 AMB ALR SPLIT															
8	John St 	WLK 7 FDW 12 MIN 19 MAX1 21 AMB 3.0 ALR 3.0 SPLIT	27	29	27	25	27	29	Fixed (Truncation allowable to PED min)								
		CL OF	84 32	90 7	90 25	84 18	84 57	94 57									

Notes:

LOC: Queen St W & John St.
MODE: FT & TSP
TCS: 1461 PREPARATION DATE (TIMING CARD): March 5, 2020

OFFSET CORRECTION PARAMETERS

2.3.4 O.C. Extend / Reduce (Max. time added & subtracted in sec.) From page 1

			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8		
OFF												
Split 1	Ext.	--	14	--	14	--	14	--	14		84	15
	Rdc.	--	13	--	2	--	13	--	2			
AM												
Split 2	Ext.	--	15	--	15	--	15	--	15		90	15
	Rdc.	--	11	--	4	--	11	--	4			
PM												
Split 3	Ext.	--	15	--	15	--	15	--	15		90	15
	Rdc.	--	13	--	2	--	13	--	2			
NGHT												
Split 4	Ext.	--	14	--	14	--	14	--	14		84	15
	Rdc.	--	15	--	--	--	15	--	--			
WKND												
Split 5	Ext.	--	14	--	14	--	14	--	14		84	15
	Rdc.	--	13	--	2	--	13	--	2			
GARDINER												
Split 16	Ext.	--	16	--	16	--	16	--	16		94	15
	Rdc.	--	11	--	4	--	11	--	4			

OC Thres set to 30s so that OC will typically use -TSP Recovery, which will reduce wait times on the side street and can help get the controller back in sync faster.

T.S.P. PARAMETERS

PREPARED: HDR

	TSP RUN # 2	TSP RUN # 6
	EB Thru	WB Thru

2.8.2 Transit Run Parameters

	Mode 2	Mode 2
ATC Green Extend Mode (Equivalent TTC Algorithm)	A	A

2.8.3 Transit Action Plan 1 (Used for all Patterns)

Run Enable (X = Yes)	X	X
Run Config = 1		Recovery = 2 (O.C. with delay)

2.8.4 Transit Run Configuration 1

	1 / -- / 235	-- / -- / 235
Delay / Extend / Fail	1	1
Max Req During Offset Corr	Ø 2/6	Ø 2/6
CALLS (and Extends)	--	--
Skips	Ø 4/8	Ø 4/8
Reduces (Truncates)		

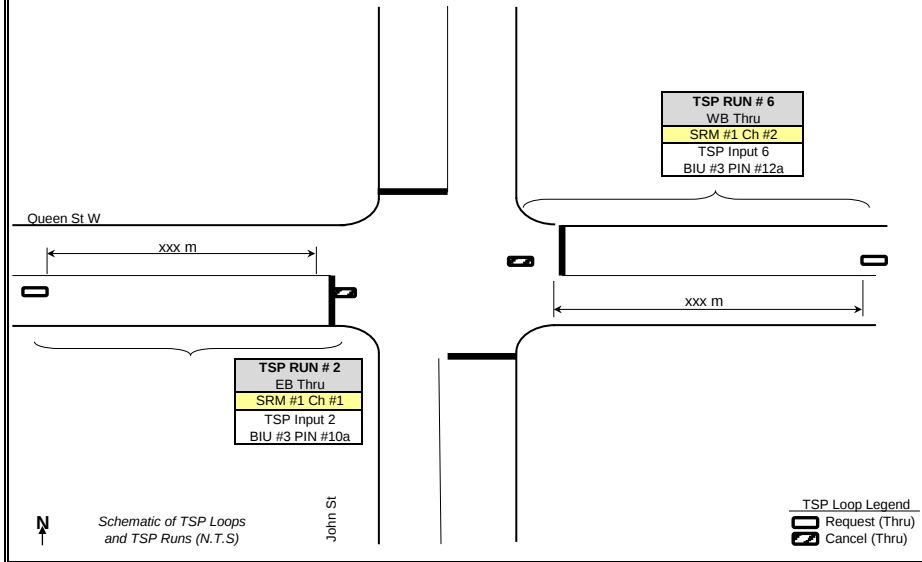
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
2.8.6 TSP Split Tables: 1, 3 & 5								
GRN EXT (SDW Extension)	--	--	--	--	--	--	--	--
GRN RDC (Reduction)	--	--	--	-2	--	--	--	-2
WLK EXT (Walk Extension)	--	30	--	--	--	30	--	--

2.8.6 TSP Split Tables: 2 & 16

GRN EXT (SDW Extension)	--	--	--	--	--	--	--	--
GRN RDC (Reduction)	--	--	--	-4	--	--	--	-4
WLK EXT (Walk Extension)	--	30	--	--	--	30	--	--

2.8.6 TSP Split Tables: 4

GRN EXT (SDW Extension)	--	--	--	--	--	--	--	--
GRN RDC (Reduction)	--	--	--	-2	--	--	--	-2
WLK EXT (Walk Extension)	--	30	--	--	--	30	--	--



Notes:
OC Ext and Rdc values were proposed by TTC.

ATC Mode	0	2	3	4
TTC Algor'm	B-2	A	C	D
Extensions	SDW	Walk	W/SDW	W/SDW

TSP SUMMARY
Maximum Green Extensions:
EWG: 30 s Green/WLK
NS Truncation to PED min

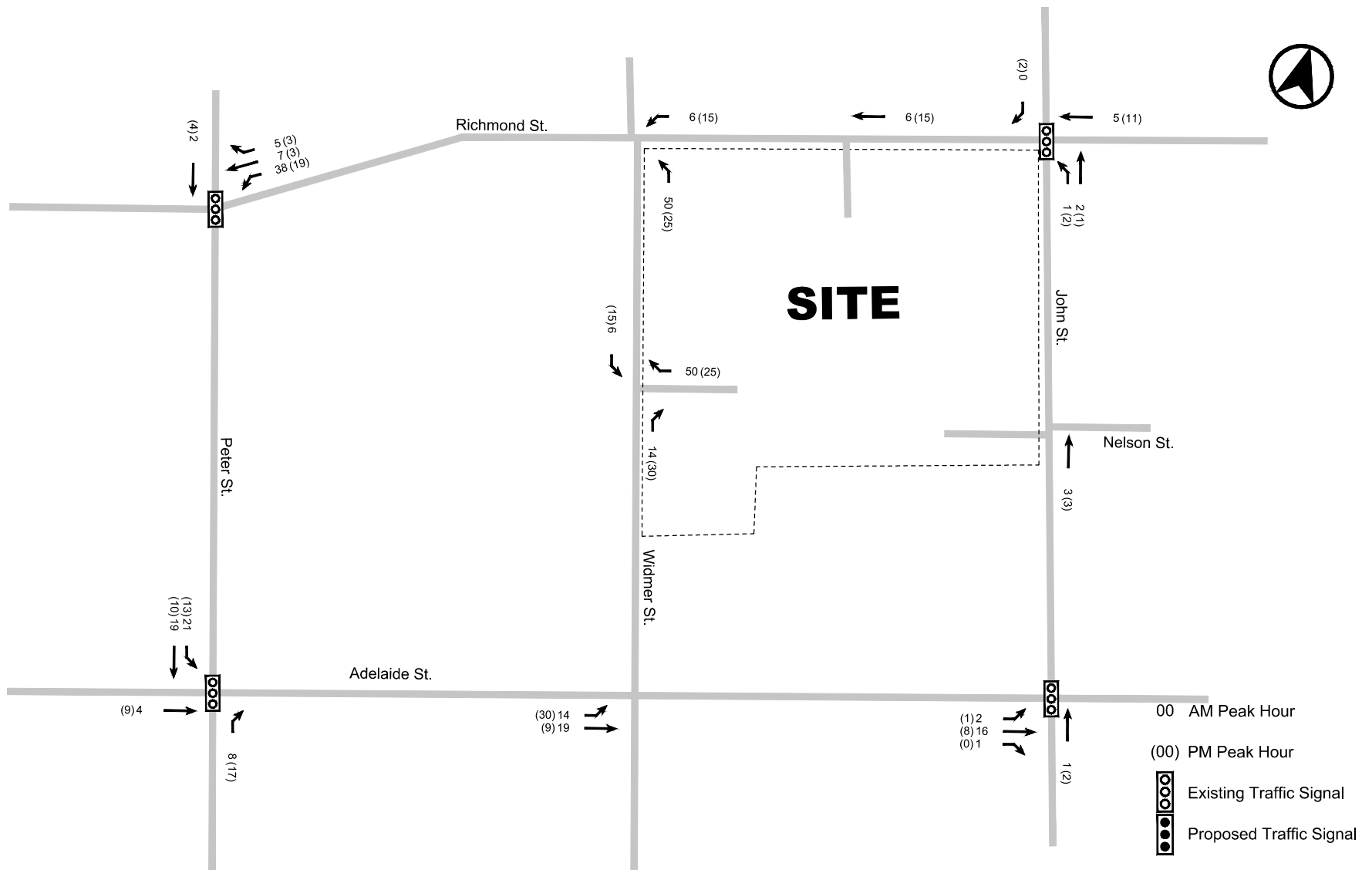


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Appendix B

Background Development Site Traffic Excerpts



Date Plotted: May 31, 2021 Filename: P:\757541\Graphics\CAD\Fig17-01-TST.dwg

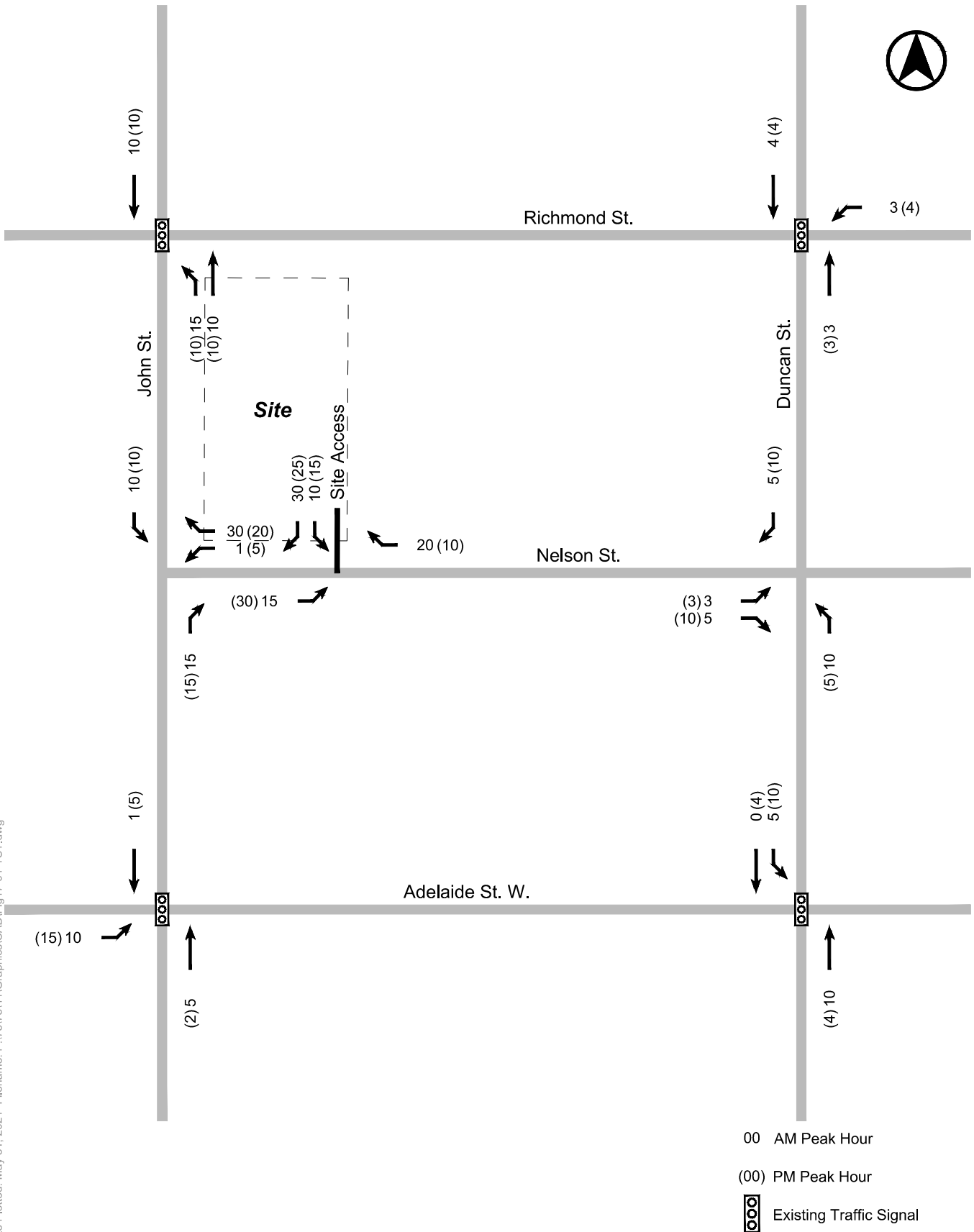
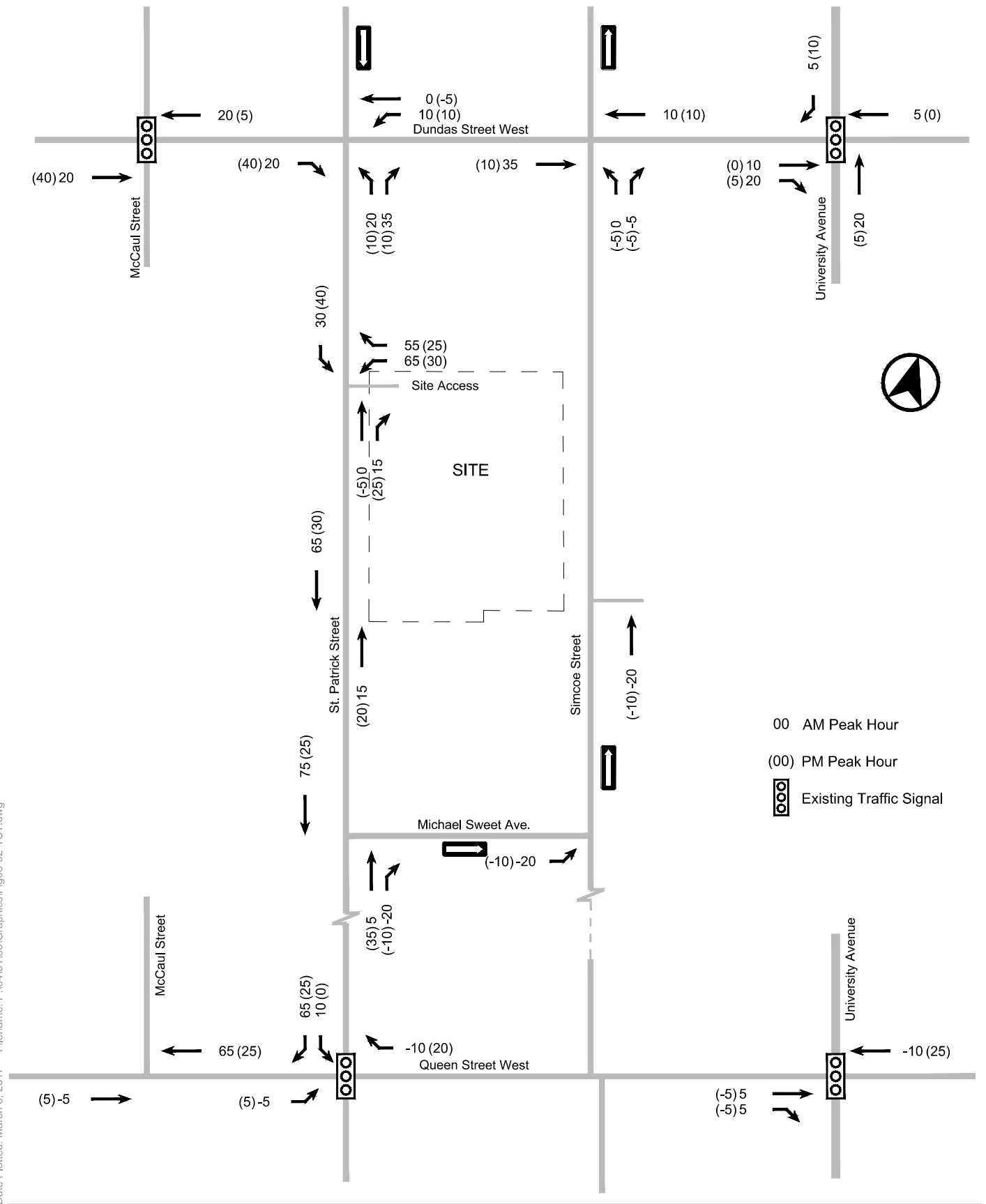


FIGURE 17 TOTAL SITE TRAFFIC VOLUMES





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Appendix C

Intersection Analysis Methodology

Intersection Analysis Methodology for Motor Vehicles

Signalized intersection analysis considers two separate measures of performance:

- The capacity of all intersection movements, which is based on a volume to capacity ratio that is a measure of the degree of capacity utilized.
- The level of service (LOS) for all intersection movements, which is based on the average control delay per vehicle for the various movements through the intersection and overall. Delay is an indicator of how long a vehicle must wait to complete a movement and is represented by a letter between A and F, with F being the longest delay. The link between LOS and delay (in seconds) for signalized intersections is summarized below.

Level of Service	Control Delay per Vehicle(s)
A	≤10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

Unsignalized intersection analysis considers two separate measures of performance:

- The capacity of the intersection's critical movements, which is based on a volume to capacity ratio.
- The level of service for the critical movements, which is based on the average control delay per vehicle for the various critical movements within the intersection. The link between LOS and delay (in seconds) for unsignalized intersections is summarized below.

Level of Service	Control Delay per Vehicle(s)
A	0 – 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

The intersection analysis is also consistent with the City's *Guidelines for Using Synchro 11 (Including SimTraffic 11)*, dated January 15, 2021.



