17 St. Andrew Street
Proposed Mixed-Use Development

Urban Transportation Considerations
City of Toronto

Prepared For: The Impressions Group

September 30, 2019

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1.0 INTRODUCTION

BA Group is retained by The Impressions Group to provide transportation consulting services with respect to the proposed mixed-use residential development municipally known as 17 St. Andrew Street in the City of Toronto.

1.1 THE SITE TODAY

The 17 St. Andrew Street property (herein also referred to as the 'site') is situated approximately mid-block along St. Andrew Street between Spadina Avenue and Kensington Avenue. The site is located directly adjacent to a north-south public laneway and currently consist of a 2-storey building fronting onto St. Andrew Street as well as private surface parking lot consisting of approximately 15 spaces.

The existing building comprises of at-grade retail uses with second floor residential uses. Parking and loading activity is provided within the surface lot adjacent to the existing building.

Figure 1 and **Figure 2** illustrate the site location and site context, respectively.

1.2 PROJECT DESCRIPTION

The development program proposes a 5-storey (plus mechanical penthouse) student residence with ancillary retail uses located at-grade. A total of 77 residential dwelling units (93 beds) and ancillary retail uses with a gross floor area (GFA) of approximately 172 m^2 are proposed.

1.2.1 Site Access

No formal access is proposed on site. Loading access to the site is proposed via an existing north-south laneway located along St. Andrew Street (approximately 90 m west of Spadina Avenue) along the western site boundary of the site.

1.2.2 Vehicle and Bicycle Parking

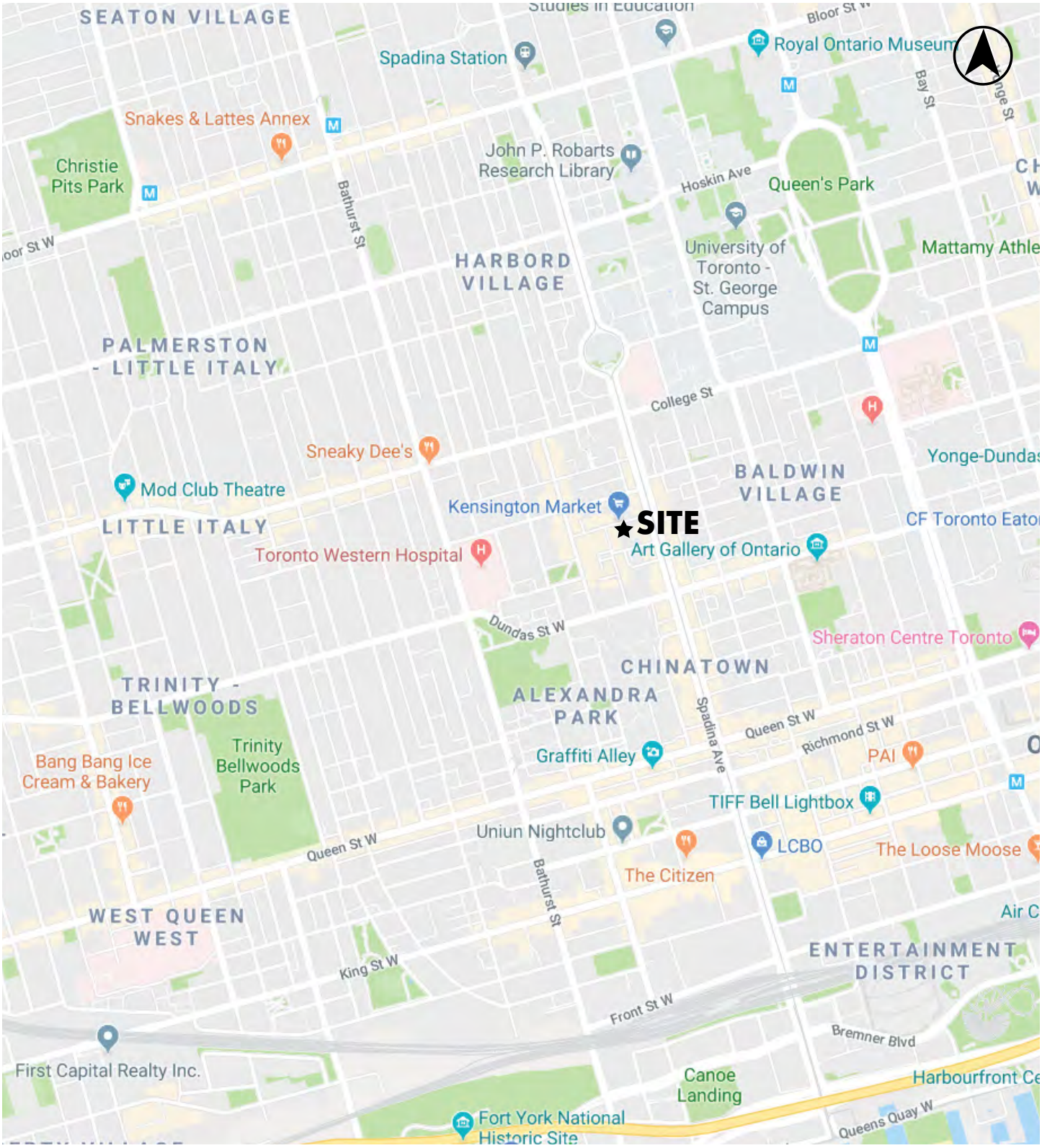
No vehicular parking spaces are proposed on the site. A public parking garage operated by Toronto Parking Authority (TPA) is available directly north of the site along St. Andrew Street, providing a total of 425 parking spaces, and is municipally known as 20 St. Andrews Street.

A total of 156 bicycle parking spaces are provided on site to accommodate the needs of the site.

1.2.3 Loading

One (1) Type 'G' loading spaces is proposed on site to accommodate the garbage and moving needs of the site. The proposed loading space can be accessed via the north-south laneway along St. Andrew Street.

Reduced-scaled architectural drawings of the proposed development are provided in **Appendix A**.



SITE LOCATION

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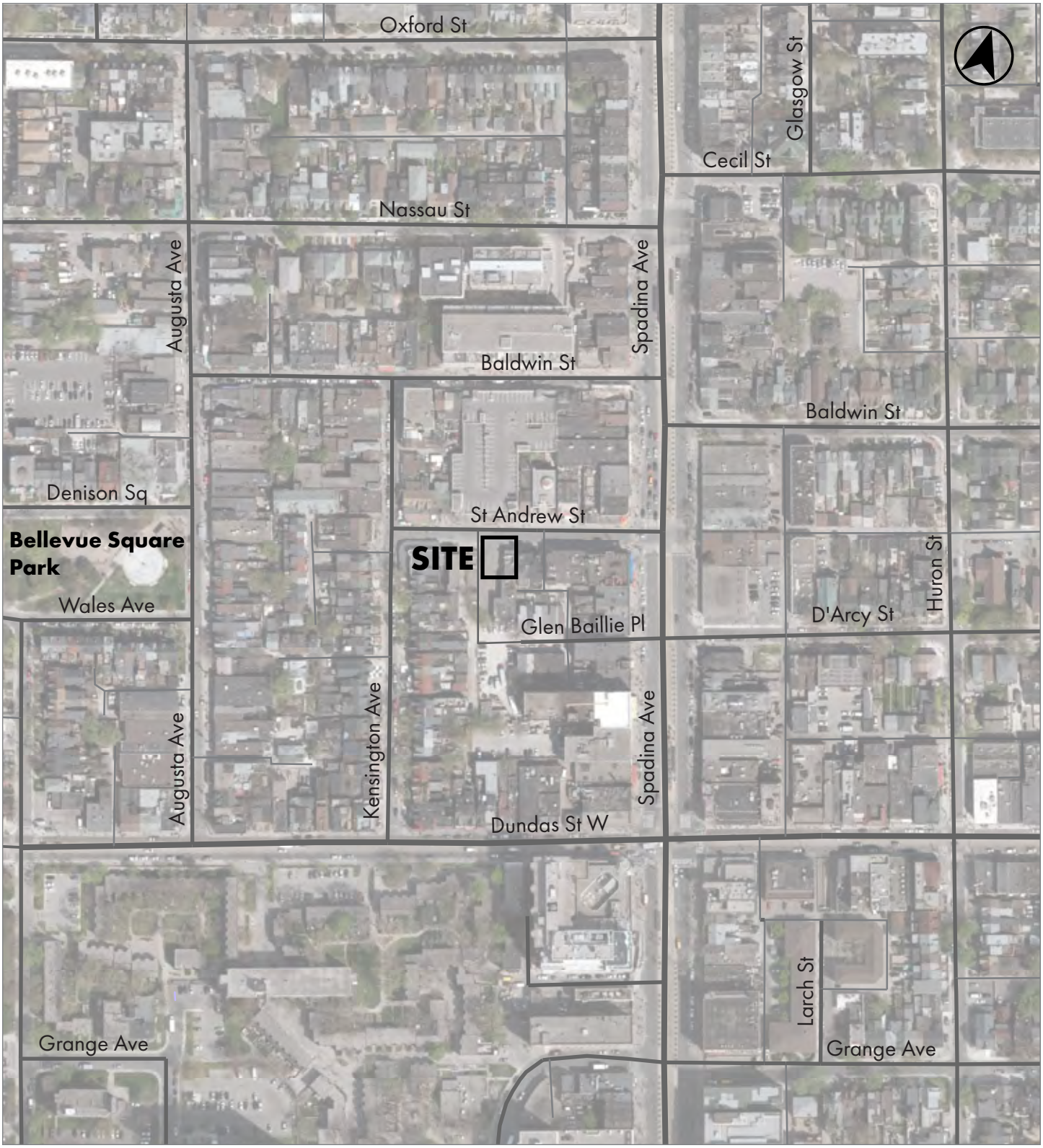
17 St. Andrew Street
7806-03 August 2019