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Appendix D

Existing Traffic Operations

HCM Unsignalized Intersection Capacity Analysis

2025 Existing AM Conditions

1: Queen Street West & Beverley Street

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	129	341	236	80	97	97
Future Volume (Veh/h)	129	341	236	80	97	97
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	147	388	268	91	110	110
Pedestrians					193	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.0	
Percent Blockage					20	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			86			
pX, platoon unblocked						
vC, conflicting volume	552				995	373
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	552				995	373
tC, single (s)	4.3				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	81				30	78
cM capacity (veh/h)	780				156	490
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	276	259	179	180	110	110
Volume Left	147	0	0	0	110	0
Volume Right	0	0	0	91	0	110
cSH	780	1700	1700	1700	156	490
Volume to Capacity	0.19	0.15	0.11	0.11	0.70	0.22
Queue Length 95th (m)	5.2	0.0	0.0	0.0	31.6	6.5
Control Delay (s/veh)	6.7	0.0	0.0	0.0	69.9	14.5
Lane LOS	A				F	B
Approach Delay (s/veh)	3.5		0.0		42.2	
Approach LOS					E	
Intersection Summary						
Average Delay		10.0				
Intersection Capacity Utilization			41.9%		ICU Level of Service	A
Analysis Period (min)		15				

Timings

2025 Existing AM Conditions

2: John Street & Queen Street West

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	6	334	52	161	130	69	33	46
Future Volume (vph)	6	334	52	161	130	69	33	46
Lane Group Flow (vph)	0	505	0	256	148	243	0	118
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	17.0	17.0	17.0	17.0	19.0	19.0	19.0	19.0
Minimum Split (s)	23.4	23.4	23.4	23.4	25.0	25.0	25.0	25.0
Total Split (s)	61.0	61.0	61.0	61.0	29.0	29.0	29.0	29.0
Total Split (%)	67.8%	67.8%	67.8%	67.8%	32.2%	32.2%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4		5.4	6.0	6.0		6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.29		0.17	0.56	0.55		0.34
Control Delay (s/veh)		7.1		7.3	38.5	20.3		26.6
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay (s/veh)		7.1		7.3	38.5	20.3		26.6
Queue Length 50th (m)		16.7		9.1	23.7	18.3		14.4
Queue Length 95th (m)		24.2		14.2	43.3	39.8		28.6
Internal Link Dist (m)		61.5		161.3		52.5		134.0
Turn Bay Length (m)					25.0			
Base Capacity (vph)		1720		1502	265	445		348
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.29		0.17	0.56	0.55		0.34
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 29 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green								
Natural Cycle: 50								
Control Type: Pretimed								
Splits and Phases: 2: John Street & Queen Street West								

HCM Signalized Intersection Capacity Analysis

2: John Street & Queen Street West

2025 Existing AM Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	334	104	52	161	12	130	69	145	33	46	25
Future Volume (vph)	6	334	104	52	161	12	130	69	145	33	46	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frpb, ped/bikes		0.87			0.99		1.00	0.84			0.95	
Flpb, ped/bikes		1.00			0.94		0.83	1.00			0.95	
Frt		0.96			0.99		1.00	0.90			0.97	
Flt Protected		1.00			0.99		0.95	1.00			0.98	
Satd. Flow (prot)		2871			3080		1404	1412			1580	
Flt Permitted		0.95			0.78		0.70	1.00			0.82	
Satd. Flow (perm)		2733			2422		1040	1412			1315	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	7	380	118	59	183	14	148	78	165	38	52	28
RTOR Reduction (vph)	0	32	0	0	5	0	0	85	0	0	13	0
Lane Group Flow (vph)	0	473	0	0	251	0	148	158	0	0	105	0
Confl. Peds. (#/hr)	93		272	272		93	149		160	160		149
Heavy Vehicles (%)	0%	8%	2%	1%	9%	16%	8%	0%	4%	12%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		55.6			55.6		23.0	23.0			23.0	
Effective Green, g (s)		55.6			55.6		23.0	23.0			23.0	
Actuated g/C Ratio		0.62			0.62		0.26	0.26			0.26	
Clearance Time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Grp Cap (vph)		1688			1496		265	360			336	
v/s Ratio Prot								0.11				
v/s Ratio Perm		c0.17			0.10		c0.14				0.08	
v/c Ratio		0.28			0.17		0.56	0.44			0.31	
Uniform Delay, d1		8.0			7.3		29.1	28.1			27.1	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.4			0.2		8.2	3.9			2.4	
Delay (s)		8.4			7.6		37.3	32.0			29.6	
Level of Service		A			A		D	C			C	
Approach Delay (s/veh)		8.4			7.6			34.0			29.6	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		18.1					HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio		0.36										
Actuated Cycle Length (s)		90.0					Sum of lost time (s)				11.4	
Intersection Capacity Utilization		78.7%					ICU Level of Service				D	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Beverley Street & Stephanie Street

2025 Existing AM Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	193	21	80	209
Future Volume (Veh/h)	0	0	193	21	80	209
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	0	0	261	28	108	282
Pedestrians	35		58			5
Lane Width (m)	0.0		3.7			3.7
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		6			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	866	315			324	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	866	315			324	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			91	
cM capacity (veh/h)	280	726			1247	
Direction, Lane #	NB 1	SB 1				
Volume Total	289	390				
Volume Left	0	108				
Volume Right	28	0				
cSH	1700	1247				
Volume to Capacity	0.17	0.09				
Queue Length 95th (m)	0.0	2.2				
Control Delay (s/veh)	0.0	2.9				
Lane LOS		A				
Approach Delay (s/veh)	0.0	2.9				
Approach LOS						
Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		43.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2025 Existing AM Conditions

4: John Street & Stephanie Street

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	45	71	0	0	0	41
Future Volume (Veh/h)	45	71	0	0	0	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	68	108	0	0	0	62
Pedestrians	112			69	15	
Lane Width (m)	3.7			0.0	3.7	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	12			0	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			191		249	206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		249	206
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			1373		648	817
Direction, Lane #	EB 1	NB 1				
Volume Total	176	62				
Volume Left	0	0				
Volume Right	108	62				
cSH	1700	817				
Volume to Capacity	0.10	0.08				
Queue Length 95th (m)	0.0	1.9				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			29.3%		ICU Level of Service	
Analysis Period (min)			15			
			A			

HCM Unsignalized Intersection Capacity Analysis

2025 Existing AM Conditions

5: 50 Stephanie Existing Garage Ramp & Beverley Street

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	6	215	9	0	294
Future Volume (Veh/h)	4	6	215	9	0	294
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	5	8	283	12	0	387
Pedestrians	37		1		6	
Lane Width (m)	3.7		3.7		3.7	
Walking Speed (m/s)	1.0		1.0		1.0	
Percent Blockage	4		0		1	
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	714	332			332	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	714	332			332	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	385	683			1192	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	13	295	387			
Volume Left	5	0	0			
Volume Right	8	12	0			
cSH	526	1700	1192			
Volume to Capacity	0.02	0.17	0.00			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s/veh)	12.0	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	12.0	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			27.3%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis

2025 Existing AM Conditions

6: Stephanie Street & East Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	101	0	0	0	0
Future Volume (Veh/h)	4	101	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	6	151	0	0	0	0
Pedestrians		4	17		40	
Lane Width (m)		3.7	0.0		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	40				220	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				220	44
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1518				738	985
Direction, Lane #	EB 1	SB 1				
Volume Total	157	0				
Volume Left	6	0				
Volume Right	0	0				
cSH	1518	1700				
Volume to Capacity	0.00*	0.00				
Queue Length 95th (m)	0.1	0.0				
Control Delay (s/veh)	0.3	0.0				
Lane LOS	A	A				
Approach Delay (s/veh)	0.3	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		21.9%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2025 Existing AM Conditions

7: Stephanie Street & West Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	104	0	0	4	0
Future Volume (Veh/h)	0	104	0	0	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	0	158	0	0	6	0
Pedestrians		18			44	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		2			5	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	44				202	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				202	62
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1506				755	945
Direction, Lane #	EB 1	SB 1				
Volume Total	158	6				
Volume Left	0	6				
Volume Right	0	0				
cSH	1700	755				
Volume to Capacity	0.09	0.00*				
Queue Length 95th (m)	0.0	0.2				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		20.0%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2025 Existing PM Conditions

1: Queen Street West & Beverley Street

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	182	302	419	136	56	123
Future Volume (Veh/h)	182	302	419	136	56	123
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	207	343	476	155	64	140
Pedestrians		18	8		736	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		2	1		76	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			86			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	1367				1883	1070
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1280				1824	967
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	0
cM capacity (veh/h)	126				0	58
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	321	229	317	314	64	140
Volume Left	207	0	0	0	64	0
Volume Right	0	0	0	155	0	140
cSH	126	1700	1700	1700	0	58
Volume to Capacity	1.65	0.13	0.19	0.18	Err	2.41
Queue Length 95th (m)	115.9	0.0	0.0	0.0	Err	106.3
Control Delay (s/veh)	385.2	0.0	0.0	0.0	Err	793.6
Lane LOS	F				F	F
Approach Delay (s/veh)	225.0		0.0		Err	
Approach LOS					F	
Intersection Summary						
Average Delay			Err			
Intersection Capacity Utilization			50.1%		ICU Level of Service	A
Analysis Period (min)			15			

Timings

2025 Existing PM Conditions

2: John Street & Queen Street West

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	309	66	451	143	98	17	61
Future Volume (vph)	21	309	66	451	143	98	17	61
Lane Group Flow (vph)	0	468	0	572	154	199	0	109
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	17.0	17.0	17.0	17.0	19.0	19.0	19.0	19.0
Minimum Split (s)	23.4	23.4	23.4	23.4	25.0	25.0	25.0	25.0
Total Split (s)	63.0	63.0	61.1	61.1	27.0	27.0	27.0	27.0
Total Split (%)	70.0%	70.0%	67.9%	67.9%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4		5.4	6.0	6.0		6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.30		0.33	0.70	0.54		0.30
Control Delay (s/veh)		7.7		8.0	50.3	33.1		26.7
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay (s/veh)		7.7		8.0	50.3	33.1		26.7
Queue Length 50th (m)		17.5		21.8	25.2	26.7		13.2
Queue Length 95th (m)		25.5		30.8	#54.1	48.0		27.3
Internal Link Dist (m)		61.5		161.3		52.5		134.0
Turn Bay Length (m)					25.0			
Base Capacity (vph)		1559		1721	221	366		368
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.30		0.33	0.70	0.54		0.30
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 29 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green								
Natural Cycle: 50								
Control Type: Pretimed								
# 95th percentile volume exceeds capacity, queue may be longer.								
Queue shown is maximum after two cycles.								

Splits and Phases: 2: John Street & Queen Street West



HCM Signalized Intersection Capacity Analysis

2: John Street & Queen Street West

2025 Existing PM Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	309	105	66	451	15	143	98	87	17	61	23
Future Volume (vph)	21	309	105	66	451	15	143	98	87	17	61	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frpb, ped/bikes		0.81			0.98		1.00	0.84			0.92	
Flpb, ped/bikes		0.99			0.95		0.72	1.00			0.96	
Frt		0.96			1.00		1.00	0.93			0.97	
Flt Protected		1.00			0.99		0.95	1.00			0.99	
Satd. Flow (prot)		2653			3209		1259	1493			1631	
Flt Permitted		0.91			0.83		0.72	1.00			0.93	
Satd. Flow (perm)		2431			2687		949	1493			1528	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	23	332	113	71	485	16	154	105	94	18	66	25
RTOR Reduction (vph)	0	3	0	0	2	0	0	18	0	0	12	0
Lane Group Flow (vph)	0	465	0	0	570	0	154	181	0	0	97	0
Confl. Peds. (#/hr)	420		739	739		420	377		325	325		377
Heavy Vehicles (%)	0%	7%	2%	4%	5%	6%	4%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		57.6			57.6		21.0	21.0			21.0	
Effective Green, g (s)		57.6			57.6		21.0	21.0			21.0	
Actuated g/C Ratio		0.64			0.64		0.23	0.23			0.23	
Clearance Time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Grp Cap (vph)		1555			1719		221	348			356	
v/s Ratio Prot								0.12				
v/s Ratio Perm		0.19			c0.21		c0.16				0.06	
v/c Ratio		0.30			0.33		0.70	0.52			0.27	
Uniform Delay, d1		7.2			7.4		31.6	30.1			28.2	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.5			0.5		16.7	5.5			1.9	
Delay (s)		7.7			7.9		48.3	35.6			30.1	
Level of Service		A			A		D	D			C	
Approach Delay (s/veh)		7.7			7.9			41.1			30.1	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		17.3					HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio		0.43										
Actuated Cycle Length (s)		90.0					Sum of lost time (s)				11.4	
Intersection Capacity Utilization		66.1%					ICU Level of Service				C	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Beverley Street & Stephanie Street

2025 Existing PM Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	336	19	52	177
Future Volume (Veh/h)	0	0	336	19	52	177
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	386	22	60	203
Pedestrians	54		85			20
Lane Width (m)	0.0		3.7			3.7
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		9			2
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	859	471			462	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	859	471			462	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			94	
cM capacity (veh/h)	284	585			1089	
Direction, Lane #	NB 1	SB 1				
Volume Total	408	263				
Volume Left	0	60				
Volume Right	22	0				
cSH	1700	1089				
Volume to Capacity	0.24	0.06				
Queue Length 95th (m)	0.0	1.3				
Control Delay (s/veh)	0.0	2.3				
Lane LOS		A				
Approach Delay (s/veh)	0.0	2.3				
Approach LOS						
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		49.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2025 Existing PM Conditions

4: John Street & Stephanie Street

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	36	54	0	0	0	76
Future Volume (Veh/h)	36	54	0	0	0	76
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	44	67	0	0	0	94
Pedestrians	196			76	26	
Lane Width (m)	3.7			0.0	3.7	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	20			0	3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			137		300	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			137		300	180
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	89
cM capacity (veh/h)			1420		541	845
Direction, Lane #	EB 1	NB 1				
Volume Total	111	94				
Volume Left	0	0				
Volume Right	67	94				
cSH	1700	845				
Volume to Capacity	0.07	0.11				
Queue Length 95th (m)	0.0	2.8				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization			30.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2025 Existing PM Conditions

5: 50 Stephanie Existing Garage Ramp & Beverley Street

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	3	378	8	1	237
Future Volume (Veh/h)	4	3	378	8	1	237
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	5	4	450	10	1	282
Pedestrians	66		35		6	
Lane Width (m)	3.7		3.7		3.7	
Walking Speed (m/s)	1.0		1.0		1.0	
Percent Blockage	7		4		1	
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	840	527			526	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	840	527			526	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	304	514			980	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	9	460	283			
Volume Left	5	0	1			
Volume Right	4	10	0			
cSH	371	1700	980			
Volume to Capacity	0.02	0.27	0.00*			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s/veh)	14.9	0.0	0.0			
Lane LOS	B		A			
Approach Delay (s/veh)	14.9	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			32.3%	ICU Level of Service	A	
Analysis Period (min)			15			

* Value less than 0.01.

HCM Unsignalized Intersection Capacity Analysis

2025 Existing PM Conditions

6: Stephanie Street & East Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	75	0	0	0	0
Future Volume (Veh/h)	11	75	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	12	84	0	0	0	0
Pedestrians		4	11		49	
Lane Width (m)		3.7	0.0		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		5	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	49				168	53
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49				168	53
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	100
cM capacity (veh/h)	1492				779	965
Direction, Lane #	EB 1	SB 1				
Volume Total	96	0				
Volume Left	12	0				
Volume Right	0	0				
cSH	1492	1700				
Volume to Capacity	0.00*	0.00				
Queue Length 95th (m)	0.2	0.0				
Control Delay (s/veh)	1.0	0.0				
Lane LOS	A	A				
Approach Delay (s/veh)	1.0	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		22.6%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2025 Existing PM Conditions

7: Stephanie Street & West Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	76	0	0	7	0
Future Volume (Veh/h)	0	76	0	0	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	94	0	0	9	0
Pedestrians		44			72	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		5			7	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	72				166	116
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72				166	116
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1427				768	833
Direction, Lane #	EB 1	SB 1				
Volume Total	94	9				
Volume Left	0	9				
Volume Right	0	0				
cSH	1700	768				
Volume to Capacity	0.06	0.01				
Queue Length 95th (m)	0.0	0.3				
Control Delay (s/veh)	0.0	9.7				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.7				
Approach LOS		A				
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		21.7%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Background Traffic Operations

HCM Unsignalized Intersection Capacity Analysis

2032 Background AM Conditions

1: Queen Street West & Beverley Street

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	129	347	310	80	97	97
Future Volume (Veh/h)	129	347	310	80	97	97
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	147	394	352	91	110	110
Pedestrians					193	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.0	
Percent Blockage					20	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			86			
pX, platoon unblocked	0.99				0.99	0.99
vC, conflicting volume	636				1082	415
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	610				1061	386
tC, single (s)	4.3				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	80				20	77
cM capacity (veh/h)	733				138	474
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	278	263	235	208	110	110
Volume Left	147	0	0	0	110	0
Volume Right	0	0	0	91	0	110
cSH	733	1700	1700	1700	138	474
Volume to Capacity	0.20	0.15	0.14	0.12	0.80	0.23
Queue Length 95th (m)	5.7	0.0	0.0	0.0	37.4	6.8
Control Delay (s/veh)	7.0	0.0	0.0	0.0	92.7	14.9
Lane LOS	A				F	B
Approach Delay (s/veh)	3.6		0.0		53.8	
Approach LOS					F	
Intersection Summary						
Average Delay		11.4				
Intersection Capacity Utilization			42.0%		ICU Level of Service	A
Analysis Period (min)		15				

Timings

2032 Background AM Conditions

2: John Street & Queen Street West

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	6	340	55	235	135	71	33	48
Future Volume (vph)	6	340	55	235	135	71	33	48
Lane Group Flow (vph)	0	517	0	344	153	251	0	121
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	17.0	17.0	17.0	17.0	19.0	19.0	19.0	19.0
Minimum Split (s)	23.4	23.4	23.4	23.4	25.0	25.0	25.0	25.0
Total Split (s)	61.0	61.0	61.0	61.0	29.0	29.0	29.0	29.0
Total Split (%)	67.8%	67.8%	67.8%	67.8%	32.2%	32.2%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4		5.4	6.0	6.0		6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.30		0.22	0.58	0.56		0.35
Control Delay (s/veh)		7.1		7.8	39.5	21.3		27.1
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay (s/veh)		7.1		7.8	39.5	21.3		27.1
Queue Length 50th (m)		17.1		13.1	24.6	19.9		15.0
Queue Length 95th (m)		24.7		19.2	44.7	42.0		29.6
Internal Link Dist (m)		61.5		161.3		52.5		134.0
Turn Bay Length (m)					25.0			
Base Capacity (vph)		1714		1557	263	445		344
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.30		0.22	0.58	0.56		0.35
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 29 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green								
Natural Cycle: 50								
Control Type: Pretimed								
Splits and Phases: 2: John Street & Queen Street West								
								

HCM Signalized Intersection Capacity Analysis

2: John Street & Queen Street West

2032 Background AM Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	340	109	55	235	12	135	71	150	33	48	25
Future Volume (vph)	6	340	109	55	235	12	135	71	150	33	48	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frpb, ped/bikes		0.87			0.99		1.00	0.84			0.95	
Flpb, ped/bikes		1.00			0.95		0.83	1.00			0.96	
Frt		0.96			0.99		1.00	0.90			0.97	
Flt Protected		1.00			0.99		0.95	1.00			0.98	
Satd. Flow (prot)		2859			3142		1407	1413			1589	
Flt Permitted		0.95			0.79		0.70	1.00			0.81	
Satd. Flow (perm)		2720			2514		1034	1413			1301	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	7	386	124	63	267	14	153	81	170	38	55	28
RTOR Reduction (vph)	0	34	0	0	3	0	0	84	0	0	12	0
Lane Group Flow (vph)	0	483	0	0	341	0	153	167	0	0	109	0
Confl. Peds. (#/hr)	93		272	272		93	149		160	160		149
Heavy Vehicles (%)	0%	8%	2%	1%	9%	16%	8%	0%	4%	12%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		55.6			55.6		23.0	23.0			23.0	
Effective Green, g (s)		55.6			55.6		23.0	23.0			23.0	
Actuated g/C Ratio		0.62			0.62		0.26	0.26			0.26	
Clearance Time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Grp Cap (vph)		1680			1553		264	361			332	
v/s Ratio Prot								0.12				
v/s Ratio Perm		c0.18			0.14		c0.15				0.08	
v/c Ratio		0.29			0.22		0.58	0.46			0.33	
Uniform Delay, d1		8.0			7.6		29.3	28.3			27.2	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.4			0.3		9.0	4.2			2.6	
Delay (s)		8.4			7.9		38.2	32.5			29.8	
Level of Service		A			A		D	C			C	
Approach Delay (s/veh)		8.4			7.9			34.7			29.8	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		17.8					HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		90.0					Sum of lost time (s)		11.4			
Intersection Capacity Utilization		79.1%					ICU Level of Service		D			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Beverley Street & Stephanie Street

2032 Background AM Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	193	21	80	209
Future Volume (Veh/h)	0	0	193	21	80	209
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	0	0	261	28	108	282
Pedestrians	35		58			5
Lane Width (m)	0.0		3.7			3.7
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		6			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	866	315			324	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	866	315			324	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			91	
cM capacity (veh/h)	280	726			1247	
Direction, Lane #	NB 1	SB 1				
Volume Total	289	390				
Volume Left	0	108				
Volume Right	28	0				
cSH	1700	1247				
Volume to Capacity	0.17	0.09				
Queue Length 95th (m)	0.0	2.2				
Control Delay (s/veh)	0.0	2.9				
Lane LOS		A				
Approach Delay (s/veh)	0.0	2.9				
Approach LOS						
Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		43.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2032 Background AM Conditions

4: John Street & Stephanie Street

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	45	71	0	0	0	41
Future Volume (Veh/h)	45	71	0	0	0	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	68	108	0	0	0	62
Pedestrians	112			69	15	
Lane Width (m)	3.7			0.0	3.7	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	12			0	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			191		249	206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		249	206
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			1373		648	817
Direction, Lane #	EB 1	NB 1				
Volume Total	176	62				
Volume Left	0	0				
Volume Right	108	62				
cSH	1700	817				
Volume to Capacity	0.10	0.08				
Queue Length 95th (m)	0.0	1.9				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			29.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2032 Background AM Conditions

5: 50 Stephanie Existing Garage Ramp & Beverley Street

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	6	215	9	0	294
Future Volume (Veh/h)	4	6	215	9	0	294
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	5	8	283	12	0	387
Pedestrians	37		1		6	
Lane Width (m)	3.7		3.7		3.7	
Walking Speed (m/s)	1.0		1.0		1.0	
Percent Blockage	4		0		1	
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	714	332			332	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	714	332			332	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	385	683			1192	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	13	295	387			
Volume Left	5	0	0			
Volume Right	8	12	0			
cSH	526	1700	1192			
Volume to Capacity	0.02	0.17	0.00			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s/veh)	12.0	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	12.0	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			27.3%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis

2032 Background AM Conditions

6: Stephanie Street & East Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	101	0	0	0	0
Future Volume (Veh/h)	4	101	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	6	151	0	0	0	0
Pedestrians		4	17		40	
Lane Width (m)		3.7	0.0		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	40				220	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				220	44
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1518				738	985
Direction, Lane #	EB 1	SB 1				
Volume Total	157	0				
Volume Left	6	0				
Volume Right	0	0				
cSH	1518	1700				
Volume to Capacity	0.00*	0.00				
Queue Length 95th (m)	0.1	0.0				
Control Delay (s/veh)	0.3	0.0				
Lane LOS	A	A				
Approach Delay (s/veh)	0.3	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		21.9%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2032 Background AM Conditions

7: Stephanie Street & West Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	104	0	0	4	0
Future Volume (Veh/h)	0	104	0	0	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	0	158	0	0	6	0
Pedestrians		18			44	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		2			5	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	44				202	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				202	62
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1506				755	945
Direction, Lane #	EB 1	SB 1				
Volume Total	158	6				
Volume Left	0	6				
Volume Right	0	0				
cSH	1700	755				
Volume to Capacity	0.09	0.00*				
Queue Length 95th (m)	0.0	0.2				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		20.0%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2032 Background PM Conditions

1: Queen Street West & Beverley Street

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	182	349	463	136	56	123
Future Volume (Veh/h)	182	349	463	136	56	123
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	207	397	526	155	64	140
Pedestrians		18	8		736	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		2	1		76	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			86			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	1417				1960	1095
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1316				1894	973
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	0
cM capacity (veh/h)	121				0	57
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	339	265	351	330	64	140
Volume Left	207	0	0	0	64	0
Volume Right	0	0	0	155	0	140
cSH	121	1700	1700	1700	0	57
Volume to Capacity	1.72	0.16	0.21	0.19	Err	2.46
Queue Length 95th (m)	119.6	0.0	0.0	0.0	Err	107.2
Control Delay (s/veh)	417.8	0.0	0.0	0.0	Err	817.5
Lane LOS	F				F	F
Approach Delay (s/veh)	234.7		0.0		Err	
Approach LOS					F	
Intersection Summary						
Average Delay			Err			
Intersection Capacity Utilization			52.5%		ICU Level of Service	A
Analysis Period (min)			15			

Timings

2032 Background PM Conditions

2: John Street & Queen Street West

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	356	69	495	148	102	17	64
Future Volume (vph)	21	356	69	495	148	102	17	64
Lane Group Flow (vph)	0	523	0	622	159	207	0	112
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	17.0	17.0	17.0	17.0	19.0	19.0	19.0	19.0
Minimum Split (s)	23.4	23.4	23.4	23.4	25.0	25.0	25.0	25.0
Total Split (s)	63.0	63.0	61.1	61.1	27.0	27.0	27.0	27.0
Total Split (%)	70.0%	70.0%	67.9%	67.9%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4		5.4	6.0	6.0		6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.33		0.36	0.72	0.57		0.30
Control Delay (s/veh)		7.9		8.2	52.5	34.3		27.2
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay (s/veh)		7.9		8.2	52.5	34.3		27.2
Queue Length 50th (m)		20.1		24.4	26.3	28.4		13.8
Queue Length 95th (m)		28.8		34.1	#56.6	50.5		28.1
Internal Link Dist (m)		61.5		161.3		52.5		134.0
Turn Bay Length (m)					25.0			
Base Capacity (vph)		1593		1717	220	365		369
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.33		0.36	0.72	0.57		0.30
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 29 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green								
Natural Cycle: 50								
Control Type: Pretimed								
# 95th percentile volume exceeds capacity, queue may be longer.								
Queue shown is maximum after two cycles.								

Splits and Phases: 2: John Street & Queen Street West



HCM Signalized Intersection Capacity Analysis

2032 Background PM Conditions

2: John Street & Queen Street West

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	356	109	69	495	15	148	102	90	17	64	23
Future Volume (vph)	21	356	109	69	495	15	148	102	90	17	64	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frpb, ped/bikes		0.82			0.98		1.00	0.84			0.92	
Flpb, ped/bikes		0.99			0.96		0.72	1.00			0.96	
Frt		0.97			1.00		1.00	0.93			0.97	
Flt Protected		1.00			0.99		0.95	1.00			0.99	
Satd. Flow (prot)		2711			3237		1263	1496			1640	
Flt Permitted		0.91			0.82		0.71	1.00			0.93	
Satd. Flow (perm)		2486			2680		944	1496			1536	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	23	383	117	74	532	16	159	110	97	18	69	25
RTOR Reduction (vph)	0	3	0	0	2	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	520	0	0	620	0	159	191	0	0	101	0
Confl. Peds. (#/hr)	420		739	739		420	377		325	325		377
Heavy Vehicles (%)	0%	7%	2%	4%	5%	6%	4%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		57.6			57.6		21.0	21.0			21.0	
Effective Green, g (s)		57.6			57.6		21.0	21.0			21.0	
Actuated g/C Ratio		0.64			0.64		0.23	0.23			0.23	
Clearance Time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Grp Cap (vph)		1591			1715		220	349			358	
v/s Ratio Prot								0.13				
v/s Ratio Perm		0.21			0.23		0.17				0.07	
v/c Ratio		0.33			0.36		0.72	0.55			0.28	
Uniform Delay, d1		7.4			7.6		31.8	30.3			28.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.5			0.6		18.6	6.0			2.0	
Delay (s)		7.9			8.2		50.4	36.4			30.2	
Level of Service		A			A		D	D			C	
Approach Delay (s/veh)		7.9			8.2			42.5			30.2	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		17.3					HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio		0.46										
Actuated Cycle Length (s)		90.0					Sum of lost time (s)				11.4	
Intersection Capacity Utilization		68.6%					ICU Level of Service				C	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2032 Background PM Conditions

3: Beverley Street & Stephanie Street

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	336	19	52	177
Future Volume (Veh/h)	0	0	336	19	52	177
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	386	22	60	203
Pedestrians	54		85			20
Lane Width (m)	0.0		3.7			3.7
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		9			2
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	859	471			462	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	859	471			462	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			94	
cM capacity (veh/h)	284	585			1089	
Direction, Lane #	NB 1	SB 1				
Volume Total	408	263				
Volume Left	0	60				
Volume Right	22	0				
cSH	1700	1089				
Volume to Capacity	0.24	0.06				
Queue Length 95th (m)	0.0	1.3				
Control Delay (s/veh)	0.0	2.3				
Lane LOS		A				
Approach Delay (s/veh)	0.0	2.3				
Approach LOS						
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		49.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2032 Background PM Conditions

4: John Street & Stephanie Street

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	36	54	0	0	0	76
Future Volume (Veh/h)	36	54	0	0	0	76
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	44	67	0	0	0	94
Pedestrians	196			76	26	
Lane Width (m)	3.7			0.0	3.7	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	20			0	3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			137		300	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			137		300	180
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	89
cM capacity (veh/h)			1420		541	845
Direction, Lane #	EB 1	NB 1				
Volume Total	111	94				
Volume Left	0	0				
Volume Right	67	94				
cSH	1700	845				
Volume to Capacity	0.07	0.11				
Queue Length 95th (m)	0.0	2.8				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization			30.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2032 Background PM Conditions

5: 50 Stephanie Existing Garage Ramp & Beverley Street

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	3	378	8	1	237
Future Volume (Veh/h)	4	3	378	8	1	237
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	5	4	450	10	1	282
Pedestrians	66		35		6	
Lane Width (m)	3.7		3.7		3.7	
Walking Speed (m/s)	1.0		1.0		1.0	
Percent Blockage	7		4		1	
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	840	527			526	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	840	527			526	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	304	514			980	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	9	460	283			
Volume Left	5	0	1			
Volume Right	4	10	0			
cSH	371	1700	980			
Volume to Capacity	0.02	0.27	0.00*			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s/veh)	14.9	0.0	0.0			
Lane LOS	B		A			
Approach Delay (s/veh)	14.9	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			32.3%		ICU Level of Service	A
Analysis Period (min)			15			

* Value less than 0.01.

HCM Unsignalized Intersection Capacity Analysis

2032 Background PM Conditions

6: Stephanie Street & East Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	75	0	0	0	0
Future Volume (Veh/h)	11	75	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	12	84	0	0	0	0
Pedestrians		4	11		49	
Lane Width (m)		3.7	0.0		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		5	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	49				168	53
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49				168	53
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	100
cM capacity (veh/h)	1492				779	965
Direction, Lane #	EB 1	SB 1				
Volume Total	96	0				
Volume Left	12	0				
Volume Right	0	0				
cSH	1492	1700				
Volume to Capacity	0.00*	0.00				
Queue Length 95th (m)	0.2	0.0				
Control Delay (s/veh)	1.0	0.0				
Lane LOS	A	A				
Approach Delay (s/veh)	1.0	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		22.6%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2032 Background PM Conditions

7: Stephanie Street & West Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	76	0	0	7	0
Future Volume (Veh/h)	0	76	0	0	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	94	0	0	9	0
Pedestrians		44			72	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		5			7	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	72				166	116
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72				166	116
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1427				768	833
Direction, Lane #	EB 1	SB 1				
Volume Total	94	9				
Volume Left	0	9				
Volume Right	0	0				
cSH	1700	768				
Volume to Capacity	0.06	0.01				
Queue Length 95th (m)	0.0	0.3				
Control Delay (s/veh)	0.0	9.7				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.7				
Approach LOS		A				
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		21.7%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix F

Total Traffic Operations

HCM Unsignalized Intersection Capacity Analysis

2032 Total AM Conditions

1: Queen Street West & Beverley Street

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	347	310	82	99	100
Future Volume (Veh/h)	130	347	310	82	99	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	148	394	352	93	113	114
Pedestrians					193	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.0	
Percent Blockage					20	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			86			
pX, platoon unblocked	0.99				0.99	0.99
vC, conflicting volume	638				1085	416
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	612				1064	387
tC, single (s)	4.3				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	80				17	76
cM capacity (veh/h)	732				137	474
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	279	263	235	210	113	114
Volume Left	148	0	0	0	113	0
Volume Right	0	0	0	93	0	114
cSH	732	1700	1700	1700	137	474
Volume to Capacity	0.20	0.15	0.14	0.12	0.83	0.24
Queue Length 95th (m)	5.7	0.0	0.0	0.0	39.4	7.1
Control Delay (s/veh)	7.1	0.0	0.0	0.0	98.3	15.0
Lane LOS	A				F	B
Approach Delay (s/veh)	3.6		0.0		56.5	
Approach LOS					F	
Intersection Summary						
Average Delay		12.2				
Intersection Capacity Utilization			42.2%		ICU Level of Service	A
Analysis Period (min)		15				

Timings

2032 Total AM Conditions

2: John Street & Queen Street West

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	6	341	55	236	136	71	33	48
Future Volume (vph)	6	341	55	236	136	71	33	48
Lane Group Flow (vph)	0	520	0	345	155	251	0	121
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	17.0	17.0	17.0	17.0	19.0	19.0	19.0	19.0
Minimum Split (s)	23.4	23.4	23.4	23.4	25.0	25.0	25.0	25.0
Total Split (s)	61.0	61.0	61.0	61.0	29.0	29.0	29.0	29.0
Total Split (%)	67.8%	67.8%	67.8%	67.8%	32.2%	32.2%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4		5.4	6.0	6.0		6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.30		0.22	0.59	0.56		0.35
Control Delay (s/veh)		7.1		7.8	39.9	21.3		27.1
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay (s/veh)		7.1		7.8	39.9	21.3		27.1
Queue Length 50th (m)		17.2		13.1	25.0	19.9		15.0
Queue Length 95th (m)		24.8		19.2	45.5	42.0		m29.6
Internal Link Dist (m)		61.5		161.3		52.5		134.0
Turn Bay Length (m)					25.0			
Base Capacity (vph)		1713		1555	263	445		344
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.30		0.22	0.59	0.56		0.35
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 29 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green								
Natural Cycle: 50								
Control Type: Pretimed								
m Volume for 95th percentile queue is metered by upstream signal.								

Splits and Phases: 2: John Street & Queen Street West



HCM Signalized Intersection Capacity Analysis

2: John Street & Queen Street West

2032 Total AM Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	341	110	55	236	12	136	71	150	33	48	25
Future Volume (vph)	6	341	110	55	236	12	136	71	150	33	48	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frpb, ped/bikes		0.87			0.99		1.00	0.84			0.95	
Flpb, ped/bikes		1.00			0.95		0.83	1.00			0.96	
Frt		0.96			0.99		1.00	0.90			0.97	
Flt Protected		1.00			0.99		0.95	1.00			0.98	
Satd. Flow (prot)		2858			3143		1407	1413			1589	
Flt Permitted		0.95			0.79		0.70	1.00			0.81	
Satd. Flow (perm)		2719			2514		1034	1413			1301	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	7	388	125	63	268	14	155	81	170	38	55	28
RTOR Reduction (vph)	0	34	0	0	3	0	0	84	0	0	12	0
Lane Group Flow (vph)	0	486	0	0	342	0	155	167	0	0	109	0
Confl. Peds. (#/hr)	93		272	272		93	149		160	160		149
Heavy Vehicles (%)	0%	8%	2%	1%	9%	16%	8%	0%	4%	12%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		55.6			55.6		23.0	23.0			23.0	
Effective Green, g (s)		55.6			55.6		23.0	23.0			23.0	
Actuated g/C Ratio		0.62			0.62		0.26	0.26			0.26	
Clearance Time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Grp Cap (vph)		1679			1553		264	361			332	
v/s Ratio Prot								0.12				
v/s Ratio Perm		c0.18			0.14		c0.15				0.08	
v/c Ratio		0.29			0.22		0.59	0.46			0.33	
Uniform Delay, d1		8.0			7.6		29.3	28.3			27.2	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.4			0.3		9.2	4.2			2.6	
Delay (s)		8.4			7.9		38.6	32.5			29.8	
Level of Service		A			A		D	C			C	
Approach Delay (s/veh)		8.4			7.9			34.8			29.8	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		17.9					HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio		0.38										
Actuated Cycle Length (s)		90.0					Sum of lost time (s)				11.4	
Intersection Capacity Utilization		79.2%					ICU Level of Service				D	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Beverley Street & Stephanie Street

2032 Total AM Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	196	21	80	214
Future Volume (Veh/h)	0	0	196	21	80	214
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	0	0	265	28	108	289
Pedestrians	35		58			5
Lane Width (m)	0.0		3.7			3.7
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		6			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	877	319			328	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	877	319			328	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			91	
cM capacity (veh/h)	276	723			1243	
Direction, Lane #	NB 1	SB 1				
Volume Total	293	397				
Volume Left	0	108				
Volume Right	28	0				
cSH	1700	1243				
Volume to Capacity	0.17	0.09				
Queue Length 95th (m)	0.0	2.2				
Control Delay (s/veh)	0.0	2.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	2.8				
Approach LOS						
Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		43.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2032 Total AM Conditions

4: John Street & Stephanie Street

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	45	71	0	0	0	41
Future Volume (Veh/h)	45	71	0	0	0	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	68	108	0	0	0	62
Pedestrians	112			69	15	
Lane Width (m)	3.7			0.0	3.7	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	12			0	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			191		249	206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		249	206
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			1373		648	817
Direction, Lane #	EB 1	NB 1				
Volume Total	176	62				
Volume Left	0	0				
Volume Right	108	62				
cSH	1700	817				
Volume to Capacity	0.10	0.08				
Queue Length 95th (m)	0.0	1.9				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			29.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2032 Total AM Conditions

5: 50 Stephanie Existing Garage Ramp & Beverley Street

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	8	215	12	2	294
Future Volume (Veh/h)	9	8	215	12	2	294
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	12	11	283	16	3	387
Pedestrians	37		1		6	
Lane Width (m)	3.7		3.7		3.7	
Walking Speed (m/s)	1.0		1.0		1.0	
Percent Blockage	4		0		1	
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	722	334			336	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722	334			336	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			100	
cM capacity (veh/h)	380	681			1188	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	23	299	390			
Volume Left	12	0	3			
Volume Right	11	16	0			
cSH	482	1700	1188			
Volume to Capacity	0.05	0.18	0.00*			
Queue Length 95th (m)	1.1	0.0	0.1			
Control Delay (s/veh)	12.8	0.0	0.1			
Lane LOS	B		A			
Approach Delay (s/veh)	12.8	0.0	0.1			
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			28.9%	ICU Level of Service		A
Analysis Period (min)			15			

* Value less than 0.01.