Figure 1



SITE CONTEXT

BA Group

17 St. Andrew Street
7806-03 August 2019

Figure 2

2.0 SCOPE OF TRANSPORTATION REVIEW

BA Group has undertaken a review of the implications, from a transportation perspective of the proposed development. This review has been undertaken on a comprehensive basis and includes an assessment of the following aspects of the proposal and its transportation context:

- the transportation context of the site and its environs;
- the existing weekday street peak hour traffic activity levels on the area street system surrounding the site;
- the existing operational characteristics of the key area intersections in the site vicinity during the morning and afternoon weekday peak hour periods;
- traffic generation characteristics and travel patterns related to the proposed development during the weekday morning and afternoon street peak hours;
- future weekday morning and afternoon peak hour traffic volumes in the site vicinity considering new traffic from the proposed development, other area development as well as general traffic growth;
- future traffic operations at the public street intersections in the site vicinity and the site driveways during the weekday street peak hours;
- traffic volume changes on the area local and collector street system in the site area resulting from a redevelopment of the property;
- Transportation Demand Management (TDM) measures related to the site to encourage non-automobile oriented travel;
- multi-modal transportation review, including non-automobile trip generation characteristics related to the proposed development; and
- a review of the functional aspects of the proposed site access, loading and parking facilities.

3.0 STUDY FINDINGS

CONTEXT

1. The site is located within the south-west quadrant of the Spadina Avenue and St. Andrew Street signalized intersection. The site location allows for convenient access to streetcars operating along Spadina Avenue and Dundas Street West, with an option to transfer to other transit routes such as Line 1 Yonge-University and Line 2 Bloor-Danforth subway. This proximity to the subway system provides high transit accessibility for the site and will serve to reduce the reliance on auto trips for students of the proposed development.

2. The site is located within the Kensington Market neighbourhood in the downtown core of the City. There are many retail stores in the site vicinity. This proximity is supportive of a non-auto trip making by students of the proposed development and will serve to reduce traffic generation potential of the site.

SITE ACCESS CONSIDERATIONS

3. No formal vehicular aces into the site is proposed. Pedestrian and cycling access to the site is proposed along St. Andrew Street. Loading access is proposed via the existing north-south laneway adjacent to the site (approximately 90 m west of Spadina Avenue).

TRAFFIC GROWTH

4. A comprehensive series of traffic growth allowances have been made within the analyses undertaken as part of this study to account for traffic generated by new area development.

5. Specific allowances were made for traffic generated by other developments in the area that have either been approved and are not yet built or are being actively reviewed by the City.

6. A review of the historical peak hour traffic volumes indicates that there has been no sustained growth in peak hour traffic activity over recent years. Notwithstanding this, an annual corridor growth rate of 0.5% was conservatively applied to Spadina Avenue for the weekday morning and weekday peak hour periods.

SITE TRAFFIC

7. The existing site was surveyed in September 2018 and it was observed that approximately 2 and 18 two-way trips currently access the site during the weekday morning and afternoon peak hour peaks, respectively.

8. The proposed development is anticipated to generate in the order of 0 and 2 two-way vehicular trips during the weekday morning and afternoon peak traffic hours, respectively.

9. A total of approximately -2 and -16 net-new trips are anticipated as part of the proposed development programme.

TRAFFIC OPERATIONS ANALYSIS AREA SIGNALIZED INTERSECTIONS

10. The key signalized intersection of Spadina Avenue / St. Andrew Street operates acceptably under existing traffic conditions with overall intersection volume to capacity (v/c) ratios of 0.30 or less during the morning and afternoon peak hours.

11. Acceptable traffic operations will be maintained in the future at the signalized intersection with addition of site traffic and new traffic from other area development proposal. Overall intersection v/c ratios will be 0.31 or less during the morning and afternoon peak hours.

12. Site related impacts on the operation of the area signalized intersection are negligible. New site related traffic activity can be acceptably and appropriately accommodated at the area signalized intersections.

TRAFFIC OPERATIONS ANALYSIS AREA UNSIGNALIZED INTERSECTIONS

13. Acceptable levels of service are provided today at the key area unsignalized (STOP controlled) intersections. Turning movement and approach levels of service provided under existing conditions are in the LOS A to D range.

14. The area unsignalized intersections will continue to operate acceptably under future background conditions with the addition of other area development traffic activity. These intersections will continue to operate in a similar manner to existing conditions with turning movement and approach levels of service remaining within the LOS A to D range.

15. Under future total conditions with the addition of new site related traffic generated by the site, area unsignalized intersection will continue to operate similar to future background conditions within the LOS A to D range.

16. New site related traffic can, based upon the above, be acceptably and appropriately accommodated at the area unsignalized STOP controlled intersections. Traffic operations and levels of service will be similar to existing conditions.

SITE DRIVEWAY TRAFFIC OPERATIONS

17. The proposed site (loading) access along the existing north-south laneway at St. Andrew Street will operate acceptably (LOS A) during both the morning and afternoon peak hours with build-out of the proposed building during the morning and afternoon peak hour periods.

18. Site traffic activity can be acceptably accommodated at the laneway.

SITE PLAN CONSIDERATIONS

Vehicle Parking

19. Zoning By-law 569-2013 Policy Area 1 minimum parking requirements for the proposed student residence considering residential uses as prescribed under the bylaw would yield a total of 43 vehicle parking spaces.

20. As part of the proposal, no vehicular parking spaces are proposed within the site. Parking is proposed to be accommodated at the public parking lot operated by Toronto Parking Authority (TPA) directly north of the site across St. Andrew Street, providing a total of 425 parking spaces.

21. Based on full day surveys conducted during the weekday (Friday) and weekend (Saturday and Sunday) peak demand periods, a surplus of supply of approximately 75 or more spaces were observed.

Bicycle Parking

22. Under Zoning By-law 569-2013 Bicycle Zone 1, a total of 79 bicycle parking spaces are required considering residential uses as prescribed under the bylaw, including 71 long-term and 8 short-term spaces.

23. The proposal includes 156 bicycle parking spaces and meets (and exceeds) the minimum requirements prescribed under Zoning By-law 569-2013.

Loading

24. Under Zoning By-law 569-2013, one Type ‘G’ loading space is required for the site considering residential uses as prescribed under the bylaw.

25. One Type ‘G’ loading space is proposed to accommodate garbage collection, delivery, and site related service activity. The proposed loading facility will appropriately accommodate the needs of the development.

26. The arrangement of the loading area and related access facility has been designed to accommodate the manoeuvering needs of City of Toronto garbage and recycling collection vehicles as well as facilitating ‘forward in / forward out’ access to and from the site for City of Toronto garbage collection.

Transit

27. The is well served by high level public transit, approximately 250 metres from the nearest stop along the 505 Dundas and 510 Spadina streetcar routes and approximately 1 km from the St. Patrick subway station on the Yonge-University-Spadina subway line (Line 1). This high level of transit access will provide residents of the development without a car can readily reach a wide range of destinations.

Pedestrians Facilities

28. Continuous sidewalks are provided on both sides along St. Andrew Street, Spadina Avenue and Dundas Street West as well as several signalized crossing opportunities.

Cycling Facilities

29. Bicycle sharrows are provided along Spadina Avenue and extend from Fort York Boulevard in the south to College Street in the north. Spadina Avenue intersects with several marked cycling lanes including southbound connections to the rest of the City.

30. The proposed development proposes a total of 156 bicycle parking spaces which satisfies (and exceeds) the minimum bicycle parking requirements of the by-law and will accommodate the needs of the site.

SUMMARY AND CONCLUSIONS

31. New site related traffic volumes can be acceptably and appropriately accommodated on the area street network.

32. Site related traffic impacts are small and will not noticeably change operating conditions at area signalized and unsignalized intersections during the peak hours.

33. The development plan will acceptably accommodate the vehicular, transit, pedestrian and cycling needs of the proposed development.

4.0 TRANSPORTATION CONTEXT

4.1 AREA ROAD NETWORK

The area road network in the immediate site vicinity is illustrated in **Figure 3**. A brief description of roads in the vicinity of the site is provided as follows.

4.1.1 Major Arterials

SPADINA AVENUE

Spadina is a north-south oriented 4-lane roadway divided by a dedicated streetcar route and extends from Queens Quay West in the south to beyond Bloor Street in the north. In the study area, northbound and southbound left turn and u-turn lanes are provided at signalized intersections and lay-by parking is provided along the outside lanes in both directions. Transit stops are located in the centre right-of-way at Baldwin Street and Dundas Street West within the site vicinity.

On-street bicycle sharrows are also provided along Spadina Avenue in both the northbound and southbound directions.