HCM Unsignalized Intersection Capacity Analysis

2032 Total AM Conditions

6: Stephanie Street & East Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	101	0	0	0	0
Future Volume (Veh/h)	4	101	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	6	151	0	0	0	0
Pedestrians		4	17		40	
Lane Width (m)		3.7	0.0		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	40				220	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				220	44
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1518				738	985
Direction, Lane #	EB 1	SB 1				
Volume Total	157	0				
Volume Left	6	0				
Volume Right	0	0				
cSH	1518	1700				
Volume to Capacity	0.00*	0.00				
Queue Length 95th (m)	0.1	0.0				
Control Delay (s/veh)	0.3	0.0				
Lane LOS	A	A				
Approach Delay (s/veh)	0.3	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		21.9%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2032 Total AM Conditions

7: Stephanie Street & West Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	104	0	0	4	0
Future Volume (Veh/h)	0	104	0	0	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	0	158	0	0	6	0
Pedestrians		18			44	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		2			5	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	44				202	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				202	62
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1506				755	945
Direction, Lane #	EB 1	SB 1				
Volume Total	158	6				
Volume Left	0	6				
Volume Right	0	0				
cSH	1700	755				
Volume to Capacity	0.09	0.00*				
Queue Length 95th (m)	0.0	0.2				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		20.0%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2032 Total PM Conditions

1: Queen Street West & Beverley Street

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	183	349	463	138	56	125
Future Volume (Veh/h)	183	349	463	138	56	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	208	397	526	157	64	142
Pedestrians		18	8		736	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		2	1		76	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			86			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	1419				1963	1096
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1318				1897	974
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	0
cM capacity (veh/h)	120				0	57
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	340	265	351	332	64	142
Volume Left	208	0	0	0	64	0
Volume Right	0	0	0	157	0	142
cSH	120	1700	1700	1700	0	57
Volume to Capacity	1.73	0.16	0.21	0.20	Err	2.50
Queue Length 95th (m)	120.6	0.0	0.0	0.0	Err	109.1
Control Delay (s/veh)	422.7	0.0	0.0	0.0	Err	834.2
Lane LOS	F				F	F
Approach Delay (s/veh)	237.8		0.0		Err	
Approach LOS					F	
Intersection Summary						
Average Delay			Err			
Intersection Capacity Utilization			52.6%		ICU Level of Service	A
Analysis Period (min)			15			

Timings

2032 Total PM Conditions

2: John Street & Queen Street West

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	356	69	496	149	102	17	64
Future Volume (vph)	21	356	69	496	149	102	17	64
Lane Group Flow (vph)	0	523	0	623	160	207	0	112
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	17.0	17.0	17.0	17.0	19.0	19.0	19.0	19.0
Minimum Split (s)	23.4	23.4	23.4	23.4	25.0	25.0	25.0	25.0
Total Split (s)	63.0	63.0	61.1	61.1	27.0	27.0	27.0	27.0
Total Split (%)	70.0%	70.0%	67.9%	67.9%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4		5.4	6.0	6.0		6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio		0.33		0.36	0.73	0.57		0.30
Control Delay (s/veh)		7.9		8.2	52.9	34.3		27.2
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay (s/veh)		7.9		8.2	52.9	34.3		27.2
Queue Length 50th (m)		20.1		24.5	26.5	28.4		13.8
Queue Length 95th (m)		28.8		34.2	#57.3	50.5		28.1
Internal Link Dist (m)		61.5		161.3		52.5		134.0
Turn Bay Length (m)					25.0			
Base Capacity (vph)		1593		1717	220	365		369
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.33		0.36	0.73	0.57		0.30
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 29 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green								
Natural Cycle: 50								
Control Type: Pretimed								
# 95th percentile volume exceeds capacity, queue may be longer.								
Queue shown is maximum after two cycles.								

Splits and Phases: 2: John Street & Queen Street West



HCM Signalized Intersection Capacity Analysis

2032 Total PM Conditions

2: John Street & Queen Street West

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	356	109	69	496	15	149	102	90	17	64	23
Future Volume (vph)	21	356	109	69	496	15	149	102	90	17	64	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frpb, ped/bikes		0.82			0.98		1.00	0.84			0.92	
Flpb, ped/bikes		0.99			0.96		0.72	1.00			0.96	
Frt		0.97			1.00		1.00	0.93			0.97	
Flt Protected		1.00			0.99		0.95	1.00			0.99	
Satd. Flow (prot)		2711			3238		1263	1496			1640	
Flt Permitted		0.91			0.82		0.71	1.00			0.93	
Satd. Flow (perm)		2485			2681		944	1496			1536	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	23	383	117	74	533	16	160	110	97	18	69	25
RTOR Reduction (vph)	0	3	0	0	2	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	520	0	0	621	0	160	191	0	0	101	0
Confl. Peds. (#/hr)	420		739	739		420	377		325	325		377
Heavy Vehicles (%)	0%	7%	2%	4%	5%	6%	4%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		57.6			57.6		21.0	21.0			21.0	
Effective Green, g (s)		57.6			57.6		21.0	21.0			21.0	
Actuated g/C Ratio		0.64			0.64		0.23	0.23			0.23	
Clearance Time (s)		5.4			5.4		6.0	6.0			6.0	
Lane Grp Cap (vph)		1590			1715		220	349			358	
v/s Ratio Prot								0.13				
v/s Ratio Perm		0.21			0.23		0.17				0.07	
v/c Ratio		0.33			0.36		0.73	0.55			0.28	
Uniform Delay, d1		7.4			7.6		31.9	30.3			28.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.5			0.6		18.9	6.0			2.0	
Delay (s)		7.9			8.2		50.8	36.4			30.2	
Level of Service		A			A		D	D			C	
Approach Delay (s/veh)		7.9			8.2			42.6			30.2	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		17.4					HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio		0.46										
Actuated Cycle Length (s)		90.0					Sum of lost time (s)				11.4	
Intersection Capacity Utilization		68.7%					ICU Level of Service				C	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2032 Total PM Conditions

3: Beverley Street & Stephanie Street

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	339	19	52	179
Future Volume (Veh/h)	0	0	339	19	52	179
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	390	22	60	206
Pedestrians	54		85			20
Lane Width (m)	0.0		3.7			3.7
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		9			2
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	866	475			466	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	866	475			466	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			94	
cM capacity (veh/h)	281	582			1085	
Direction, Lane #	NB 1	SB 1				
Volume Total	412	266				
Volume Left	0	60				
Volume Right	22	0				
cSH	1700	1085				
Volume to Capacity	0.24	0.06				
Queue Length 95th (m)	0.0	1.3				
Control Delay (s/veh)	0.0	2.3				
Lane LOS		A				
Approach Delay (s/veh)	0.0	2.3				
Approach LOS						
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		49.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

2032 Total PM Conditions

4: John Street & Stephanie Street

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	36	54	0	0	0	76
Future Volume (Veh/h)	36	54	0	0	0	76
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	44	67	0	0	0	94
Pedestrians	196			76	26	
Lane Width (m)	3.7			0.0	3.7	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	20			0	3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			137		300	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			137		300	180
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	89
cM capacity (veh/h)			1420		541	845
Direction, Lane #	EB 1	NB 1				
Volume Total	111	94				
Volume Left	0	0				
Volume Right	67	94				
cSH	1700	845				
Volume to Capacity	0.07	0.11				
Queue Length 95th (m)	0.0	2.8				
Control Delay (s/veh)	0.0	9.8				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.8				
Approach LOS		A				
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization			30.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2032 Total PM Conditions

5: 50 Stephanie Existing Garage Ramp & Beverley Street

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	4	378	11	3	237
Future Volume (Veh/h)	6	4	378	11	3	237
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	7	5	450	13	4	282
Pedestrians	66		35		6	
Lane Width (m)	3.7		3.7		3.7	
Walking Speed (m/s)	1.0		1.0		1.0	
Percent Blockage	7		4		1	
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	848	529			529	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	848	529			529	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	300	513			977	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	12	463	286			
Volume Left	7	0	4			
Volume Right	5	13	0			
cSH	362	1700	977			
Volume to Capacity	0.03	0.27	0.00*			
Queue Length 95th (m)	0.8	0.0	0.1			
Control Delay (s/veh)	15.3	0.0	0.2			
Lane LOS	C		A			
Approach Delay (s/veh)	15.3	0.0	0.2			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			32.5%		ICU Level of Service	
Analysis Period (min)			15		A	

* Value less than 0.01.

HCM Unsignalized Intersection Capacity Analysis

2032 Total PM Conditions

6: Stephanie Street & East Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	75	0	0	0	0
Future Volume (Veh/h)	11	75	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	12	84	0	0	0	0
Pedestrians		4	11		49	
Lane Width (m)		3.7	0.0		3.7	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		5	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	49				168	53
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49				168	53
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	100
cM capacity (veh/h)	1492				779	965
Direction, Lane #	EB 1	SB 1				
Volume Total	96	0				
Volume Left	12	0				
Volume Right	0	0				
cSH	1492	1700				
Volume to Capacity	0.00*	0.00				
Queue Length 95th (m)	0.2	0.0				
Control Delay (s/veh)	1.0	0.0				
Lane LOS	A	A				
Approach Delay (s/veh)	1.0	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		22.6%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						

HCM Unsignalized Intersection Capacity Analysis

2032 Total PM Conditions

7: Stephanie Street & West Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	76	0	0	7	0
Future Volume (Veh/h)	0	76	0	0	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	94	0	0	9	0
Pedestrians		44			72	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		5			7	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	72				166	116
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72				166	116
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1427				768	833
Direction, Lane #	EB 1	SB 1				
Volume Total	94	9				
Volume Left	0	9				
Volume Right	0	0				
cSH	1700	768				
Volume to Capacity	0.06	0.01				
Queue Length 95th (m)	0.0	0.3				
Control Delay (s/veh)	0.0	9.7				
Lane LOS		A				
Approach Delay (s/veh)	0.0	9.7				
Approach LOS		A				
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		21.7%	ICU Level of Service	A		
Analysis Period (min)		15				
* Value less than 0.01.						



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Appendix G

Signal Warrant Analysis

<u>Main Road</u>	Queen Street W
<u>Minor Road</u>	Beverley Street
<u>Direction of Main Road</u>	East / West
<u>Date:</u>	3-Sep-25
<u>No. of Lanes on Main</u>	2 or more
<u>T-Intersection</u>	Yes
<u>Operating Environment</u>	Urban
<u>Scenario</u>	Forecasted Traffic Volumes (Existing Intersection)

Justification 1: Minimum Vehicle Volumes						
Justification	Guidance Approach Lanes				Total	Section Percent
	1 Lanes		2 or More Lanes			
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW		
1A (All Approach Lanes)	480	720	600	900		
				X		
	COMPLIANCE %					
1B (Minor Street Both Approaches)	180	255	180	255		
				X		
	COMPLIANCE %					
Signal Justification 1:						

Justification 2: Delay to Cross Traffic						
Justification	Guidance Approach Lanes				Total	Section Percent
	1 lanes		2 or More lanes			
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW		
2A (Major Street Both Approaches)	480	720	600	900		
				X		
	COMPLIANCE %					
2B (Traffic Crossing Major Street)	50	75	50	75		
				X		
	COMPLIANCE %					
Signal Justification 2:						

Justification 3: Combination (Justification 1 and 2)	
Justification Satisfied 80% or More	
Justification 1	Minimum Vehicular Volume
Justification 2	Delay Cross Traffic

Justification		Compliance	Minimum Target	Signal Justified?	
				YES	NO
1. Minimum Vehicular Volume	A. Total Volume	66%	120%		NO
	B. Crossing Volume	37%			
2. Delay to Cross Traffic	A. Main Road	56%	120%		NO
	B. Crossing Road	52%			
3. Combination	A. Justificaton 1	37%	120%		NO
	B. Justification 2	52%			



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Appendix H

Queen Street / Beverley Street Intersection Operations Sensitivity Analysis

Timings

1: Queen Street West & Beverley Street

2025 Existing AM Conditions (Signalized)

Sensitivity Analysis

					
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	129	341	236	97	97
Future Volume (vph)	129	341	236	97	97
Lane Group Flow (vph)	0	535	359	110	110
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	58.0	58.0	58.0	32.0	32.0
Total Split (%)	64.4%	64.4%	64.4%	35.6%	35.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Max	Max
v/c Ratio		0.69	0.36	0.12	0.13
Control Delay (s/veh)		21.0	10.8	9.1	2.9
Queue Delay		0.0	0.0	0.0	0.0
Total Delay (s/veh)		21.0	10.8	9.1	2.9
Queue Length 50th (m)		25.1	10.6	5.4	0.0
Queue Length 95th (m)		38.0	18.4	14.8	7.0
Internal Link Dist (m)		286.4	61.5	131.3	
Turn Bay Length (m)				20.0	
Base Capacity (vph)		2238	2757	894	825
Starvation Cap Reductn		0	79	0	0
Spillback Cap Reductn		0	0	0	0
Storage Cap Reductn		0	0	0	0
Reduced v/c Ratio		0.24	0.13	0.12	0.13
Intersection Summary					
Cycle Length: 90					
Actuated Cycle Length: 54.8					
Natural Cycle: 45					
Control Type: Semi Act-Uncoord					

Splits and Phases: 1: Queen Street West & Beverley Street



HCM Signalized Intersection Capacity Analysis

1: Queen Street West & Beverley Street

2025 Existing AM Conditions (Signalized)

Sensitivity Analysis

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	129	341	236	80	97	97
Future Volume (vph)	129	341	236	80	97	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5
Lane Util. Factor		0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00	0.92		1.00	1.00
Flpb, ped/bikes		0.95	1.00		1.00	1.00
Frt		1.00	0.96		1.00	0.85
Flt Protected		0.99	1.00		0.95	1.00
Satd. Flow (prot)		3170	3033		1772	1526
Flt Permitted		0.75	1.00		0.95	1.00
Satd. Flow (perm)		2421	3033		1772	1526
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	147	388	268	91	110	110
RTOR Reduction (vph)	0	0	61	0	0	54
Lane Group Flow (vph)	0	535	298	0	110	56
Confl. Peds. (#/hr)	193			193		
Heavy Vehicles (%)	8%	8%	8%	3%	3%	7%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)		18.1	18.1		27.7	27.7
Effective Green, g (s)		18.1	18.1		27.7	27.7
Actuated g/C Ratio		0.33	0.33		0.51	0.51
Clearance Time (s)		4.5	4.5		4.5	4.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		799	1001		895	771
v/s Ratio Prot			0.10		c0.06	
v/s Ratio Perm		c0.22				0.04
v/c Ratio		0.67	0.30		0.12	0.07
Uniform Delay, d1		15.8	13.6		7.1	7.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		2.1	0.2		0.3	0.2
Delay (s)		17.9	13.8		7.4	7.1
Level of Service		B	B		A	A
Approach Delay (s/veh)		17.9	13.8		7.3	
Approach LOS		B	B		A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			14.5	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.34			
Actuated Cycle Length (s)			54.8	Sum of lost time (s)		9.0
Intersection Capacity Utilization			44.8%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

Timings

1: Queen Street West & Beverley Street

2025 Existing PM Conditions (Signalized)

Sensitivity Analysis

					
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	182	302	419	56	123
Future Volume (vph)	182	302	419	56	123
Lane Group Flow (vph)	0	550	631	64	140
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	61.0	61.0	61.0	29.0	29.0
Total Split (%)	67.8%	67.8%	67.8%	32.2%	32.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Max	Max
v/c Ratio		0.88dl	0.58	0.08	0.20
Control Delay (s/veh)		21.6	13.2	10.8	10.6
Queue Delay		0.0	0.0	0.0	0.0
Total Delay (s/veh)		21.6	13.3	10.8	10.6
Queue Length 50th (m)		25.2	21.5	3.3	6.8
Queue Length 95th (m)		39.3	33.0	10.7	19.5
Internal Link Dist (m)		316.7	61.5	131.3	
Turn Bay Length (m)				20.0	
Base Capacity (vph)		1885	2656	829	715
Starvation Cap Reductn		0	94	0	0
Spillback Cap Reductn		0	0	0	0
Storage Cap Reductn		0	0	0	0
Reduced v/c Ratio		0.29	0.25	0.08	0.20
Intersection Summary					
Cycle Length: 90					
Actuated Cycle Length: 54.5					
Natural Cycle: 45					
Control Type: Semi Act-Uncoord					
dl Defacto Left Lane. Recode with 1 though lane as a left lane.					

Splits and Phases: 1: Queen Street West & Beverley Street



HCM Signalized Intersection Capacity Analysis

1: Queen Street West & Beverley Street

2025 Existing PM Conditions (Signalized)

Sensitivity Analysis

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	182	302	419	136	56	123
Future Volume (vph)	182	302	419	136	56	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5
Lane Util. Factor		0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00	0.85		1.00	0.97
Flpb, ped/bikes		0.96	1.00		1.00	1.00
Frt		1.00	0.96		1.00	0.85
Flt Protected		0.98	1.00		0.95	1.00
Satd. Flow (prot)		3237	2837		1825	1572
Flt Permitted		0.60	1.00		0.95	1.00
Satd. Flow (perm)		1988	2837		1825	1572
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	207	343	476	155	64	140
RTOR Reduction (vph)	0	0	58	0	0	9
Lane Group Flow (vph)	0	550	573	0	64	131
Confl. Peds. (#/hr)	196			736	8	18
Heavy Vehicles (%)	1%	9%	6%	1%	0%	1%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)		20.6	20.6		24.7	24.7
Effective Green, g (s)		20.6	20.6		24.7	24.7
Actuated g/C Ratio		0.38	0.38		0.45	0.45
Clearance Time (s)		4.5	4.5		4.5	4.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		754	1076		830	715
v/s Ratio Prot			0.20		0.04	
v/s Ratio Perm		c0.28				c0.08
v/c Ratio		0.88dl	0.53		0.08	0.18
Uniform Delay, d1		14.5	13.1		8.4	8.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		3.6	0.5		0.2	0.6
Delay (s)		18.0	13.6		8.5	9.4
Level of Service		B	B		A	A
Approach Delay (s/veh)		18.0	13.6		9.1	
Approach LOS		B	B		A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			14.7	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.43			
Actuated Cycle Length (s)			54.3	Sum of lost time (s)		9.0
Intersection Capacity Utilization			58.5%	ICU Level of Service		B
Analysis Period (min)			15			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.						
c Critical Lane Group						

1: Queen Street West & Beverley Street

					
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	129	347	310	97	97
Future Volume (vph)	129	347	310	97	97
Lane Group Flow (vph)	0	541	443	110	110
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	60.0	60.0	60.0	30.0	30.0
Total Split (%)	66.7%	66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Max	Max
v/c Ratio		0.70	0.42	0.13	0.14
Control Delay (s/veh)		20.3	12.1	9.3	3.1
Queue Delay		0.0	0.0	0.0	0.0
Total Delay (s/veh)		20.3	12.1	9.3	3.1
Queue Length 50th (m)		23.9	14.5	5.4	0.0
Queue Length 95th (m)		36.8	23.3	14.9	7.1
Internal Link Dist (m)		286.4	61.5	131.3	
Turn Bay Length (m)				20.0	
Base Capacity (vph)		2227	2932	863	800
Starvation Cap Reductn		0	86	0	0
Spillback Cap Reductn		0	0	0	0
Storage Cap Reductn		0	0	0	0
Reduced v/c Ratio		0.24	0.16	0.13	0.14

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 52.7

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Splits and Phases: 1: Queen Street West & Beverley Street



1: Queen Street West & Beverley Street

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	129	347	310	80	97	97
Future Volume (vph)	129	347	310	80	97	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5
Lane Util. Factor		0.95	0.95		1.00	1.00
Frbp, ped/bikes		1.00	0.94		1.00	1.00
Flpb, ped/bikes		0.96	1.00		1.00	1.00
Frt		1.00	0.97		1.00	0.85
Flt Protected		0.99	1.00		0.95	1.00
Satd. Flow (prot)		3199	3106		1772	1526
Flt Permitted		0.72	1.00		0.95	1.00
Satd. Flow (perm)		2329	3106		1772	1526
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	147	394	352	91	110	110
RTOR Reduction (vph)	0	0	44	0	0	56
Lane Group Flow (vph)	0	541	399	0	110	54
Confl. Peds. (#/hr)	193			193		
Heavy Vehicles (%)	8%	8%	8%	3%	3%	7%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)		17.9	17.9		25.7	25.7
Effective Green, g (s)		17.9	17.9		25.7	25.7
Actuated g/C Ratio		0.34	0.34		0.49	0.49
Clearance Time (s)		4.5	4.5		4.5	4.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		792	1056		865	745
v/s Ratio Prot			0.13		c0.06	
v/s Ratio Perm		c0.23				0.04
v/c Ratio		0.68	0.38		0.13	0.07
Uniform Delay, d1		14.9	13.1		7.3	7.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		2.4	0.2		0.3	0.2
Delay (s)		17.4	13.4		7.6	7.3
Level of Service		B	B		A	A
Approach Delay (s/veh)		17.4	13.4		7.5	
Approach LOS		B	B		A	

Intersection Summary

HCM 2000 Control Delay (s/veh)	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Timings

1: Queen Street West & Beverley Street

2032 Background PM Conditions (Signalized)

(Signalized)

					
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	182	349	463	56	123
Future Volume (vph)	182	349	463	56	123
Lane Group Flow (vph)	0	604	681	64	140
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	61.0	61.0	61.0	29.0	29.0
Total Split (%)	67.8%	67.8%	67.8%	32.2%	32.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Max	Max
v/c Ratio		0.88dl	0.57	0.08	0.21
Control Delay (s/veh)		22.3	12.8	12.8	12.6
Queue Delay		0.0	0.0	0.0	0.0
Total Delay (s/veh)		22.3	12.8	12.8	12.6
Queue Length 50th (m)		29.4	24.7	3.7	7.7
Queue Length 95th (m)		44.8	36.1	12.3	22.5
Internal Link Dist (m)		316.7	61.5	131.3	
Turn Bay Length (m)				20.0	
Base Capacity (vph)		1758	2624	780	673
Starvation Cap Reductn		0	220	0	0
Spillback Cap Reductn		0	0	0	0
Storage Cap Reductn		0	0	0	0
Reduced v/c Ratio		0.34	0.28	0.08	0.21
Intersection Summary					
Cycle Length: 90					
Actuated Cycle Length: 58.1					
Natural Cycle: 50					
Control Type: Semi Act-Uncoord					
dl Defacto Left Lane. Recode with 1 though lane as a left lane.					

Splits and Phases: 1: Queen Street West & Beverley Street



HCM Signalized Intersection Capacity Analysis

1: Queen Street West & Beverley Street

2032 Background PM Conditions (Signalized)

(Signalized)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	182	349	463	136	56	123
Future Volume (vph)	182	349	463	136	56	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5
Lane Util. Factor		0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00	0.85		1.00	0.97
Flpb, ped/bikes		0.92	1.00		1.00	1.00
Frt		1.00	0.97		1.00	0.85
Flt Protected		0.98	1.00		0.95	1.00
Satd. Flow (prot)		3122	2869		1825	1570
Flt Permitted		0.60	1.00		0.95	1.00
Satd. Flow (perm)		1892	2869		1825	1570
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	207	397	526	155	64	140
RTOR Reduction (vph)	0	0	48	0	0	8
Lane Group Flow (vph)	0	604	633	0	64	132
Confl. Peds. (#/hr)	736			736	8	18
Heavy Vehicles (%)	1%	9%	6%	1%	0%	1%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)		24.1	24.1		24.8	24.8
Effective Green, g (s)		24.1	24.1		24.8	24.8
Actuated g/C Ratio		0.42	0.42		0.43	0.43
Clearance Time (s)		4.5	4.5		4.5	4.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		787	1194		781	672
v/s Ratio Prot			0.22		0.04	
v/s Ratio Perm		c0.32				c0.08
v/c Ratio		0.88dl	0.53		0.08	0.20
Uniform Delay, d1		14.5	12.7		9.8	10.3
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		4.5	0.5		0.2	0.7
Delay (s)		19.0	13.1		10.0	11.0
Level of Service		B	B		B	B
Approach Delay (s/veh)		19.0	13.1		10.7	
Approach LOS		B	B		B	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			15.2	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			57.9	Sum of lost time (s)		9.0
Intersection Capacity Utilization			60.9%	ICU Level of Service		B
Analysis Period (min)			15			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.						
c Critical Lane Group						

Timings
1: Queen Street West & Beverley Street

2032 Total AM Conditions (Signalized)

					
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	130	347	310	99	100
Future Volume (vph)	130	347	310	99	100
Lane Group Flow (vph)	0	542	445	113	114
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	60.0	60.0	60.0	30.0	30.0
Total Split (%)	66.7%	66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Max	Max
v/c Ratio		0.70	0.42	0.13	0.14
Control Delay (s/veh)		20.3	12.1	9.4	3.0
Queue Delay		0.0	0.0	0.0	0.0
Total Delay (s/veh)		20.3	12.1	9.4	3.0
Queue Length 50th (m)		24.0	14.5	5.5	0.0
Queue Length 95th (m)		36.9	23.2	15.3	7.2
Internal Link Dist (m)		286.4	61.5	131.3	
Turn Bay Length (m)				20.0	
Base Capacity (vph)		2222	2925	862	801
Starvation Cap Reductn		0	86	0	0
Spillback Cap Reductn		0	0	0	0
Storage Cap Reductn		0	0	0	0
Reduced v/c Ratio		0.24	0.16	0.13	0.14

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 52.8
Natural Cycle: 45
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Queen Street West & Beverley Street



HCM Signalized Intersection Capacity Analysis
1: Queen Street West & Beverley Street

2032 Total AM Conditions (Signalized)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	130	347	310	82	99	100
Future Volume (vph)	130	347	310	82	99	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5
Lane Util. Factor		0.95	0.95		1.00	1.00
Frbp, ped/bikes		1.00	0.94		1.00	1.00
Flpb, ped/bikes		0.96	1.00		1.00	1.00
Frt		1.00	0.97		1.00	0.85
Flt Protected		0.99	1.00		0.95	1.00
Satd. Flow (prot)		3198	3101		1772	1526
Flt Permitted		0.72	1.00		0.95	1.00
Satd. Flow (perm)		2323	3101		1772	1526
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	148	394	352	93	113	114
RTOR Reduction (vph)	0	0	45	0	0	58
Lane Group Flow (vph)	0	542	400	0	113	56
Confl. Peds. (#/hr)	193			193		
Heavy Vehicles (%)	8%	8%	8%	3%	3%	7%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)		18.0	18.0		25.7	25.7
Effective Green, g (s)		18.0	18.0		25.7	25.7
Actuated g/C Ratio		0.34	0.34		0.49	0.49
Clearance Time (s)		4.5	4.5		4.5	4.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		793	1059		864	744
v/s Ratio Prot			0.13		c0.06	
v/s Ratio Perm		c0.23				0.04
v/c Ratio		0.68	0.38		0.13	0.07
Uniform Delay, d1		14.9	13.1		7.4	7.2
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		2.4	0.2		0.3	0.2
Delay (s)		17.4	13.3		7.7	7.4
Level of Service		B	B		A	A
Approach Delay (s/veh)		17.4	13.3		7.5	
Approach LOS		B	B		A	

Intersection Summary

HCM 2000 Control Delay (s/veh)	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Timings
1: Queen Street West & Beverley Street

2032 Total PM Conditions (Signalized)

					
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	183	349	463	56	125
Future Volume (vph)	183	349	463	56	125
Lane Group Flow (vph)	0	605	683	64	142
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	61.0	61.0	61.0	29.0	29.0
Total Split (%)	67.8%	67.8%	67.8%	32.2%	32.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Max	Max
v/c Ratio		0.89dl	0.57	0.08	0.21
Control Delay (s/veh)		22.3	12.8	12.8	12.7
Queue Delay		0.0	0.0	0.0	0.0
Total Delay (s/veh)		22.3	12.8	12.8	12.7
Queue Length 50th (m)		29.4	24.7	3.7	7.9
Queue Length 95th (m)		45.0	36.3	12.3	22.9
Internal Link Dist (m)		316.7	61.5	131.3	
Turn Bay Length (m)				20.0	
Base Capacity (vph)		1754	2617	779	672
Starvation Cap Reductn		0	221	0	0
Spillback Cap Reductn		0	0	0	0
Storage Cap Reductn		0	0	0	0
Reduced v/c Ratio		0.34	0.29	0.08	0.21

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 58.1

Natural Cycle: 50

Control Type: Semi Act-Uncoord

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: Queen Street West & Beverley Street



HCM Signalized Intersection Capacity Analysis
1: Queen Street West & Beverley Street

2032 Total PM Conditions (Signalized)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	183	349	463	138	56	125
Future Volume (vph)	183	349	463	138	56	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5
Lane Util. Factor		0.95	0.95		1.00	1.00
Frbp, ped/bikes		1.00	0.85		1.00	0.97
Flpb, ped/bikes		0.92	1.00		1.00	1.00
Frt		1.00	0.97		1.00	0.85
Flt Protected		0.98	1.00		0.95	1.00
Satd. Flow (prot)		3122	2863		1825	1570
Flt Permitted		0.60	1.00		0.95	1.00
Satd. Flow (perm)		1890	2863		1825	1570
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	208	397	526	157	64	142
RTOR Reduction (vph)	0	0	49	0	0	8
Lane Group Flow (vph)	0	605	634	0	64	134
Confl. Peds. (#/hr)	736			736	8	18
Heavy Vehicles (%)	1%	9%	6%	1%	0%	1%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)		24.2	24.2		24.8	24.8
Effective Green, g (s)		24.2	24.2		24.8	24.8
Actuated g/C Ratio		0.42	0.42		0.43	0.43
Clearance Time (s)		4.5	4.5		4.5	4.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		788	1194		780	671
v/s Ratio Prot			0.22		0.04	
v/s Ratio Perm		c0.32				c0.09
v/c Ratio		0.89dl	0.53		0.08	0.20
Uniform Delay, d1		14.5	12.7		9.8	10.4
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		4.5	0.5		0.2	0.7
Delay (s)		19.0	13.1		10.1	11.1
Level of Service		B	B		B	B
Approach Delay (s/veh)		19.0	13.1		10.7	
Approach LOS		B	B		B	

Intersection Summary

HCM 2000 Control Delay (s/veh)	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			
c Critical Lane Group			

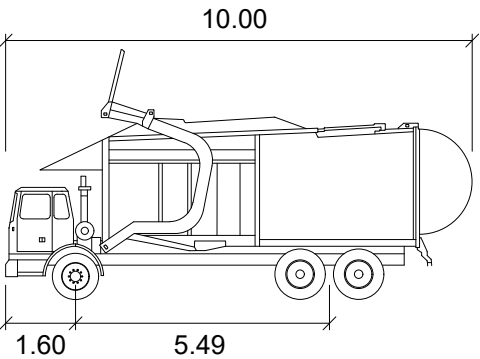
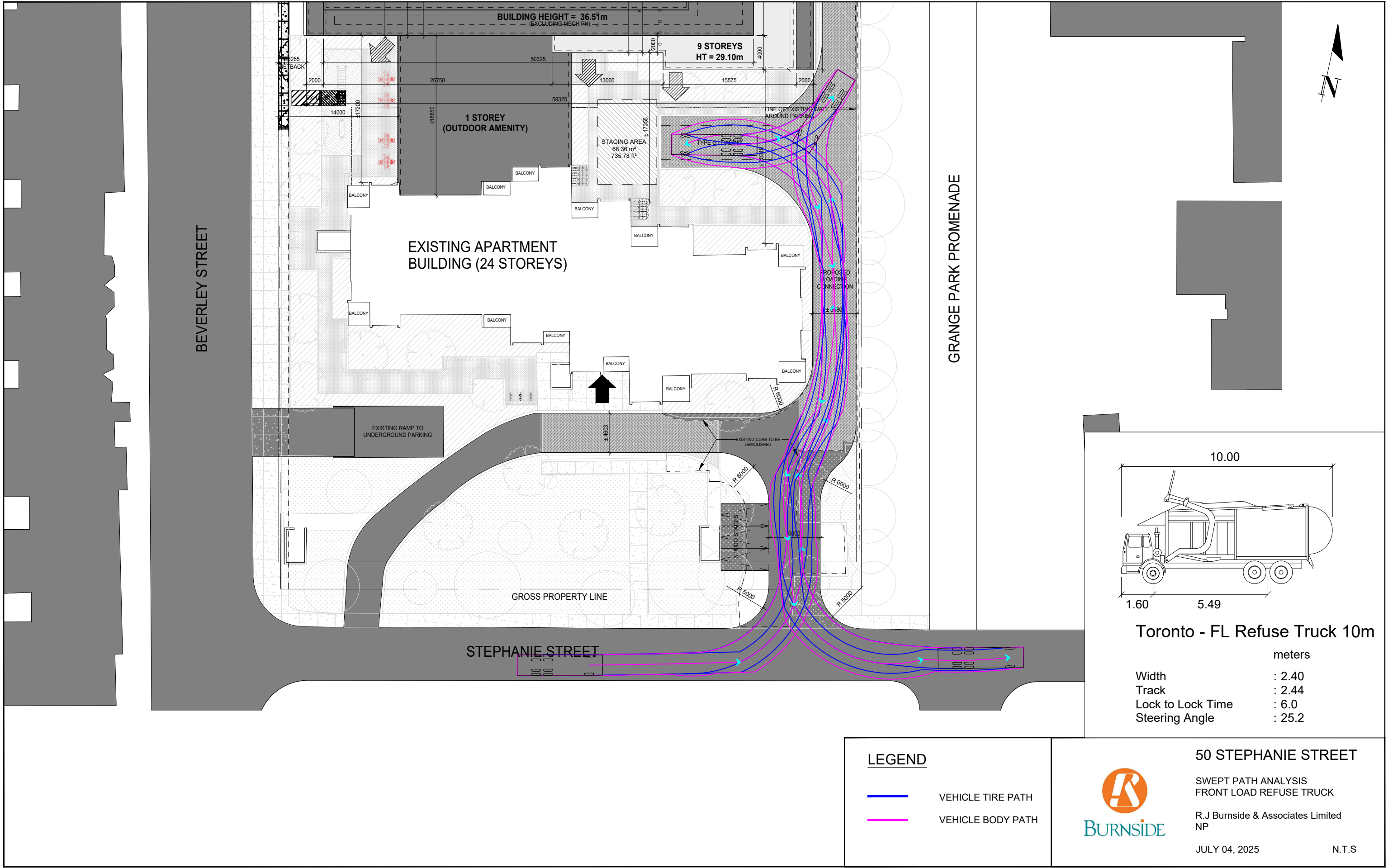


BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

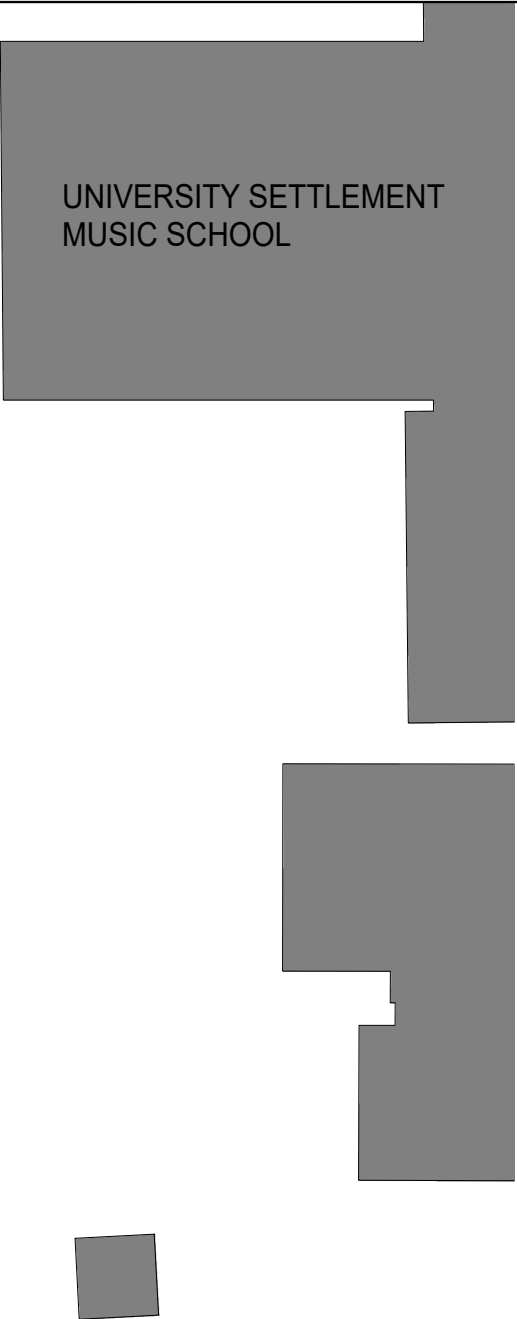
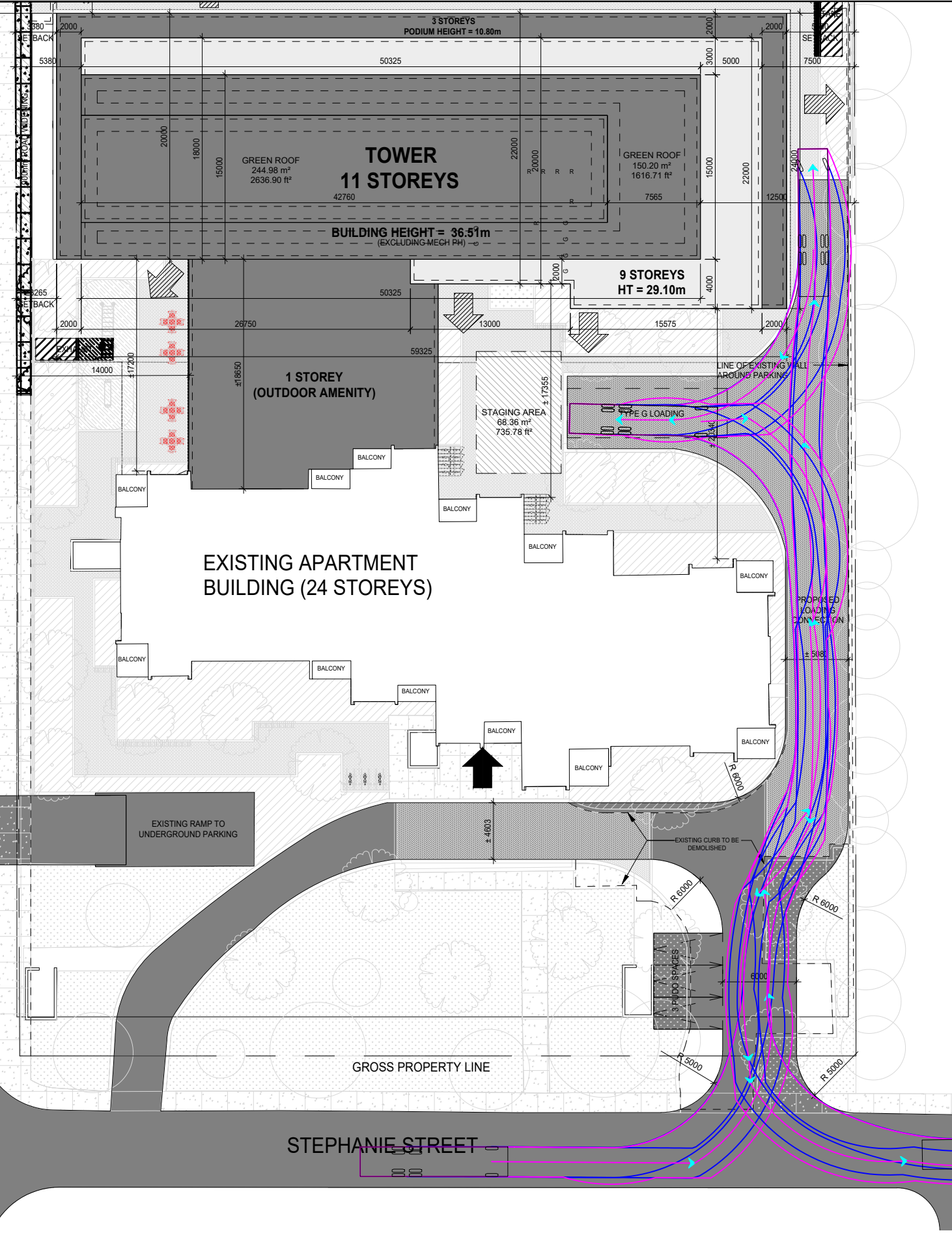
Appendix I

Swept Path Analysis



Toronto - FL Refuse Truck 10m

	meters
Width	: 2.40
Track	: 2.44
Lock to Lock Time	: 6.0
Steering Angle	: 25.2



LEGEND

— VEHICLE TIRE PATH

— VEHICLE BODY PATH



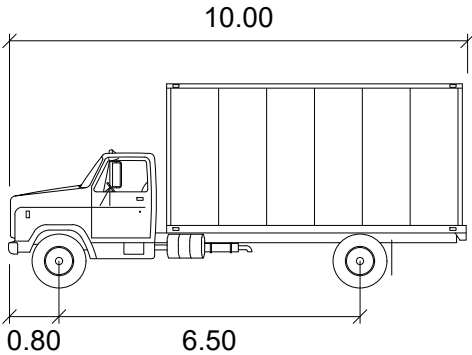
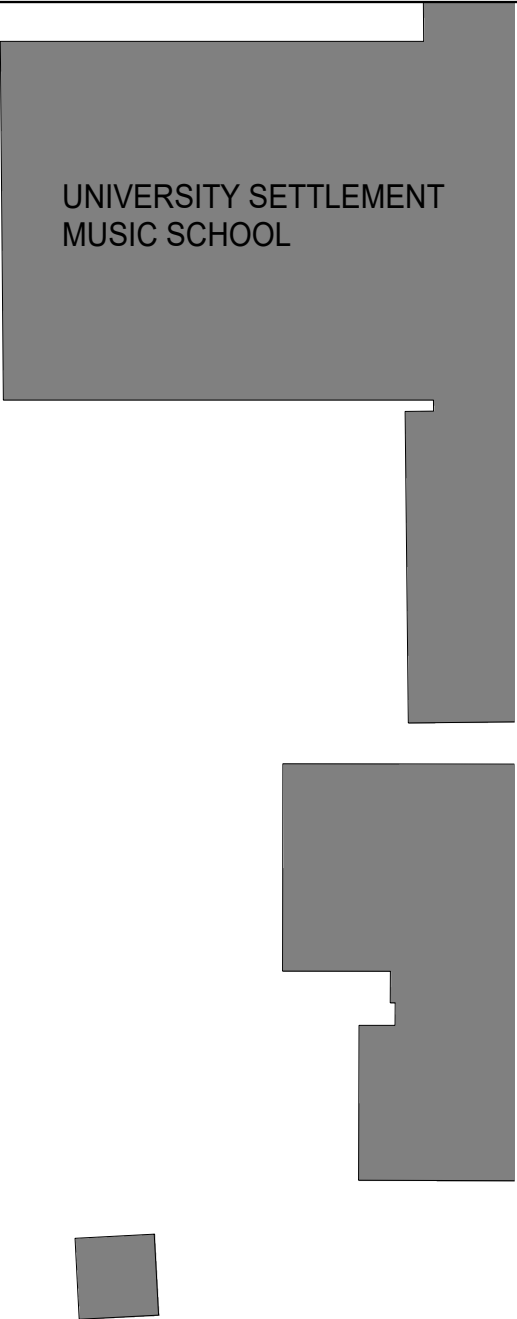
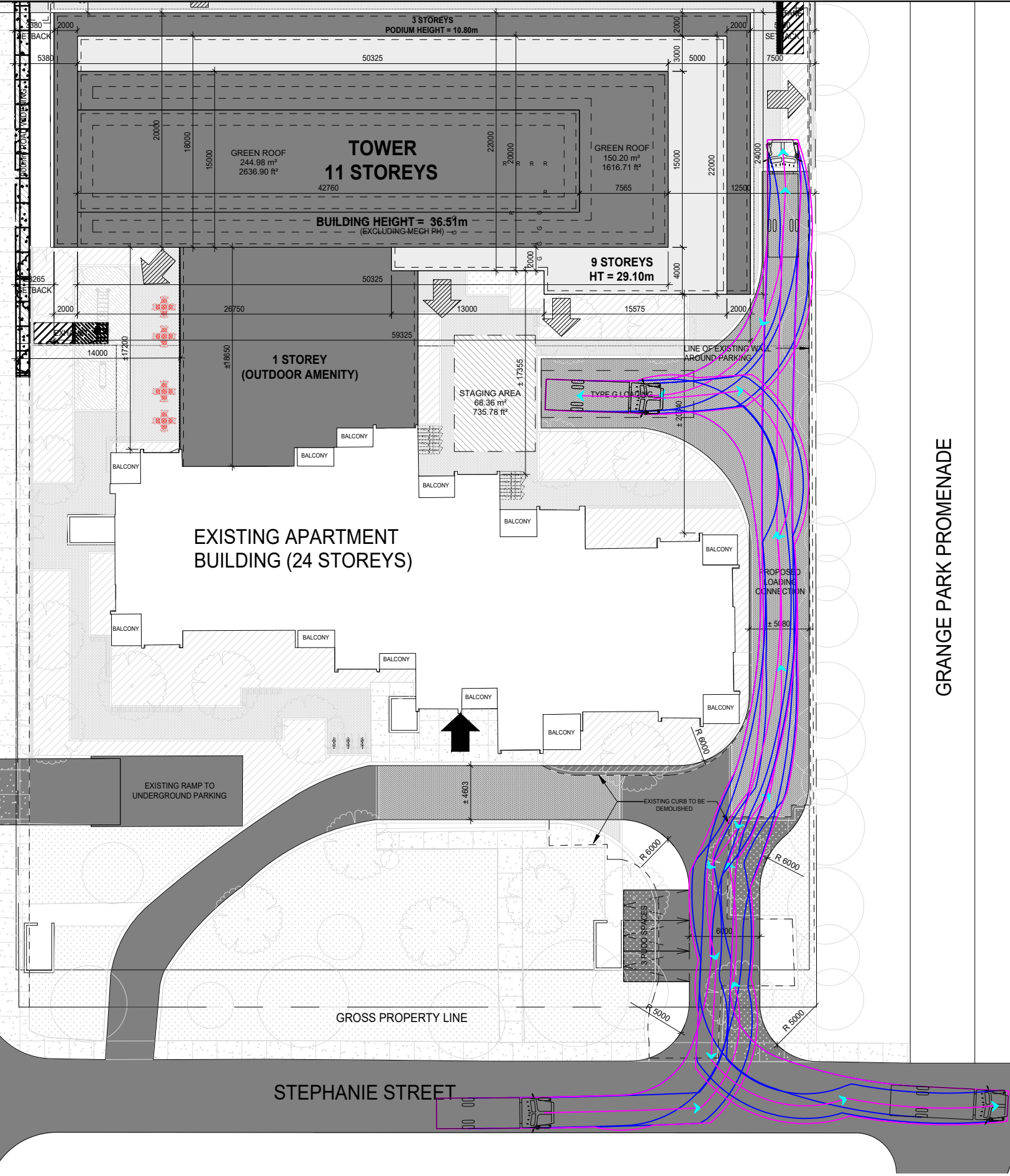
50 STEPHANIE STREET

SWEPT PATH ANALYSIS
REAR LOAD REFUSE TRUCK

R.J Burnside & Associates Limited
NP

JULY 04, 2025

N.T.S



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

LEGEND

- VEHICLE TIRE PATH
- VEHICLE BODY PATH

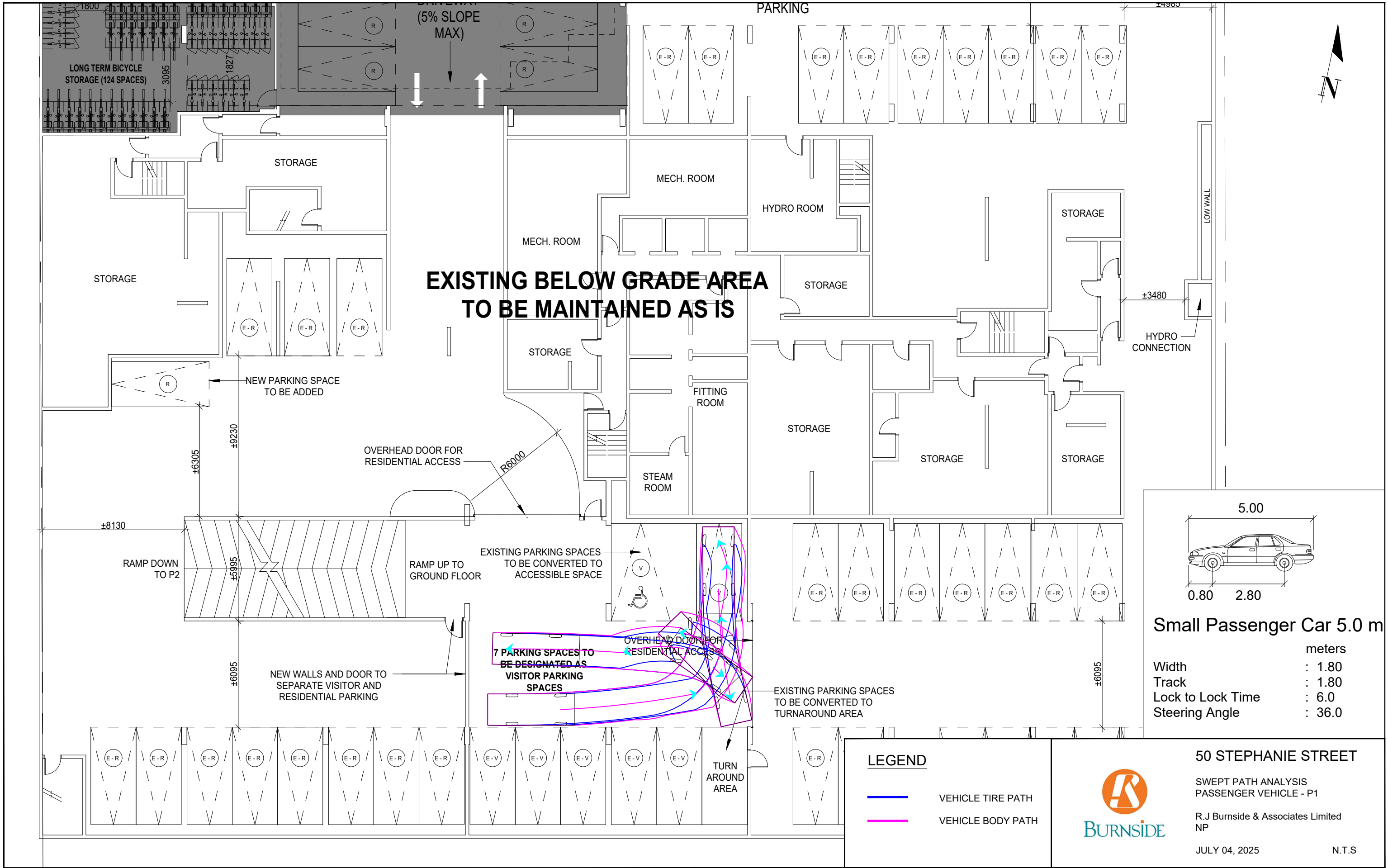


50 STEPHANIE STREET

SWEPT PATH ANALYSIS
MSU DELIVERY TRUCK

R.J Burnside & Associates Limited
NP

JULY 04, 2025 N.T.S





BURNSIDE

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Appendix J

Zoning By-law Excerpts

If a **parking space** rate is expressed as a ratio of **parking spaces** to the **gross floor area**, the **parking space** requirement for a use is calculated by multiplying the **gross floor area** of the use by the applicable rate found in Table 200.5.10.1 Parking Space Rates. [By-law: 89-2022]

(9) Calculation of Parking Space Requirements - Rounding

If the calculation of the number of required **parking spaces** results in a number with a fraction, the number is rounded down to the nearest whole number, but there may not be less than one **parking space**.

(10) Parking Space to be Clearly Marked

All **parking spaces** required for a non-residential use must be clearly identified and marked.

(11) Parking Space Calculation -Gross Floor Area Exclusion

The **interior floor area** of that portion of a **building** used exclusively for heating, cooling, ventilation, electrical, fire emergency stairwells, elevator shafts, atriums, utility areas, storage areas in the **basement**, **parking space**, **loading space**, or a **drive aisle** used to access a **parking space** or **loading space**, is not included in the **gross floor area** for the purpose of calculating **parking space** requirements.

(12) Vehicle Access to Building - Non-residential and Apartment Parking Area

If an **apartment building**, **mixed use building** or a **building** with non-residential uses, has an area for parking two or more **vehicles**:

- (A) the **vehicle** entrance and exit for a two-way **driveway** into and out of the **building** must have a minimum width of 5.5 metres;
- (B) the **vehicle** entrance or exit for a one-way **driveway** into or out of the **building** must have a minimum width of 3.5 metres; and
- (C) in (A) and (B) above, the **vehicle** entrance or exit to the **building** must be at least 6.0 metres from the **lot line** abutting the **street**.