4.1.2 Local Roads

ST. ANDREW AVENUE

St. Andrew Avenue is a local road that runs east-west from Spadina Avenue to Kensington Avenue. It has a basic two-lane cross-section. Parking is prohibited on both sides of the street.

KENSIGNTON AVENUE

Kensington Avenue is a one-way local road west of the site and runs south from Baldwin Street to Dundas Street West. Kensington Avenue has a single travel lane with on-street parking provided along the western curb.

4.1.3 Laneways

GLEN BAILLE PLACE

Glen Baille Place is an east-west laneway that connects to Spadina Avenue south of the site. At Spadina Avenue, Glen Baille Place operates as a right-in / right-out only intersection.

NORTH-SOUTH LANEWAY

A north-south lane is located adjacent to the western boundary of the site and connects to St. Andrew Street. At St. Andrew Street, the north-south lane operates as a full moves intersection.

4.2 TRANSIT FACILITIES

4.2.1 Existing Transit Facilities

The site is well located with respect to existing transit services and is located approximately 250 metres from the nearest stop along the 505 Dundas and 510 Spadina streetcar routes and approximately 1 km from the St. Patrick subway station on the Yonge-University-Spadina subway line (Line 1).

510 Spadina operates primarily north-south in a dedicated right-of-way connecting to Spadina Station at the north end and Union Station at the south end with its main branch service. Two services are provided during non-summer weekday peak periods, the Spadina Station to Union Station main branch and the Spadina Station to King Street short-turn branch.

505 Dundas operates primarily east-west in mixed traffic connecting to Dundas West Station at the west end and Broadview Station at the east end. Service is also provided to St. Patrick Station and Dundas Station. Service along this route is provided 24 hours a day, 7 days a week.

The Yonge-University-Spadina subway line (Line 1) operates generally in a north-south direction along the Yonge Street and University Avenue corridors in downtown Toronto. The Yonge-University-Spadina line (Line 1) runs in a 'U-shaped' routing providing connections along Yonge Street from Finch Station in the north to Union Station in downtown Toronto, and then northward again to the Downsview Station along University Avenue, Spadina Avenue and the Allen Road corridors. The Yonge-University-Spadina line (Line 1) connects with the Bloor-Danforth subway line (Line 2) at three different locations including; Bloor-Yonge, St. George and Spadina subway stations.

A summary of the transit services operating on the area street system is provided in **Table 1**.

TABLE 1 SUMMARY OF TTC ROUTES IN THE SITE VICINITY

Route	Direction	Headway	
		Weekday Morning Peak Period	Weekday Afternoon Peak Period
1 - University Subway Line	North / South	2.5 minutes	2.5 minutes
510 – Spadina streetcar	North / South	4 minutes	4.5 minutes
505 – Dundas streetcar	East / West	4 minutes	4 minutes

1. Approximate headways from TTC August 4, 2019 to August 31, 2019 Service Summary

Existing and future transit facilities are illustrated in **Figure 4**.

4.3 CYCLING AND PEDESTRIANS NETWORK

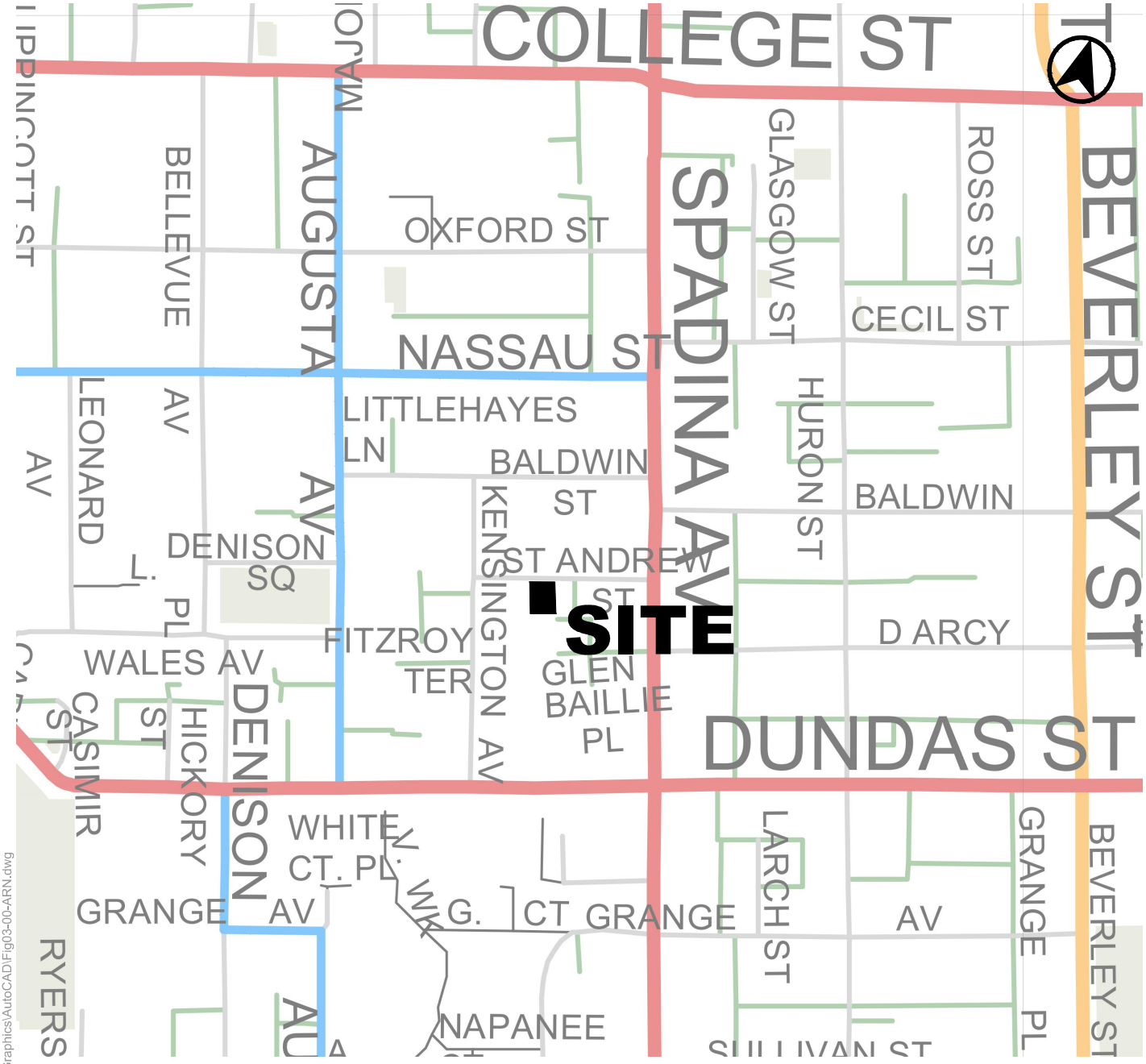
4.3.1 Existing Area Cycling and Pedestrian Network

The site is well served by bicycle and pedestrian infrastructure.

Bicycle sharrows are provided along Spadina Avenue and extend from Fort York Boulevard in the south to College Street in the north. Spadina Avenue intersects with several marked cycling lanes including southbound connections to the rest of the City.

Continuous sidewalks are provided on both sides along St. Andrew Street, Spadina Avenue and Dundas Street West as well as several signalized crossing opportunities.

Figure 5 and **Figure 6** illustrate the existing bicycle and pedestrian facilities.