(13) Parking Space Access

Other than **stacked parking space** and **tandem parking spaces**, all areas used for **parking spaces** must have **driveway** access to a **street** or **lane** that is direct and unobstructed, excluding a gate, moveable barrier or similar security feature. [By-law: 89-2022]

(14) Electric Vehicle Infrastructure

Parking spaces must be equipped with an **energized outlet**, which is clearly marked and identified for electric **vehicle** charging, in accordance with the following:

- (A) all residential **parking spaces** provided for **dwelling units** located in an **apartment building**, **mixed use building**, "multiple **dwelling unit building**", **detached house**, **semi-detached house**, **townhouse**, **duplex**, **triplex**, **fourplex**, or for a **secondary suite** or **laneway suite**, excluding visitor **parking spaces**, must include an **energized outlet** capable of providing **Level 2 charging** or higher to the **parking space**; and
- (B) in cases other than those set out in (A) above, 25 percent of the residential and non-residential **parking spaces** in a **building** must include an **energized outlet** capable of providing **Level 2** charging or higher. [By-law: 89-2022]

200.5.10 Parking Rates

200.5.10.1 General

(1) Parking Space Rates

Off **street parking spaces** must be provided for every **building** or **structure** erected or enlarged, in compliance with Table 200.5.10.1 - Parking Space Rates below: [By-law: 89-2022]

Table 200.5.10.1

PARKING SPACE RATES

Land Use Category	Parking Rate
Resident Requirement for a Dwelling unit in an: Apartment Building , Assisted Housing or a Mixed Use Building	Parking spaces must be provided: (A) in Parking Zone A (PZA) at a maximum rate of: (i) 0.3 for each bachelor dwelling unit up to 45 square metres and 1.0 for each bachelor dwelling unit greater than 45 square metres; and (ii) 0.5 for each one bedroom dwelling unit; and (iii) 0.8 for each two bedroom dwelling unit; and (iv) 1.0 for each three or more bedroom dwelling unit; and (B) in Parking Zone B (PZB) at a maximum rate of: (i) 0.7 for each bachelor dwelling unit up to 45 square metres and 1.0 for each bachelor dwelling unit greater than 45 square metres; and (ii) 0.8 for each one bedroom dwelling unit; and (iii) 0.9 for each two bedroom dwelling unit; and (iv) 1.1 for each three or more bedroom dwelling unit; and (C) in all other areas of the City, at a maximum rate of: (i) 0.8 for each bachelor dwelling unit up to 45 square metres and 1.0 for each bachelor dwelling unit greater than 45 square metres; and (ii) 0.9 for each one bedroom dwelling unit; and (iii) 1.0 for each two bedroom dwelling unit; and (iv) 1.2 for each three or more bedroom dwelling unit.
Resident Requirement for a Dwelling Unit in a: Detached House, Semi-detached House, Townhouse, Duplex, Triplex or Fourplex	None
Resident Requirement for a Dwelling Unit in a Multiple Dwelling Unit Buildings	Parking spaces must be provided at a maximum rate of 1.0 for each dwelling unit .
Secondary Suite	None
Resident Requirement for a Dwelling Room in a Multi-tenant House	Parking spaces must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a minimum rate of 0 for each dwelling room; (B) in the shaded area on Diagram 2 of By-law 156-2023, but not included in (A) above, at a minimum rate of 0 for each dwelling room; and (C) in all other areas of the City at a minimum rate of 0.34 for each dwelling room.
Visitor Requirement: For a dwelling unit in an Apartment Building , a Mixed Use Building , and/or a Multiple Dwelling Unit Building	Parking spaces must be provided: (A) in Parking Zone A (PZA) at a minimum rate of 2.0 plus 0.01 per dwelling unit; (B) in Parking Zone B (PZB) and in all other areas of the City, at a minimum rate of 2.0 plus 0.05 per dwelling unit; and (C) at a maximum rate of 1.0 per dwelling unit for the first five (5) dwelling units; and

5. Zoning By-law 569-2013, as amended, is further amended by replacing Clause 200.15.10.5 and Table 200.15.10.5 with the following:

200.15.10.5 Minimum Accessible Parking Spaces

(1) Accessible Parking Space Rates

If the number of **parking spaces** associated with **dwelling units** is 5 or more, or if the number of **parking spaces** associated with uses other than **dwelling units** is 1 or more, clearly identified accessible **parking spaces** must be provided on the same **lot** as every **building** or **structure** erected or enlarged, in compliance with the greater of the number of accessible **parking spaces** required by Table 200.15.10.5 – Minimum Parking Spaces Rates for Accessible Parking Spaces below or with 200.15.10.5(1)(A) to (E):

- (A) for residential uses located in Parking Zone A, the number of accessible **parking spaces** provided for residential uses must not be less than 7 percent of the **parking spaces** provided to that use;
- (B) for residential uses not located in Parking Zone A, the number of accessible **parking spaces** provided for residential uses must not be less than 5 percent of the **parking spaces** provided to that use;
- (C) for medical office or clinic (medical) uses, the number of accessible **parking spaces** provided must not be less than 10 percent of the **parking spaces** provided to that use;
- (D) for uses other than those listed in 200.15.10.5(1)(A) to (C), the number of accessible **parking spaces** provided for the uses must not be less than 5 percent of the **parking spaces** provided to the uses;
- (E) if the calculation of the number of required parking spaces in 200.15.10.5(1)(A) to (D) results in a number with a fraction, the number is rounded up to the nearest whole number.

Table 200.15.10.5

Minimum Parking Space Rates for Accessible Parking Spaces

Land Use Category	Rate for Calculating Accessible Parking Spaces
Resident Requirement for a Dwelling Unit in an Apartment Building , Assisted Housing or a Mixed Use Building	Accessible parking spaces must be provided at a minimum rate of: (A) In Parking Zone A, 0.02 for each dwelling unit (B) In Parking Zone B and in all other areas of the city, 0.025 for

	each dwelling unit
Resident Requirement for a Dwelling Unit in a Detached House, Semi-detached House, Townhouse, Duplex, Triplex or Fourplex	No rates to apply other than those required by other sections
Resident Requirement for a Dwelling Unit in a "Multiple Dwelling Unit Building "	Accessible parking spaces must be provided at a minimum rate of 0.05 for each dwelling unit
Secondary Suite	No rates to apply other than those required by other sections
Visitor Requirement for a dwelling unit in an Apartment Building, a Mixed Use Building, and/or a Multiple Dwelling Unit Building	No rates to apply other than those required by other sections
Tier 1: Alternative Housing, Group Home, Hospice Care Home, Nursing Home, Religious Residence, Retirement Home, Respite Care Facility and Seniors Community House	Accessible parking spaces must be provided at a minimum rate of 0.01 for each bed-sitting room or dwelling unit
Tier 2: Adult Education School, Animal Shelter, Art Gallery, Community Centre, Court of Law, Day Nursery, Education Use, Hospital, Hotel, Kennel, Laboratory, Motel, Museum, Office (Excluding Medical Office), Performing Arts Studio, Post Secondary School, Private School, Production Studio, Public School, Recreation Use, Religious Educational Use, Self-Storage Warehouse, Software Development and Processing, Vehicle Dealership, Veterinary Hospital	Accessible parking spaces must be provided at a minimum rate of: (A) for uses with a gross floor area less than or equal to 500 square metres: 1 accessible parking space (B) for uses with a gross floor area greater than 500 square metres: 1 plus 0.05 for each additional 100 square metres of gross floor area
Tier 3: Crisis Care Shelter, Municipal Shelter, Residential Care Home	Accessible parking spaces must be provided at a minimum rate of 0.01 for each 100 square metres of gross floor area
Tier 4: Adult Entertainment, Ambulance Depot, Amusement Arcade, Artist Studio, Billiard Hall, Bowling Alley, Bus Station, Cabaret, Cemetery, Club, Eating Establishment, Entertainment Place of Assembly, Financial Institution, Fire Hall, Funeral Home, Gaming Establishment, Golf Course, Grocery Store, Industrial Sales and Service, Industrial Skills Training, Library, Medical Office, Clinic (medical), Nightclub, Park, Personal Service Shop, Pet Services,	Accessible parking spaces must be provided at a minimum rate of: (A) for uses with a gross floor area less than or equal to 500 square metres: 1 accessible parking space (B) for uses with a gross floor area greater than 500 square metres: 1 plus 0.05 for each additional 100

Place of Assembly, Place of Worship, Police Station, Pool Hall, Railway Station, Retail Service, Retail Store, Service Shop, Vehicle Fuel Station, Vehicle Repair Shop, Vehicle Service Shop, Visitation Centre,	square metres of gross floor area
Tier 4.1: Contractor's Establishment, Manufacturing Uses, Railway Service and Repair Yard, Warehouse, Wholesaling Use, Vehicle Depot	No rates to apply other than those required by other sections

(2) Multiple Uses On a Lot

If there are multiple uses on a **lot**, the respective minimum accessible **parking space** rates for each use on the **lot** apply, and the total number of required accessible **parking spaces** is the cumulative minimum total for all uses.

(3) Interpretation of Minimum Parking Space Requirement

If Table 200.15.10.5 requires a minimum number of **accessible parking spaces** for a use, the number of **accessible parking spaces** available for that use listed on the Table may not be less than the required minimum.

(4) Calculation of Minimum Accessible Parking Spaces

Regulations 200.5.1.10(7), (8), and (11) and regulations 200.5.10.1(8), (9) and (10) apply to the calculation of minimum accessible **parking spaces** and interpretation of the rates in Table 200.15.10.5.

6. Zoning By-law 569-2013, as amended, is further amended by replacing clause 200.15.10.10 with the following:

200.15.10.10 Accessible Parking Spaces Exemptions

(1) Retrofitting Non-Accessible Parking Spaces

Despite 200.5.10.11(1)(C), if the lengths of two **lawfully existing parking spaces** are beside each other, the **lawfully existing parking spaces** may be removed and replaced by one accessible **parking space** which complies with all regulations for an accessible **parking space** in Section 200.15.

7. Zoning By-law 569-2013, as amended, is further amended by amending regulation 200.25.1(1) with the following:

(1) Lawfully Existing Buildings Exempt from Complying

(B) greater than the permitted maximum.

(3) Parking Space Rate Ancillary Uses

A use that is **ancillary** has the same **parking space** rate as the use to which it is **ancillary**.

(4) Parking Space Permission for Uses with No Parking Requirement

If a use is not required to provide **parking spaces** by Table 200.5.10.1 of this By-law, **parking spaces** may be provided for that use if:

- (A) the use is not listed on Table 200.5.10.1; [By-law: 1429-2017]
- (B) the **parking spaces** are used by the owner, occupant or visitors to the **premises**; and
- (C) the number of **parking spaces** is not:
 - (i) less than the required minimum for all uses on the **lot** by Table 200.5.10.1; and
 - (ii) greater than the permitted maximum or all uses on the **lot** by Table 200.5.10.1.

(5) Parking Space Rates - Multiple Uses on a Lot

If there are multiple uses on a **lot**, the respective minimum and maximum **parking space** rates for each use on the **lot** apply, and the total number of required **parking spaces** is the cumulative minimum total for all uses and the total number of permitted **parking spaces** is the cumulative maximum total for all uses. [By-law: 89-2022]

(7) Interpretation of Minimum and Maximum Parking Space Requirement

If Table 200.5.10.1 has a minimum and maximum number of **parking spaces** for a use, the number of **parking spaces** for that use listed on the Table may not:

- (A) be less than the required minimum;
- (B) exceed the permitted maximum; and
- (C) if a minimum is not specified for a use, no **parking spaces** are required. [By-law: 89-2022]

(8) Multiple Dwelling Unit Buildings Parking Rates

For calculating **parking space** requirements, a "multiple **dwelling unit building**" means two or more **residential buildings**, other than an **apartment building**, on lands where the **driveway** access to the **buildings** or to a parking area, is a common element over a "Parcel of Tied Land". For the purpose of this regulation, a "Parcel of Tied Land" has the meaning given to it in section 24 of Ontario Regulation 49/01 made under the Condominium Act, 1998, S.O. 1998, c.19, as amended.

(9) Assisted Housing Parking Rates

For the purposes of calculating **parking space** requirements, "assisted housing" means a **dwelling unit** operated by a **non-profit organization** or private sector organization in cooperation with the City of Toronto.

(10) Alternative Housing Parking Rates

For the purpose of calculating **parking space** requirements, "alternative housing" means a **dwelling unit** or **bedsitting room** owned and operated by or on behalf of the City of Toronto, or by a non-profit agency in cooperation with the City of Toronto or a private sector organization in cooperation with the City of Toronto.

(11) Reduction of Parking Spaces for Outdoor Patios

Despite regulations 200.5.10.1(1) and 200.5.10.11(1)(C) and Table 200.5.10.1, an **outdoor patio** may occupy a required **parking space**, subject to the following:

- (A) If it is not a **parking space** required for a residential occupant or is a required accessible **parking space**; and
- (B) If the number of residential visitor **parking spaces** reduced is not more than half the amount required by regulations 200.5.10.1(1) and 200.5.10.11(1)(A) and Table 200.5.10.1, rounded down to the nearest whole number. [By-law: 1153-2023]

200.5.10.11 Parking Rate Exemptions

(1) Parking Space Requirements for a Lawfully Existing Building

- (A) If the **lawful** number of **parking spaces** for a **lawfully existing building** is less than the required number of **parking spaces**, the **lawful** number of **parking spaces** is the minimum number of **parking spaces** for that **lawfully existing building**;
 - (B) If the **lawful** number of **parking spaces** for a **lawfully existing building** is greater than the permitted maximum number of **parking spaces**, the **lawful** number of **parking spaces** is the maximum number of **parking spaces** for that **lawfully existing building**;
 - (C) The number of **lawful parking spaces** for a **lawfully existing building** may not be reduced. [By-law: 89-2022]
- (2) Parking Space Requirements - Addition or Extension of a Lawfully Existing Building
Any addition or extension to a **lawfully existing building** referred to in regulation 200.5.10.11(1) must provide any additional **parking space** required by Clause 200.5.10.1, but no greater than the permitted maximum number of **parking spaces** for each use, unless authorized by a Section 45 Planning Act minor variance. [By-law: 89-2022]
- (3) Parking Space Requirement - Change of Use in a Lawfully Existing Building
If a **lawfully existing building** referred to in regulation 200.5.10.11(1) changes use:
- (A) the **lawfully existing** number of **parking spaces** may not be reduced; and
 - (B) any additional required **parking spaces** required by Clause 200.5.10.1 must be provided or be authorized by a Section 45 Planning Act minor variance.
- (4) Lawfully Existing Parking Space Located Off-Site
If the required **parking spaces** for **lawful** uses in a **lawfully existing building** are **lawfully** located on a **lot** that is not the same **lot** as the use for which the **parking spaces** are required:
- (A) those **lawful parking spaces** may be provided on another **lot** for that **lawfully existing building**, if those **lawful parking spaces** are not reduced; and
 - (B) any addition or expansion to that **building** must comply with the parking requirements or be authorized by a Section 45 Planning Act minor variance.
- (5) Definition of Lawful
For the purposes of Clauses 200.5.10.11, 200.5.200.5 and 200.5.200.50, the words **lawful** and **lawfully** highlighted in bold type, in addition to the definitions provided in Zoning By-law 569-2013, Chapter 800 Definitions, includes:
- (A) **buildings, structures** or uses authorized or permitted on or before February 3, 2022; and
 - (B) **buildings, structures** or uses authorized after February 3, 2022 in accordance with Clauses 200.25.15.1, 200.25.15.2, 200.25.15.3 and 200.25.15.4. [By-law: 89-2022]

200.5.200 Parking Exemptions

200.5.200.5 Exemptions Applying to All Zones

- (1) Electric Vehicle Infrastructure for a Lawfully Existing Building
Regulation 200.5.1.10(14) does not apply to a **lawfully existing building** that was not required to provide an **energized outlet**. [By-law: 89-2022]
 - (2) Electric Vehicle Infrastructure - Addition or Extension of a Lawfully Existing Building
Any addition or extension to a **lawfully existing building** referred to in regulation 200.5.10.11(1) must equip any additional **parking space** with an **energized outlet** required by regulation 200.5.1.10(14) or be authorized by a Section 45 Planning Act minor variance. [By-law: 89-2022]
 - (3) Electric Vehicle Infrastructure - Change of Use in a Lawfully Existing Building
If a **lawfully existing building** referred to in regulation 200.5.10.11(1) changes use:
- (A) the **lawfully** existing number of **parking spaces** equipped with an **energized outlet** may not be reduced; and
 - (B) any additional **parking spaces** must be equipped with an **energized outlet** required by regulation 200.5.1.10(14) or be authorized by a Section 45 Planning Act minor variance. [By-law: 89-2022]

200.5.200.40 Commercial Residential Zone Category

(1) Parking Rates for Common Areas and Walkways in Commercial Malls

In the Commercial Residential Zone category, internal common areas and walkways located on the first **storey** of an enclosed commercial retail mall are required to provide **parking spaces** as follows:

- (A) if the **interior floor area** of internal common areas and walkways on the first **storey** services **retail stores** and any other use; then the **parking space** requirement for **retail stores** applies to the **interior floor area** of the common areas and walkways; and
- (B) if the **interior floor area** of internal common areas and walkways on the first **storey** services only one use; the **parking space** requirement for that use applies to the **interior floor area** of the common areas and walkways.

(2) Parking Rates for Public Common Areas and Walkways in Office Buildings

In the Commercial Residential Zone category internal common areas and walkways located on the first **storey** in an office **building** are required to provide **parking spaces** as follows:

- (A) if the total **interior floor area** of all non-office uses on the first **storey** is greater than the total **interior floor area** of all office uses on the first **storey**, then the **parking space** requirement for the non-office use applies to the common areas and walkways; and
- (B) if the total **interior floor area** of all office uses on the first **storey** is greater than the total **interior floor area** of all non-office uses on the first **storey**, then the **parking space** requirement for an office use applies to the common areas and walkways.

(3) Parking Space Requirements for Change of Non-residential Use

If a **lot** in the CR zone subject to Development Standard Set 2 (SS2) has a **building** constructed pursuant to a building permit issued on or before March 1, 1994, and the **building** covers a minimum of 75% of the **lot area**, for a change of non-residential uses in that **building**:

- (A) no additional **parking spaces** are required for a non-residential use with a higher **parking space** requirement; and
- (B) the number of **parking spaces** existing on the **lot** on March 1, 1994 or the number of **parking spaces** pursuant to the building permit may not be reduced for a non-residential use with a lower **parking space** requirement. [By-law: 348-2021]

200.10 Regulations Applying to Visitor Parking Spaces

200.10.1 General

(1) Access to Visitor Parking Spaces

All **driveways** or **drive aisles** that provide **vehicle** access to visitor **parking space** must be clearly identified.