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AREA ROAD NETWORK

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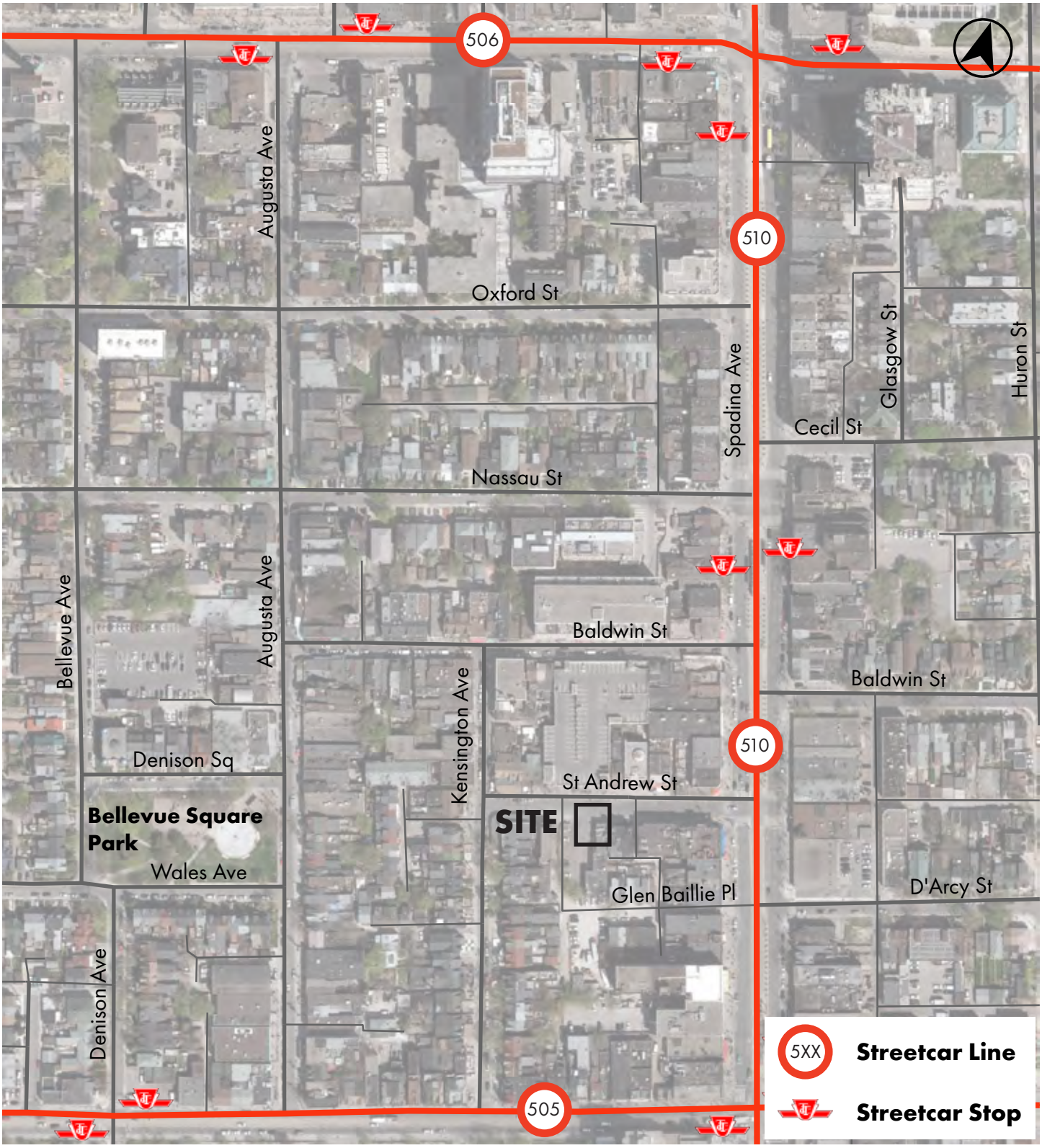
17 St. Andrew Street
7803-06 August 2019

Figure 3



AREA TRANSIT CONTEXT

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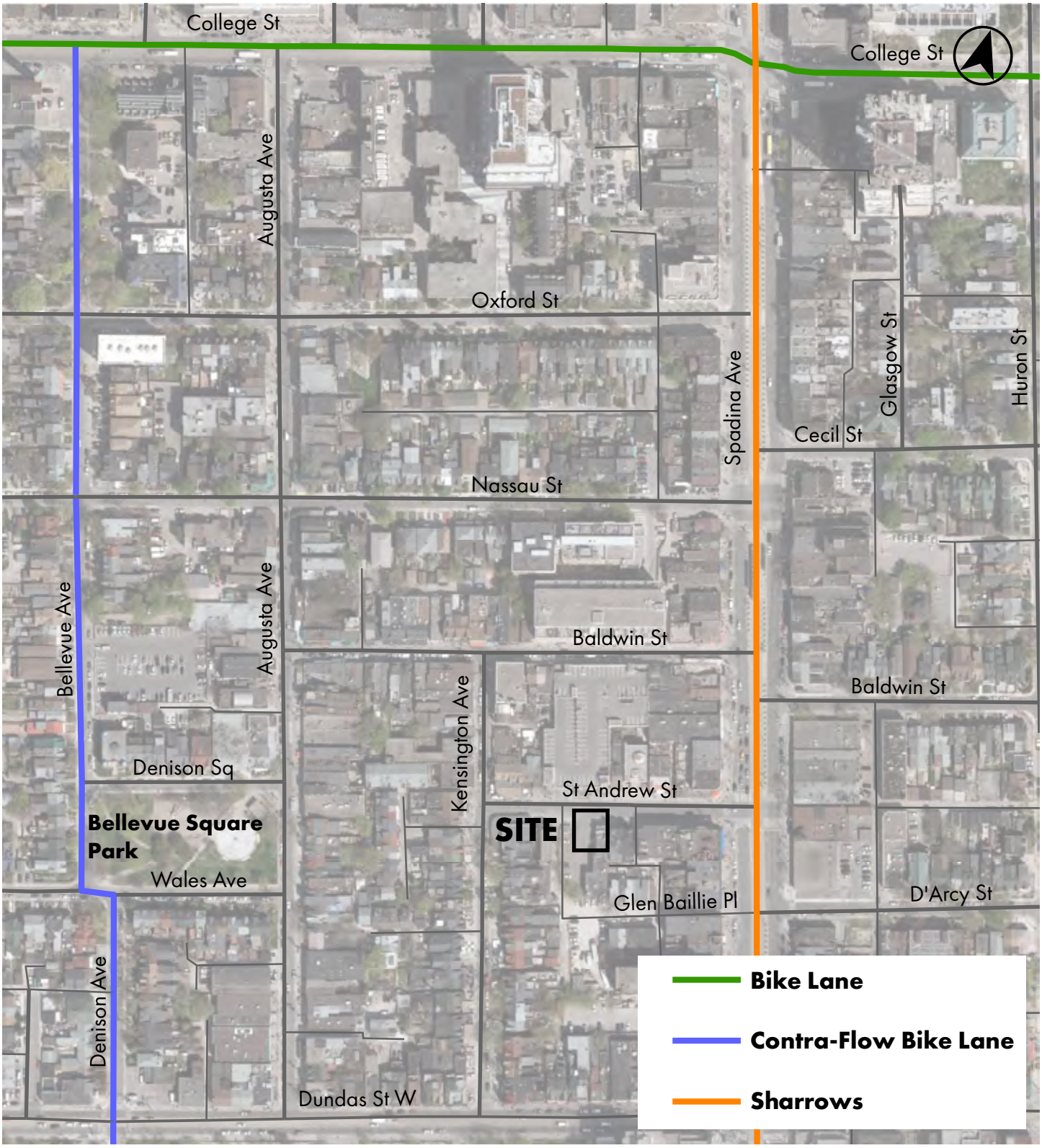
7806-03 August 2019

Figure 4



AREA CYCLING CONTEXT

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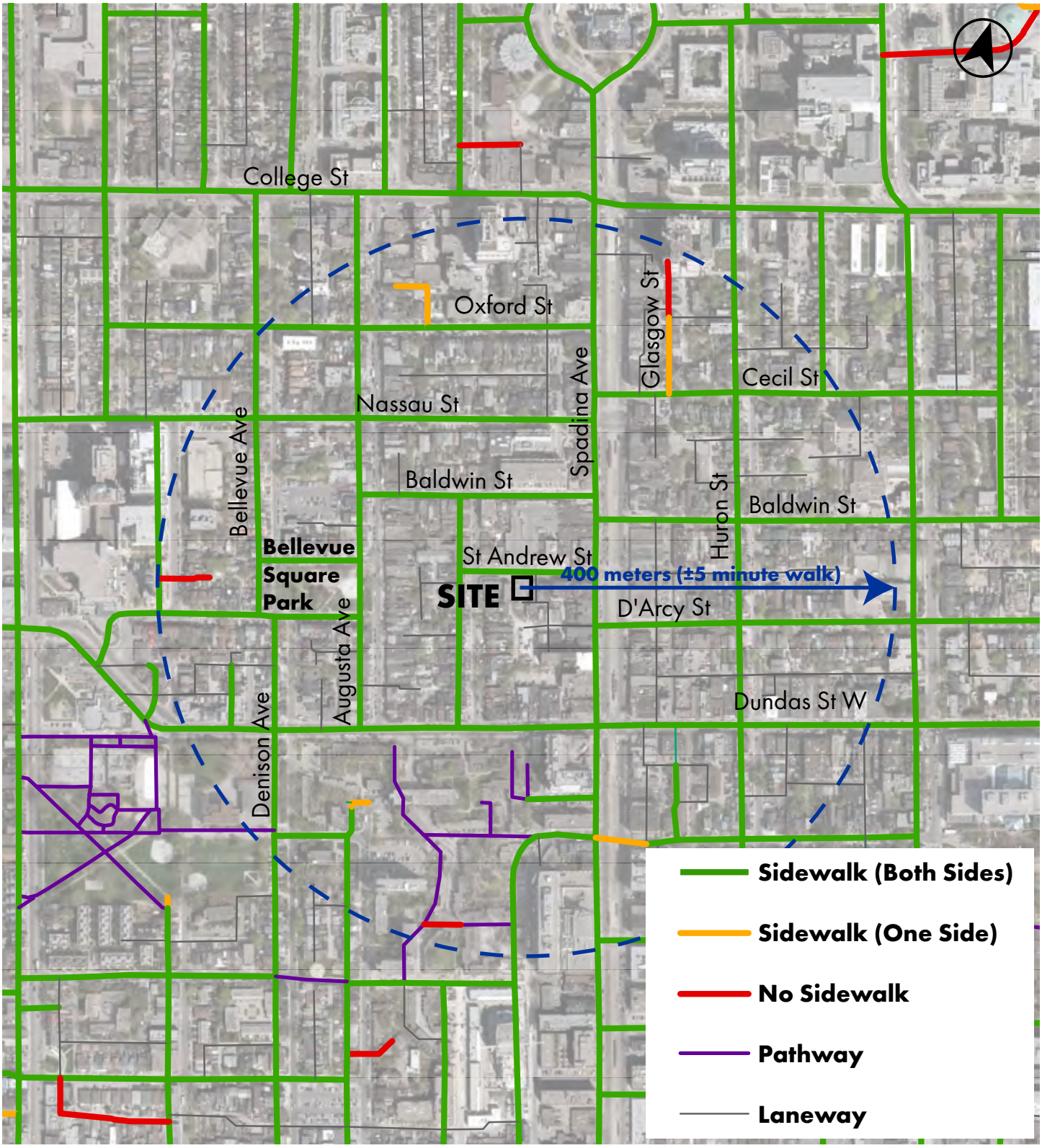
17 St. Andrew Street
7806-03 August 2019

Figure 5



AREA PEDESTRIAN CONTEXT

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17 St. Andrew Street
7806-03 August 2019

Figure 6

5.0 PARKING

The following discussion provides an overview of the parking requirements and provision incorporated into the development programme.

5.1 VEHICLE PARKING

5.1.1 Zoning By-law 569-2013 Minimum Parking Requirements

The City of Toronto Zoning By-law 569-2013 provides parking requirements for new developments within the City of Toronto. The site is subject to the Policy Area 1 (PA1) rates, as outlined in **Table 2**. Note that parking rates for an apartment building were used to determine the minimum parking requirements for the site.

TABLE 2 ZONING BY-LAW 569-2013 PA-3 MINIMUM PARKING REQUIREMENTS

Unit Type / Land Use[1]	Units / GFA[1]	Rate	Parking Space	Occupancy Rate			Parking Space		
				AM	PM	EVE	AM	PM	EVE
Dwelling Unit in an Apartment Building (Tenant Requirement)									
Bachelor	46	0.30	13	100%	100%	100%	13	13	13
1 Bedroom	16	0.50	8	100%	100%	100%	8	8	8
2 Bedroom	14	0.80	11	100%	100%	100%	11	11	11
3+ Bedroom	1	1.00	1	100%	100%	100%	1	1	1
Subtotal	*77*	-	*33*	-	-	-	*33*	*33*	*33*
Dwelling Unit in an Apartment Building (Visitor Requirement)									
All	77	0.10	7	10%	35%	100%	1	2	7
Subtotal	*77*	-	*7*	-	-	-	*1*	*2*	*7*
Non-Residential									
Retail	172	1.00 /100 sm	1	20%	100%	100%	0	1	1
Subtotal	*172*	-	*1*	-	-	-	*0*	*1*	*1*
Site Total									
Residential	-	-	-	-	-	-	33	33	33
Non-Residential	-	-	-	-	-	-	1	3	8
Total	**-**	**-**	**-**	**-**	**-**	**-**	**34**	**36**	**41**
		Minimum Required Parking Space					**41**		
		Minimum Required Accessible Parking Space					**2**		

Based on the foregoing, a total of 41 parking spaces are required for the development program, of which 33 spaces are for residential use and 9 spaces are for retail-use. The effective residential vehicular parking ratio is 0.43 spaces per unit.

The City of Toronto By-law 579-2017 requires a minimum of 2 accessible parking spaces, as summarized in **Table 2**.

5.1.2 Proposed Vehicular Parking Supply

The proposed development is contemplated to be a privately operated student residence that will accommodate students principally associated with universities and colleges in the downtown core of the City. Given the urban nature of the site location, easy access to vehicle-for-hire (i.e. Lyft, Uber), and the public parking lot located in the site vicinity, no vehicular parking spaces are proposed within the site.

The site is located within the south-west quadrant of the Spadina Avenue and St. Andrew Street intersection. The site location allows for convenient access to streetcars operating along Spadina Avenue (streetcar stations within 150 m from the site) and Dundas Street West (streetcar station within 200 m from the site), with an option to transfer to other transit routes such as Line 1 Yonge-University and Line 2 Bloor-Danforth subway. This proximity to the subway system provides transit accessibility for the site and will serve to reduce the reliance on auto trips for students of the proposed development.

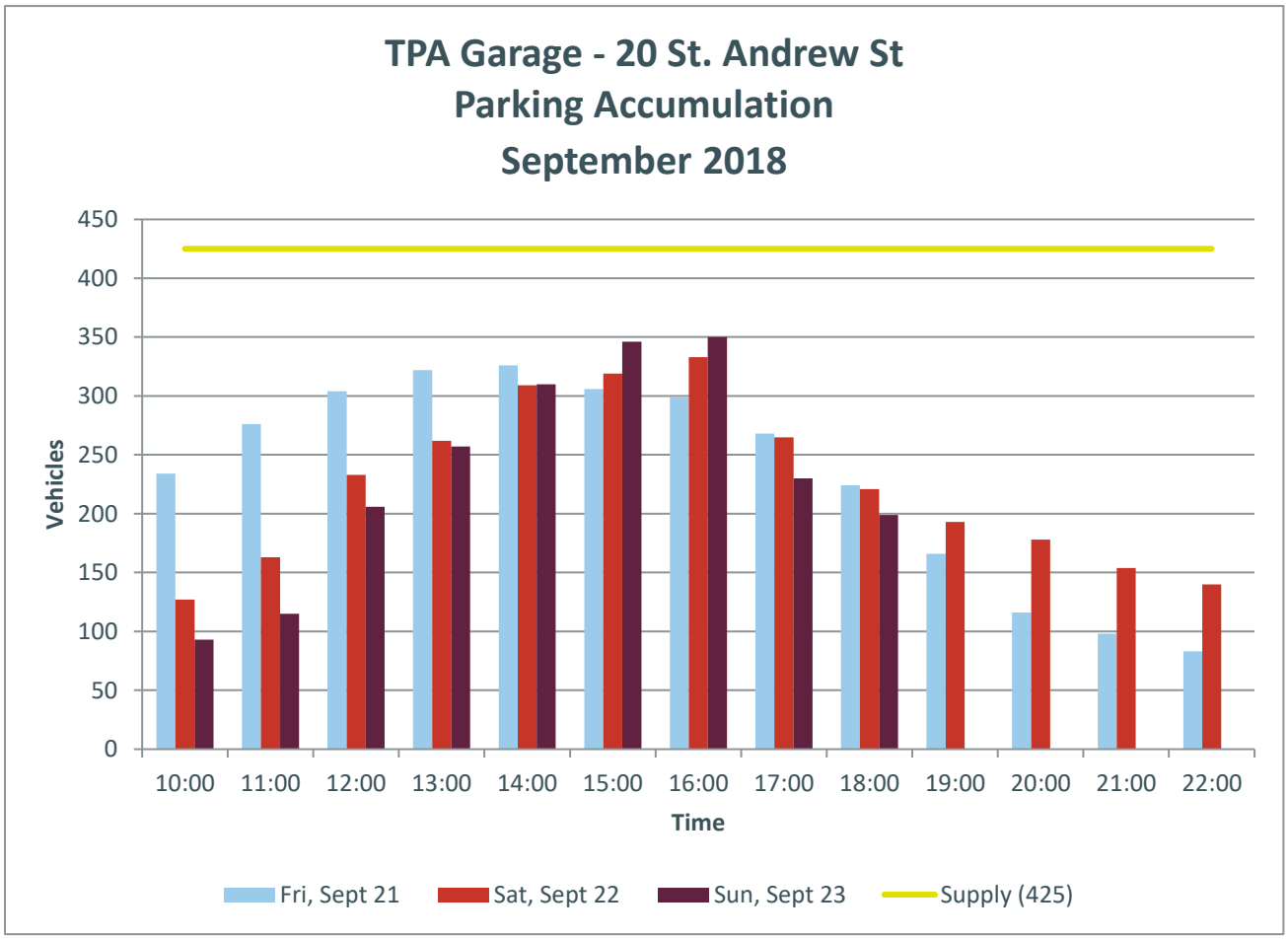
The availability of vehicles-for-hire (i.e. Lyft, Uber) in Downtown Toronto reduces the need for tenants of the student residence to own vehicles, thus reducing the demand for parking spaces within the site. With the average wait time of 2.5 minutes for vehicles-for-hire in the site vicinity[1], the site is easily accessible via vehicles-for-hire. The public parking lot operate by Toronto Parking Authority (TPA) is located directly north of the site across St. Andrew Street, providing a total of 425 parking spaces. To assess the operating conditions of the parking lot, a full day parking accumulation study was conducted during the weekday (Friday) and weekend (Saturday and Sunday) periods and is summarized in **Graph 1**.

As noted in **Graph 1**, parking demand remained below the available capacity of 425 spaces during the weekday (Friday) and weekend (Saturday and Sunday) periods, with a peak demand of 350 spaces in the afternoon. Given the above, the parking lot directly north of the site can serve any anticipated vehicular site traffic of the proposed student residence and will appropriately accommodate the needs of the site.

Note:

1. "*Research & Analysis, The Transportation Impacts of Vehicles-for-Hire in the City of Toronto,"* Big Data Innovation Team / Policy & Innovation / Transportation Services / City of Toronto, June 2019.

GRAPH 1: TPA GARAGE – 20 ST. ANDREW STREET PARKING DEMAND SURVEY



5.2 BICYCLE PARKING

5.2.1 Zoning By-Law 569-2013 Bicycle Zone 1 Parking Requirements

The site is located within Bicycle Zone 1. **Table 3** outlines the Zoning By-law 569-2013 Bicycle Zone 1 parking requirements.