(2) Visitor Parking Space - Marking

All visitor **parking spaces** must be clearly identified and marked.

(3) Visitor Parking Space Dimensions

A visitor **parking space** must comply with the **parking space** dimensions in Section 200.5.

200.15 Regulations Applying to Accessible Parking Spaces

200.15.1 General

(1) Accessible Parking Space Dimensions (Minimum)

An accessible **parking space** must have the following minimum dimensions:

- (A) length of 5.6 metres;
- (B) width of 3.9 metres; and
- (C) vertical clearance of 2.1 metres.

(1) Accessible Parking Space Dimensions

An accessible **parking space** must have the following minimum dimensions:

- (A) length of 5.6 metres;
- (B) width of 3.4 metres; and
- (C) vertical clearance of 2.1 metres; [By-law: 579-2017 Under Appeal]

(2) Accessible Parking Space Dimensions - Parallel Parking Space

The minimum dimensions of an accessible **parking space** that is adjacent and parallel to a **drive aisle** from which **vehicle** access is provided is:

- (A) length of 7.1 metres;
- (B) width of 2.6 metres; and
- (C) vertical clearance of 2.1 metres; [By-law: 579-2017]

(3) Barrier Free Aisle

The entire length of an accessible **parking space** must be adjacent to a 1.5 metre wide accessible barrier free aisle or path as shown on Diagram 1 and Diagram 2 of By-law 579-2017; [By-law: 579-2017 Under Appeal]

(4) Location of Accessible Parking Spaces

Accessible **parking spaces** must be the **parking spaces** closest to a barrier free:

- (A) entrance to a **building**;
- (B) passenger elevator that provides access to the first **storey** of the **building**; and
- (C) and shortest route from the required entrances in (A) and (B). [By-law: 579-2017 Under Appeal]

200.15.1.5 Interpretation

(1) Meaning of Accessible

For the purpose of Section 200.15, "accessible" means free of a physical, architectural or design barriers that would restrict access or use to a person with a disability as defined in the *Accessibility for Ontarians with Disabilities Act, 2005*, S.O. 2005, c. 11. [By-law: 579-2017]

200.15.10 Parking Rate

200.15.10.5 Effective Parking Spaces

(1) Application of Effective Parking Spaces

Effective **parking spaces** and Table 200.15.10.5 may only be used to determine the required amount of accessible **parking spaces**, in accordance with the following:

- (A) the number of effective **parking spaces** calculated from Table 200.15.10.5 is not intended to represent the total number of required accessible **parking spaces**;
- (B) effective **parking spaces** may only be used as the basis for calculating the required quantity of accessible **parking spaces**, in accordance with the rates in Regulations 200.15.10.10(1) and (2);

(C) effective **parking space** rates in Table 200.15.10.5 do not apply as a substitute for the parking rates in Table 200.5.10.1 – Parking Space Rates; and

(D) the quantity of **vehicle parking spaces** provided for a development may not apply as a substitute for the effective **parking space** requirements in the calculation of required accessible parking, except for circumstances set out in regulation 200.15.10.5(2). [By-law: 89-2022]

(2) Determining Effective Parking Spaces for the Purposes of Accessible Parking

The number of effective **parking spaces** to determine accessible **parking space** requirements is the greater of the number of permitted **parking spaces** provided and the number of **parking spaces** calculated using the rates in Table 200.15.10.5. [By-law: 89-2022]

(3) Calculation of Effective Parking Spaces

Regulations 200.5.1.10(1), (7), (8), (9) and (11) apply for the calculation of effective **parking spaces** and interpretation of the rates in Table 200.15.10.5. [By-law: 89-2022] [By-law: 1268-2023]

200.15.10.10 Parking Rate - Accessible Parking Spaces

(1) Accessible Parking Rates – General

In accordance with Table 200.15.10.5, if the number of **parking spaces** associated with **dwelling units** is 5 or more, or if the number of **parking spaces** associated with uses in Tiers 1, 2, 3, or 4, excluding medical offices and clinics, is 1 or more, clearly identified off **street** accessible **parking spaces** must be provided on the same **lot** as every **building** or **structure** erected or enlarged, as follows:

(A) if the number of effective **parking spaces** is less than 13, a minimum of 1 **parking space** must comply with all regulations for an accessible **parking space** in Section 200.15;

(B) if the number of effective **parking spaces** is 13 to 100, a minimum of 1 **parking space** for every 25 effective **parking spaces** or part thereof must comply with all regulations for an accessible **parking space** in Section 200.15; and

(C) if the number of effective **parking spaces** is more than 100, a minimum of 5 **parking spaces** plus 1 **parking space** for every 50 effective **parking spaces** or part thereof in excess of 100 **parking spaces** must comply with all regulations for an accessible **parking space** in Section 200.15. [By-law: 1048-2022]

(2) Accessible Parking Rates – Medical Offices and Clinics

In accordance with Table 200.15.10.5, if the number of **parking spaces** associated with medical offices and clinics is 1 or more, **parking spaces** which comply with all regulations for an accessible **parking space** in Section 200.15 must be provided, as follows:

(A) the minimum number of accessible **parking spaces** is 10 percent of the number of effective **parking spaces**, rounded up; and

(B) any accessible **parking spaces** lawfully existing on the **lot** must be retained. [By-law: 1048-2022]

200.15.15 Transition: Accessible Parking Spaces

(1) Accessible Parking Spaces

An application submitted before May 26, 2017 that is eligible to proceed under clauses 200.15.15.1 through 200.15.15.3, must provide accessible **parking spaces** in compliance with 200.15.15.4 and 200.15.15.5. [By-law: 579-2017]

200.15.15.1 Transition: Building Permit Applications

(1) Building Permit Applications

Nothing in Articles 200.15.1, 200.15.5 and 200.15.10 will prevent the erection or use of a **building** or **structure** for which an application for a building permit was filed on or prior to May 26, 2017, if the project in question complies, or the building permit application for the project is amended to comply, with the provisions

of regulations 200.15.15.4 and 200.15.15.5 below, and all finally approved minor variances. [By-law: 579-2017]

(2) Building Permit Applications

For the purposes of regulation 200.15.15 (1), an "application for a building permit" means an application for a building permit that satisfies the requirements set out in Article I, Building Permits of Chapter 363, Building Construction and Demolition of the City of Toronto Municipal Code. [By-law: 579-2017]

200.15.15.2 Transition: Zoning Certificate Applications

(1) Zoning Certificate Applications

Nothing in Articles 200.15.1, 200.15.5 and 200.15.10 will prevent the erection or use of a **building** or **structure**, in the circumstances set out in regulation 200.15.15.2 (2) for a project for which a request for a zoning certificate was filed on or prior to May 26, 2017. [By-law: 579-2017]

(2) Zoning Certificate Applications

After a zoning certificate has been issued for a project that qualifies under regulation 200.15.15 (1), a building permit for that project may be issued if:

- (A) the building permit plans for the project are substantially in compliance with the plans approved with the zoning certificate referred to in regulation 200.15.15(3) and issued pursuant to Section 363-10.1 of Chapter 363, Building Construction and Demolition of the City of Toronto Municipal Code; and
- (B) the project in question complies, or the building permit application for the project is amended to comply, with the provisions of regulations 200.15.15.4 and 200.15.15.5 below, and all finally approved minor variances. [By-law: 579-2017]

(3) Zoning Certificate Applications

For the purposes of regulation 200.15.15.2 a "request for zoning certificate" means a request for a zoning certificate that satisfies the requirements set out in Article I, Building Permits, of Chapter 363, Building Construction and Demolition of the City of Toronto Municipal Code. [By-law: 579-2017]

200.15.15.3 Transition: Site Plan Applications

(1) Site Plan Approval Applications

Nothing in Articles 200.15.1, 200.15.5 and 200.15.10 will prevent the erection or use of a **building** or **structure** for a project for which a complete application for site plan approval was filed on or prior to May 26, 2017, if the project in question complies with the provisions of regulations 200.15.15.4 and 200.15.15.5 below, and all finally approved minor variances. [By-law: 579-2017]

(2) Site Plan Approval Applications

Where a project qualifies under regulation 200.15.15.3:

- (A) the Notice of Approval Conditions and final site plan approval may be granted if the project complies with regulations 200.15.15.4 and 200.15.15.5 below, all requirements of the Planning Act, and Section 114 of the City of Toronto Act, 2006, S.O. 2006, c.11 Schedule. A; and
- (B) after a Notice of Approval Conditions or final site plan approval is received for a project that qualifies under regulation 200.15.15.3, a building permit for that project may be issued if the project in question complies, or the building permit application for the project is amended to comply, with the provisions of regulations 200.15.15.4 and 200.15.15.5 below, the site plan approval, and all finally approved minor variances. [By-law: 579-2017]

(3) Site Plan Approval Applications

For the purposes of regulation 200.15.15.3, a "complete application for site plan approval" means an application which satisfies the requirements set out in the City of Toronto Official Plan Policy 5.5.2. [By-law: 579-2017]

200.15.15.4 Transition: Parking Space General Requirements

(1) Accessible Parking Space Dimensions

An accessible **parking space** must have the following minimum dimensions:

- (A) length of 5.6 metres;
- (B) width of 3.9 metres; and
- (C) vertical clearance of 2.1 metres. [By-law: 579-2017]

(2) Location of Accessible Parking Spaces

Accessible **parking spaces** must be the **parking spaces** located:

- (A) closest to a main pedestrian access to a **building**; and
- (B) at the same level as the pedestrian entrance to the **building**. [By-law: 579-2017]

(3) Parking Rates - Accessible Parking Spaces

If the total **parking space** requirement is 5 or more, clearly identified off- **street** accessible **parking spaces** must be provided on the same **lot** as every **building** or **structure** erected or enlarged, in compliance with the following:

- (A) if the number of required **parking spaces** is 5 to 24, a minimum of 1 **parking space** must comply with the minimum dimensions for an accessible **parking space**;
- (B) if the number of required **parking spaces** is 25 to 100, a minimum of 1 **parking space** for every 25 **parking spaces** or part thereof must comply with the minimum dimensions for an accessible **parking space**; and
- (C) if the number of required **parking spaces** is more than 100, a minimum of 4 **parking spaces** plus 1 **parking space** for every 50 **parking spaces** or part thereof in excess of 100 **parking spaces**, must comply with the minimum dimensions for an accessible **parking space**. [By-law: 579-2017]

200.15.15.5 Transition: Medical Office and Clinic Requirements

(1) Medical Office and Clinic Accessible Parking Space Rates

A minimum of 10 percent of the required **parking spaces** for a medical office established after May 26, 2017 must comply with the minimum dimensions for an accessible **parking space** and any accessible **parking spaces lawfully existing** on the **lot** must be retained. [By-law: 579-2017]

200.15.15.6 Transition: Accessible Parking Spaces Duration of Transition

(1) Transition Application

Nothing in Article 200.15.15 applies so as to continue the application of these transition regulations beyond the issuance of the building permit upon which the exemptions are founded. [By-law: 579-2017]

(2) Transition Clause Duration

In no case do the exemptions mentioned in Article 200.15.15 continue beyond the repeal of these transition regulations. [By-law: 579-2017]

(3) Transition Regulations Repeal

Clauses 200.15.15.1, 200.15.15.2, 200.15.15.3, 200.15.15.4, 200.15.15.5 and Regulations 200.15.15.6 (1) and (2) are repealed five years after May 26, 2017. [By-law: 579-2017]

	(D) at a maximum rate of 0.1 per dwelling unit for the sixth and subsequent dwelling units .
Tier 1: Alternative Housing, Group Home, Hospice Care Home, Nursing Home, Religious Residence, Retirement Home, Respite Care Facility and Seniors Community House	Parking spaces must be provided at a maximum rate of 0.5 for each bed-sitting room or dwelling unit.
Tier 2: Adult Education School, Animal Shelter, Art Gallery, Clinic (medical), Community Centre, Court of Law, Day Nursery, Education Use, Hospital, Hotel, Kennel, Laboratory, Motel, Museum, Office (Excluding Medical Office), Performing Arts Studio, Post-Secondary School, Private School, Production Studio, Public School, Recreation Use, Religious Educational Use, Self-Storage Warehouse, Software Development and Processing, Vehicle Dealership, Veterinary Hospital	Parking spaces must be provided: (A) in Parking Zone A (PZA) at a maximum rate of 0.8 for each 100 square metres of gross floor area; (B) in Parking Zone B (PZB) at a maximum rate of 1.0 for each 100 square metres of gross floor area; and (C) in all other areas of the City, at a maximum rate of 3.5 for each 100 square metres of gross floor area.
Tier 3: Crisis Care Shelter, Municipal Shelter, Residential Care Home	Parking spaces must be provided at a maximum rate of 1.5 for each 100 square metres of gross floor area
Tier 4: Adult Entertainment, Ambulance Depot, Amusement Arcade, Artist Studio, Billiard Hall, Bowling Alley, Bus Station, Cabaret, Cemetery, Club, Contractor's Establishment, Eating Establishment, Entertainment Place of Assembly, Financial Institution, Fire Hall, Funeral Home, Gaming Establishment, Golf Course, Grocery Store, Industrial Sales and Service, Industrial Skills Training, Library, Manufacturing Uses, Medical Office, Nightclub, Park, Personal Service Shop, Pet Services, Place of Assembly, Place of Worship, Police Station, Pool Hall, Railway Service and Repair Yard; Railway Station, Retail Service, Retail Store, Service Shop, Vehicle Depot, Vehicle Fuel Station, Vehicle Repair Shop, Vehicle Service Shop, Visitation Centre, Warehouse, Wholesaling Use	Parking spaces must be provided: (A) in Parking Zone A (PZA) at a maximum rate of 3.5 for each 100 square metres of gross floor area; (B) in Parking Zone B (PZB) at a maximum rate of 4.0 for each 100 square metres of gross floor area; and (C) in all other areas of the City, at a maximum rate of 6.0 for each 100 square metres of gross floor area.

[By-law: 89-2022]

(2) Provision of Parking Spaces

Parking spaces provided for each use may not be:

(A) less than the required minimum; or

Chapter 220 Loading Space Regulations

220.5 Regulations Applying to Loading Spaces

220.5.1 General

(1) Application of This Section

The regulations in Section 220.5 apply to all **loading spaces** and **driveways** leading to a **loading space**.

(2) Requirement to Provide Loading Spaces

A **loading space** must be provided and maintained for each use on a **lot**, in compliance with the regulations in Chapter 220.

220.5.1.10 Interpretation

(1) Loading Space Requirement Calculation

The calculation of required **loading spaces** is based on the total **gross floor area** on the **lot**.

(2) Loading Space Calculation for Multi-unit Industrial Buildings

If a **lot** in the Employment Industrial Zone category has a **building** with more than one industrial unit, the calculation of the required **loading spaces** is based upon the **interior floor area** of each industrial unit and not on the total **gross floor area** of the entire **building**.

(3) Industrial Unit - Definition

For the purpose of calculating required **loading spaces** in Chapter 220, an "industrial unit", means the portion of a **building** used by or under the control of an individual owner or tenant.

(4) Loading Space Calculation - Gross Floor Area Exclusion

The **interior floor area** of an "industrial unit" in a **building** that is used exclusively for heating, cooling, ventilation, electrical, emergency stairwells, elevator shafts, atriums, storage in a **basement**, **parking space**, **loading space**, or a **drive aisle** used to access a **parking space** or **loading space**, is not included as **gross floor area** for the purpose of calculating **loading space** requirements. [By-law: 451-2022]

(5) Required Loading Space

If one or more off **street loading spaces** is required to be provided on a **lot**, that **loading space** must be available for the use for which it is required.

(6) Loading Space Demarcation

Loading spaces inside a **building** must be clearly marked and identified.

(7) Minimum Loading Space Dimensions

If a **loading space** is required by this By-law for a **building** located in Policy Area 1 (PA1) that does not have a **dwelling unit**, despite the dimension requirements of Regulation 220.5.1(8), the **loading space** must have a minimum vertical clearance of 4.4 metres.

(8) Loading Space Standards

A **loading space** is subject to the following:

(A) a Type "A" **loading space** must have a:

- (i) minimum length of 17.0 metres;
- (ii) minimum width of 3.5 metres; and
- (iii) minimum vertical clearance of 4.4 metres; and

(B) a Type "B" **loading space** must have a:

- (i) minimum length of 11.0 metres;
- (ii) minimum width of 3.5 metres; and
- (iii) minimum vertical clearance of 4.0 metres; and

- (C) a Type "C" **loading space** must have a:
- (i) minimum length of 6.0 metres;
 - (ii) minimum width of 3.5 metres; and
 - (iii) minimum vertical clearance of 3.0 metres; and
- (D) a Type "G" **loading space** must have a:
- (i) minimum length of 13.0 metres;
 - (ii) minimum width of 4.0 metres; and
 - (iii) minimum vertical clearance of 6.1 metres.

220.5.10 Loading Space Rates

220.5.10.1 General

(1) Loading Space Requirements

Loading spaces must be provided in compliance with regulations 220.5.10.1(2) to (9).

(2) Loading Space Requirements - Building Containing Dwelling Units

A **building** with **dwelling units** must provide **loading spaces** as follows:

Number of Units	Minimum Number of Loading Spaces Required
0 to 30 dwelling units	None required
31 to 399 dwelling units	1 Type "G"
400 dwelling units or more	1 Type "G" and 1 - Type "C"

(3) Loading Space Requirements - Retail Store, Eating Establishment, or Personal Service Shop

A **building** with a **retail store**, **eating establishment**, or **personal service shop** must provide **loading spaces** as follows:

Gross Floor Area	Minimum Number of Loading Spaces Required
0 to 499 square metres	None required
500 to 1,999 square metres	1 Type "B"
2,000 to 4,999 square metres	2 Type "B"
5,000 to 9,999 square metres	3 Type "B"
10,000 to 19,999 square metres	1 Type "A" and 3 Type "B"
20,000 to 29,999 square metres	1 Type "A", 3 Type "B" and 1 Type "C"
30,000 square metres or greater	1 Type "A", 3 Type "B" and 1 Type "C"

(4) Loading Space Requirements - Grocery stores/supermarket

A **building** with a grocery stores or supermarket must provide **loading spaces** as follows:

Gross Floor Area	Minimum Number of Loading Spaces Required
0 to 499 square metres	None required
500 to 999 square metres	1 Type "B"
1,000 to 1,999 square metres	1 Type "A"
2,000 to 4,999 square metres	1 Type "A" and 1 Type "B"
5,000 to 9,999 square metres	1 Type "A" and 2 Type "B"
10,000 to 19,999 square metres	2 Type "A" and 2 Type "B"