TABLE 3 ZONING BY-LAW 569-2013 BICYCLE ZONE 1 PARKING REQUIREMENTS

Use	Number of Units / GFA	Short –Term Bicycle Parking Rate	Long–Term Bicycle Parking Rate	Short –Term Bicycle Parking Requirement	Long–Term Bicycle Parking Requirement	**Total**
Residential	77	0.1 / dwelling unit	0.9 / dwelling unit	8	69	77
Overall Bicycle Parking Requirements				**8**	**69**	**77**

Notes:

1. Section 230.5.10.1 (3) General, stipulates that despite the bicycle parking space rates set out in regulations 230.5.10.1(1) and 230.5.10.1(5) and (6), if a bicycle parking space is required for uses on a lot, other than a dwelling unit, and the total interior floor area of all such uses on the lot is 2000 m^2 or less, then no bicycle parking space is required. As such, no bicycle parking spaces are required for the retail use of 172 m^2.

Application of the City of Toronto By-law 569-2013 Bicycle 1 parking standards outlined in **Table 3** requires a total of 77 residential bicycle parking spaces including 8 short-term and 69 long-term bicycle parking spaces.

5.2.2 Proposed Bicycle Parking Supply

A total of 156 bicycle spaces are proposed at-grade (36 spaces) and within a bicycle storage room located at the basement level (120 spaces). The provision of 12 short-term and 144 long-term bicycle parking spaces meets and exceeds the minimum bicycle parking requirements set out in Zoning By-law 569-2013 Bicycle Zone 1 requirements, as well as Toronto Green Standards Version 3 Tier 1.

6.0 LOADING

6.1 ZONING BY-LAW 569-2013 LOADING REQUIREMENTS

The City of Toronto Zoning By-law 569-2013 prescribes the following loading requirements for the site as outlined in **Table 4**.

TABLE 4 ZONING BY-LAW 569-2013 LOADING REQUIREMENTS

Use	Type 'A'	Type 'B'	Type 'C'	Type 'G'	Total
Residential Uses (77 units)	-	-	-	1	1
Site Total	**-**	**-**	**-**	**1**	**1**

Application of the City of Toronto Zoning By-law 569-2013 loading requirements for the site results in a requirement of one (1) Type 'G' loading space for the site.

6.2 PROPOSED LOADING SUPPLY

The development program proposes one (1) Type 'G' loading space to provide for the garbage and recycling and loading/moving needs of the proposed residential uses. The provision of 1 Type 'G' space meets the requirements of Zoning By-law 569-2013.

The proposed Type 'G' loading facility is located on the west side of the proposed building approximately mid-way between the north and south property boundaries. The loading area is located with appropriate connections to garbage rooms and storage facilities within the proposed building.

Access to the loading area is provided the existing laneways west of the site. The arrangement of the loading area and related access facility has been designed to accommodate the manoeuvering needs of City of Toronto garbage and recycling collection vehicles as well as facilitating 'forward in / forward out' access to and from the site for City of Toronto garbage collection.

Loading vehicle manoeuvring diagrams (VMDs) illustrating the turning movement requirements of City of Toronto garbage and recycling collection vehicles are attached in **Appendix B**. These confirm the suitability and appropriateness of the proposed loading area design arrangements.

The design of the proposed loading area and the provision of one (1) Type 'G' loading space, is, based upon the above, and will meet the loading and refuse/recycling collection needs of the proposed building.

7.0 MOBILITY CHOICE TRAVEL PLAN

The Mobility Choice Travel Plan is organized into several categories that aim to effectively allow for sustainable transportation options to be viable, attractive, and preferred by development residents and visitors, while also enabling multi-modal access to the site.

The Mobility Choice Travel Plan is proposed to guide the provision of viable alternative personal transportation options beyond the single-occupant, private automobile and intends to support the development by outlining Transportation Demand Management (TDM) strategies to promote the use of more active and sustainable transportation modes, respond to the mobility needs of residents and visitors to the site, and reduce dependence on the private automobile.

Three specific objectives define the policy framework as part of the Mobility Choice Travel Plan:

- Encourage the use of transit, cycling, and walking;
- Increase vehicle occupancy; and
- Reduce vehicle kilometers traveled.

To ensure that the project sets a sustainable precedent in urban redevelopment and encourages the use of active and sustainable modes of transportation, a comprehensive framework has been developed that will serve as a guideline for the implementation of effective TDM strategies during the site design stage, as well as in its operations following the full redevelopment of the property.

7.1 IMPLEMENTATION AND ORGANIZATIONAL FRAMEWORK

7.1.1 Implementation

The Mobility Choice Travel Plan will serve as an initial guide for the design, development and implementation of the site, as well as the ultimate operation of the facilities over time to maximize the travel demand sustainability of the project and allow the development to fully leverage its location relative to the transportation options in the vicinity of the site.

7.2 ORGANIZATIONAL FRAMEWORK

The following six categories are identified as potential strategies:

1. Facilitation of Reduced Car Ownership and Usage
2. Enhance Pedestrian Access and Walkability
3. Encourage and Facilitate Bicycle use
4. Encourage Transit Use
5. Coordination, Communication, and Promotion

Within each of these categories, interventions considered for application may be further organized by the blocks of their implementation as the development progresses:

- **Infrastructure (external links and facilities)**
  Measures to improve the active transportation realm along the boundaries of the site and to facilitate the integration of pedestrian and cycling infrastructure

- **Facilities and features of the site plan and design**
  Physical aspects of the internal design of the development, including its buildings, and circulation routings to promote alternative transportation modes

- **Building operations / property management**
  User-focused programs and policies enacted once the site is operational to encourage alternative transportation modes

- **Monitoring**
  Post-occupancy data collection programs used to assess travel patterns and gauge the effectiveness of TDM strategies and the Mobility Choice Travel Plan as a whole

7.3 MOBILITY PLAN STRATEGIES

The future site context provides for frequent, higher-order public transit services and pedestrian connectivity. While strong opportunities exist in the area's infrastructure to accommodate sustainable transportation practices, the ability to fully leverage these opportunities, ensuring the success of the Mobility Plan strategies is important.

To this end, Mobility Plan strategies are presented with targeted "intents" (i.e. what it is trying to achieve and for whom), followed by discussions of the requirements and methods of implementation that should be considered. Potential strategies are then framed in the context of the development and strategies most appropriate for application are proposed.

7.4 FACILITATION OF REDUCED CAR OWNERSHIP AND USAGE

The development proposes strategies intended to provide alternatives to private car ownership and usage, to reduce the need for residents to own a car for occasional travel purposes and reduce the likelihood of a personally-owned car being used at other times for general travel.

INTENT

To provide alternative models for automobile use that will serve to:

- Reduce the need for residents to own a car for occasional or discretionary travel; and
- Reduce the likelihood of privately-owned car use for general travel, particularly during peak periods.

POSSIBLE MEASURES

- Operational / Management:
  - Provide no formal parking on site; and
  - Provide information and communication items that outline the availability of the on-site services as well as well as taxis, Uber, Lyft, and other ride provider service networks.

- Monitoring:
  - Offer information and promotional initiatives to increase membership, enhance awareness, and increase car share program usage.

7.5 ENHANCE PEDESTRIAN ACCESS AND WALKABILITY

The pedestrian strategy is to develop a high-quality, safe, accessible, and convenient network of pedestrian linkages that enhance local pedestrian connections to the site and progresses the area-wide pedestrian network. Implementing a pedestrian strategy is fundamental to ensuring residents and visitors of the development have a viable and attractive condition for walking and transit-based travel, and an alternative to automobile use for a portion of trips.

INTENT

To facilitate, as part of the proposal in cooperation with the City and other stakeholders, the development of a high-quality, accessible, and convenient network of pedestrian connections to the Site. This will:

- Enhance the walkability of the site at-grade and create a truly pedestrian-scaled environment;
- Assist in extending a high-quality, safe, accessible, and convenient network of pedestrian linkages that enhance local pedestrian connections and progresses the area-wide pedestrian network;
- Improve the quality of the public realm and pedestrian accessibility of the area to adjacent amenities, transit stops, recreational facilities, and retail located within the area; and
- Enhance the ability for residents and visitors to travel between the site and the surrounding neighborhoods and transit focal points without the use of a vehicle.

POSSIBLE MEASURES

- External Infrastructure:
  - Work with the City of Toronto towards realizing improvements to area pedestrian infrastructure, quality of the public realm and the convenience of pedestrian linkages / road crossings along the site boundaries and in the site area.
  - Provide high-quality, safe pedestrian-scale connections from the site property to the surrounding public street network.
  - Provide a high quality public realm through urban design on the site's street frontages.

- Operational / Management:
  - Maintain on-site pedestrian facilities to enable year-round pedestrian access and usage.

7.6 ENCOURAGE AND FACILITATE BICYCLE USE

A bicycle strategy has been developed as part of the development plan, as a base to entice bicycle usage by residents and visitors to the site. The plan is proposed to encourage and enable bicycle use as a convenient travel option through the provision of physical and operational infrastructure as part of the overall development plan, and to work with the City and other stakeholders to enhance the local cycling network and overall cycling connectivity and accessibility. This will enable bicycle use as an attractive alternative to automobile use for a proportion of trips.

INTENT

To encourage and enable bicycle use as a convenient and viable travel alternative to the personal automobile through:

- The provision of physical and operational infrastructure on-site and within the building
- Cooperation with the City and other stakeholders, to enhance bicycle connectivity within the area to the broader cycling network

POSSIBLE MEASURES

- External Infrastructure:
  - Work with the City of Toronto towards realizing improvements to area bicycle infrastructure, quality of the bicycle facilities and connections in the site area.
  - Provide secure long-term bicycle parking in conveniently-located and accessible facilities in the building
  - Provide short-term bicycle parking distributed across the Site in conveniently-situated and readily accessible locations relative to key building entrances.
  - Provide, at a minimum, long-term and short-term bicycle parking supply in accordance with the minimum requirements of Zoning By-law 569-2013 and the Toronto Green Standards Tier 1.

7.7 ENCOURAGE TRANSIT USE

The proposed development is intended to make use of existing transit services in the area to reduce automobile related travel to and from the site and enhance the accessibility of the site.

INTENT

To support and promote the use of area transit services for short and long-distance travel purposes by residents and visitors. This will serve to:

- Increase the awareness, utility, practicality and viability of transit travel options for commuter and recreational travel purposes to / from a range of locations across the City and further afield;
- Enable high-quality and accessible pedestrian connections to existing 501 and 505 streetcar routes and St. Patrick subway station.
- Enable the universal use of transit.

POSSIBLE MEASURES

- Building, Planning and Design:
  - Provide convenient, high-quality and accessible pedestrian realm

- Operational / Management:
  - Provide transit service information (i.e. route mapping, service times, next bus) for users of the building through televisions in the building lobby
  - Offer transit promotion programmes (i.e. events, advertising).
  - Work with the City, transit operators and other stakeholders to provide a high level of local transit service to the Site environs.

7.8 COORDINATION, COMMUNICATION, AND PROMOTION

The proposed development is intended to make use of communication, promotion and awareness of TDM measures inform and monitor the success of the planned and implemented mobility framework strategies. Monitoring and refinement / adjustment of programs are proposed to be reviewed on a regular basis to continuously adapt and improve the services offered.

INTENT

To coordinate on-site travel demand strategies and the effective dissemination / promotion of program and service information to:

- Inform and raise awareness of non-automobile travel options for the Site;
- Actively promote non-automobile travel options and services;

POSSIBLE MEASURES

- Operational / Management:
  - Use of wayfinding and multi-modal navigation tools to augment the TDM services provided on-site.
  - The active marketing, branding and promotion of non-automobile travel options.

- Monitoring:
  - Monitor the success of programming
  - Measure the site's modal split over time to examine the effectiveness of TDM interventions
  - Refine programming on an ongoing and coordinated basis

7.9 SUMMARY OF KEY MEASURES

The following provides a summary of the measures proposed as part of the Mobility Choice Travel Plan.

TABLE 5 PROPOSED TDM MEASURES – BASE TDM MEASURES

Measure	Description	Travel Plan Objective
Base TDM Measures		
Cyclist End of Trip Facilities	Secure, weather-protected bicycle parking for long-term use will be provided in secure locations.	Encourage alternative travel modes. Reduce vehicle kilometres travelled.
	Short-stay bicycle parking will be provided near major entrances.	
Pedestrian Connections	Provide a fine-grain and generous public realm, and provision of pedestrian sidewalks	Encourage alternative travel modes. Reduce vehicle kilometers travelled.

TABLE 6 PROPOSED TDM MEASURES – ADDITIONAL POTENTIAL BUILDING SPECIFIC MEASURES

Additional Potential Building Specific TDM Measures		
Bicycle Share Provisions	Potential provision of funding for 1 bike-share (Toronto Bike Share) station.	Encourage alternative travel modes. Reduce vehicle kilometres travelled. Provide options for local area travel using bicycles rather that vehicles.
Additional Cyclist End of Trip Facilities	Provision of 1 bicycle repair station	Encourage cycling use
Travel Mode Information Packages	Implement a marketing program aimed at all users to ensure they are aware of available travel choices in the area (i.e. bike maps, bus schedules, etc.).	Encourage alternative travel modes.

8.0 MULTI-MODAL TRAVEL DEMAND FORECASTING

The site location allows for convenient access to streetcars operating along Spadina Avenue (streetcar stations within 150 m from the site) and Dundas Street West (streetcar station within 200 m from the site), with an option to transfer to other transit routes such as Line 1 Yonge-University and Line 2 Bloor-Danforth subway. In addition, Spadina Avenue provides cycling lanes (i.e. sparrows) in the north-south direction. As such, the site is located in an area that is easily accessible through a transportation network that provides opportunities for non-automobile models of travel (i.e. cycling, walking, and transit).

For the purposes of this analysis, BA Group has projected the multi-modal travel demand for the proposed development based on a first principle multi-modal trip generation, as summarized in **Table 7**. Note that proxy counts were used in order to conservatively develop vehicular trip generation, notwithstanding the use of the first principle methodology for the purpose of multi-modal analysis.

The vehicular site trips were generated based on a review of pick-up and drop-off surveys at student residences in similar contexts, as discussed in **Section 9.4.2**. New multi-modal trips for the site were generated based on a first principle method and are summarized in **Table 7**.

TABLE 7 MULTI-MODAL SITE TRIP GENERATION

	AM Peak Hour			PM Peak Hour		
	In	**Out**	**2-Way**	**In**	**Out**	**2-Way**
Number of Beds	94					
Peak Hour Factor[1]	3%	18%	-	17%	5%	-
Total Person Trips[2]	**3**	**17**	**20**	**16**	**5**	**21**
Modal Split[3]						
Auto	2%	1%	-	2%	1%	-
Transit	16%	12%	-	16%	12%	-
Cycling	5%	8%	-	5%	8%	-
Walking	77%	79%	-	77%	79%	-
Trips						
Auto	0	0	0	0	0	0
Transit	0	2	2	3	1	4
Cycling	1	1	2	1	0	1
Walking	2	14	16	12	4	16

Note:

1. The peak hour factor is the maximum hourly percentage calculated during each peak hour periods throughout a day. The data was queried and aggregated for a student residence land use in an urban context from the StudentMoveTO.
2. This assumes 100% occupancy of all beds.
3. The modal split was queried and aggregated for a student residence land use in an urban context from the StudentMoveTO.

Based on the foregoing, the proposed development will generate in the order of 20 and 21 two-way non-auto trips in the weekday morning and afternoon peak hours, respectively.

8.1 PEDESTRIAN VOLUMES

Existing pedestrian traffic volumes have been established at the Spadina Avenue / St. Andrew Street intersection crosswalks by direction based on traffic count information collected by Spectrum Traffic Data Inc. on behalf of BA Group. The overall pedestrian volumes at the key intersection of the study area under existing conditions are summarized in **Table 8**.

TABLE 8 TOTAL PEAK HOUR PEDESTRIAN VOLUMES (EXISTING CONDITIONS)

Intersection	Existing Pedestrian Volume
Spadina Avenue / St. Andrew Street North Leg	32 (193)
Spadina Avenue / St. Andrew Street South Leg	59 (196)
Spadina Avenue / St. Andrew Street West Leg	196 (1091)

Notes:
1. 00 (00) – Weekday morning peak hour (Weekday afternoon peak hour)

Forecasted pedestrian volumes for the proposed development plan were established based on the first principle multi-modal trip generation, as presented in **Table 7**. Pedestrian trip for the proposed development plan can be broken-down into two (2) categories and include:

- **Transit based Pedestrian Trips** – these are pedestrian trips that walk to / from TTC Stations / Stops; and
- **Primary Pedestrian Trips** – these are pedestrian trips where the primary mode of travel to their destination is walking.

As indicated in Table 7, the proposed development plan is anticipated to generate in the order of 2 and 4 two-way transit trips during the weekday morning and afternoon peak hours, respectively. These transit users are walking to and from the transit bus stops and subway stations within the study area. Each one of these transit trips are also treated as a pedestrian trip to / from the bus stop or subway station. It is anticipated that the majority of them will be making trips to the streetcar stops located near the Dundas Street West / Spadina Avenue and Spadina Avenue / Nassau Street intersections.

The site is also anticipated to generate approximately 16 and 16 two-way primary pedestrian trips during the weekday morning and afternoon peak hours, respectively. It is assumed that pedestrians will travel on the sidewalk on the side closest to the pedestrian doorway access for the proposed development. In addition, pedestrians were assumed to cross street only at pedestrian crosswalks (no jaywalkers) and they do so at the earliest opportunity on route to their destinations. It is anticipated that the majority of the primary pedestrians will travel along Spadina Avenue, via the Spadina Avenue / St. Andrew Street intersection.

The overall addition of pedestrian traffic to the Spadina Avenue / St. Andrew Street intersection is in the order of 18 and 20 pedestrians during the weekday morning and afternoon peak hour periods, respectively. Of the transit pedestrians, the majority will be crossing in the east-west direction at the intersection, in addition to the north-south crossing for those heading to/from the north direction. The primary pedestrians will be utilizing the north-south crossing, in addition to the east-west crossing if in need. The current signal timing plan provides 40 cycles within an hour. This will result in an average of approximately 0.5 additional pedestrians crossing in the east-west and north-south directions per cycle.

Based on the foregoing, the site-generated pedestrian trips would have minimal impacts at the abovementioned intersection. As such, no specialized pedestrian improvements or improvements to the signal timing plans have been recommended.

8.2 CYCLING VOLUMES

Existing two-way cycling traffic volumes (on road) have been established at the area intersection based on traffic count information collected by Spectrum Traffic Data Inc. on behalf of BA Group. The cycling volumes at the key intersection within the study area under existing conditions are summarized in **Table 9**.

TABLE 9 TOTAL PEAK HOUR CYCLING VOLUMES (EXISTING CONDITIONS)

Intersection	Existing Bicycle Volume
Spadina Avenue / St. Andrew Street North Leg	190 (97)
Spadina Avenue / St. Andrew Street South Leg	58 (214)
Spadina Avenue / St. Andrew Street West Leg	15 (20)

Notes:
1. 00 (00) – Weekday morning peak hour (Weekday afternoon peak hour)

Forecasted cycling volumes for the proposed development plan were established based on the first principle multi-modal trip generation, as presented in **Table 7**. As indicated in **Table 7**, the proposed development plan is anticipated to generate in the order of 2 and 1 two-way cycling trips during the weekday morning and afternoon peak hours, respectively. Based on the foregoing, the site-generated cycling trips have minimal to no impacts on the cycling facilities. As such, no improvements have been recommended to the cycling facilities for both on and off site.

9.0 TRAFFIC VOLUMES FORECAST

9.1 TRAFFIC ANALYSIS SCENARIOS AND DESIGN PERIODS

Traffic operations analyses have been undertaken during the weekday morning and afternoon street peak hours under the following conditions:

- Existing traffic conditions – traffic activity levels under current conditions;
- Future background traffic conditions – traffic activity levels 5 years into the future which include allowance for corridor growth and area specific background developments; and
- Future total traffic conditions – traffic activity levels 5 years into the future with the projected site generated traffic added to the road network.

9.2 EXISTING TRAFFIC

Existing baseline traffic volumes were established at intersections within the study area for the weekday morning and afternoon peak hour periods using traffic count information obtained from surveys undertaken by Spectrum Traffic Data Inc. on Wednesday, September 12, and Wednesday, September 19, 2018. A listing of the count data and sources are provided in **Table 10**.

TABLE 10 EXISTING TURNING MOVEMENT COUNT SUMMARY

Intersection	Control Type	Source Agency	Date Counted	Signal Timing Date[1]
Spadina Avenue / St. Andrew Street	Signalized	Spectrum Traffic Data Inc.	Wednesday September 12, 2018	August 13, 2018
St. Andrew Street / Kensington Avenue	Unsignalized	Spectrum Traffic Data Inc.	Wednesday September 19, 2018	-
St. Andrew Street / Site Access	Unsignalized	Spectrum Traffic Data Inc.	Wednesday September 12, 2018	-
St. Andrew Street / North-South Laneway/TPA	Unsignalized	Spectrum Traffic Data Inc.	Wednesday September 12, 2018	-
Spadina Avenue / Glen Baillie Place	Unsignalized	Spectrum Traffic Data Inc.	Wednesday September 12, 2018	-

Note:
1. Signal Timing data issued by the City of Toronto – Transportation Services.

The existing turning movement counts were reviewed in detail to ensure a general consistency in the traffic volumes on roadways between intersections. Where necessary, minor adjustments were made to balance traffic volumes between intersections to create a representative traffic volume base for the purposes of the traffic operations analyses undertaken as part of this study.

The existing turning movement counts are provided in **Appendix C**.

Existing, balanced baseline area traffic volumes for the weekday morning and afternoon peak traffic hours are summarized in **Figure 8**.

9.3 FUTURE BACKGROUND TRAFFIC

Traffic growth in the site vicinity has been considered based upon an evaluation of traffic volume changes related to:

- General corridor growth on the area arterial roads (i.e. Spadina Avenue); and
- Specific area development traffic (i.e. background development traffic).

9.3.1 Corridor Traffic Growth

BA Group undertook a review of traffic growth patterns along Spadina Avenue in the site vicinity to assess whether there has been any substantial upward trend in traffic volumes on these corridors. This review indicated that there had been negative or no corridor growth along Spadina Avenue in the site vicinity.

An annual corridor traffic growth rate of 0.5% was conservatively assumed for the weekday morning and afternoon peak hours in north-south direction along Spadina Avenue. For the purposes of this traffic analysis, growth rates were applied to all the through movements at the Spadina Avenue / St. Andrew Street and Spadina Avenue / Glen Baillie intersections. The growth was applied over a five-year study horizon for 2023 horizon year.

9.3.2 Background Development Growth

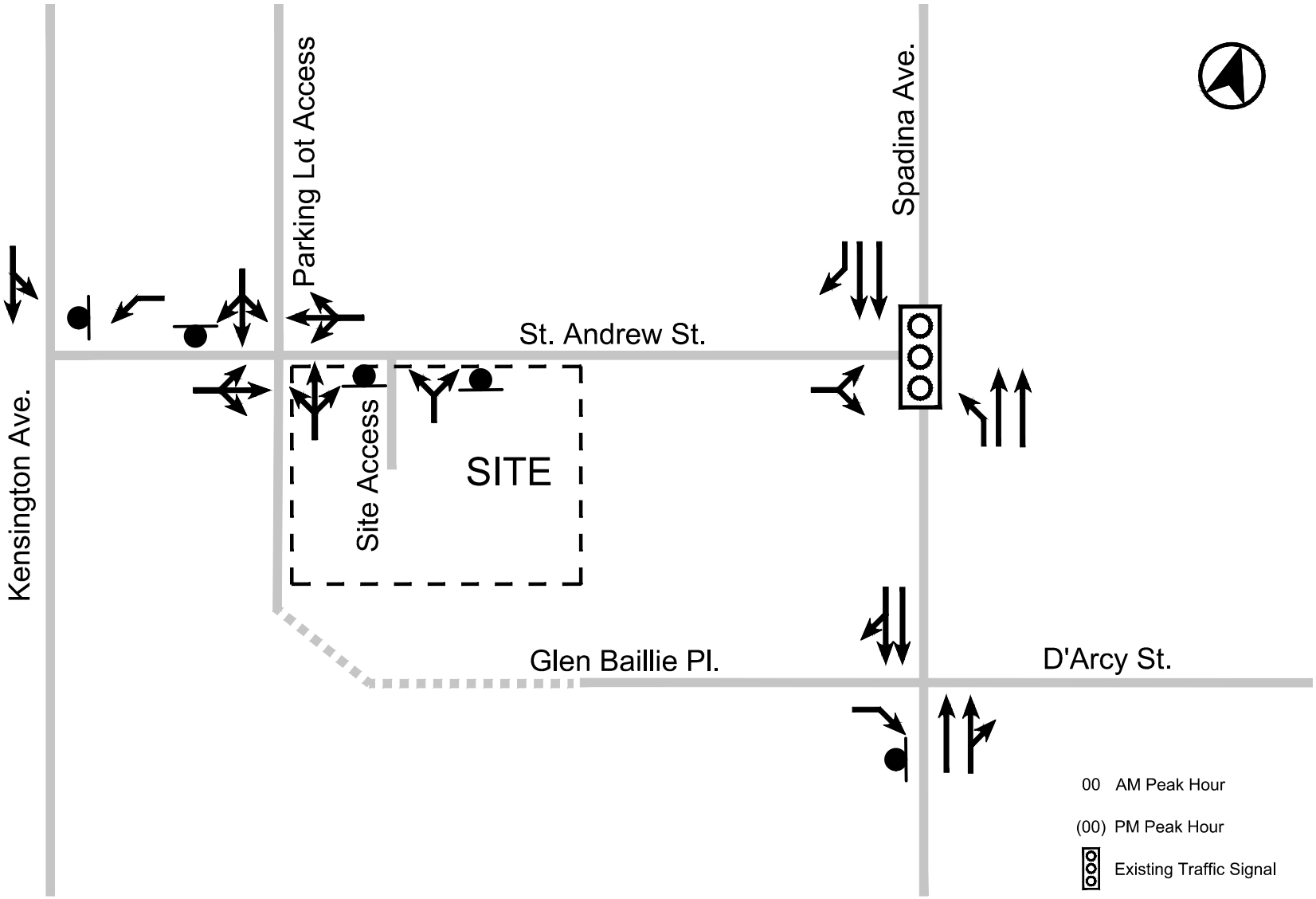
Traffic allowances were made for other specific proposed developments in the area, based on a review of the City of Toronto's list of current development projects as of October 2018. These sites represent a total development in the order of 167 residential units.

Table 11 together with a description of the key development statistics for each. Traffic allowances made for each development were based upon traffic impact studies submitted to the City of Toronto as part of the development application process.

TABLE 11 AREA BACKGROUND DEVELOPMENTS

Development	Residential Units	Non-Residential	Source
484 Spadina Avenue	167 units	-	Traffic Impact Study, LEA, June 2018

Figure 9 summarizes the future background traffic volumes for the weekday morning and afternoon peak hours, which were developed by adding the abovementioned allowances for corridor traffic growth and the specific background development to base existing traffic volumes.



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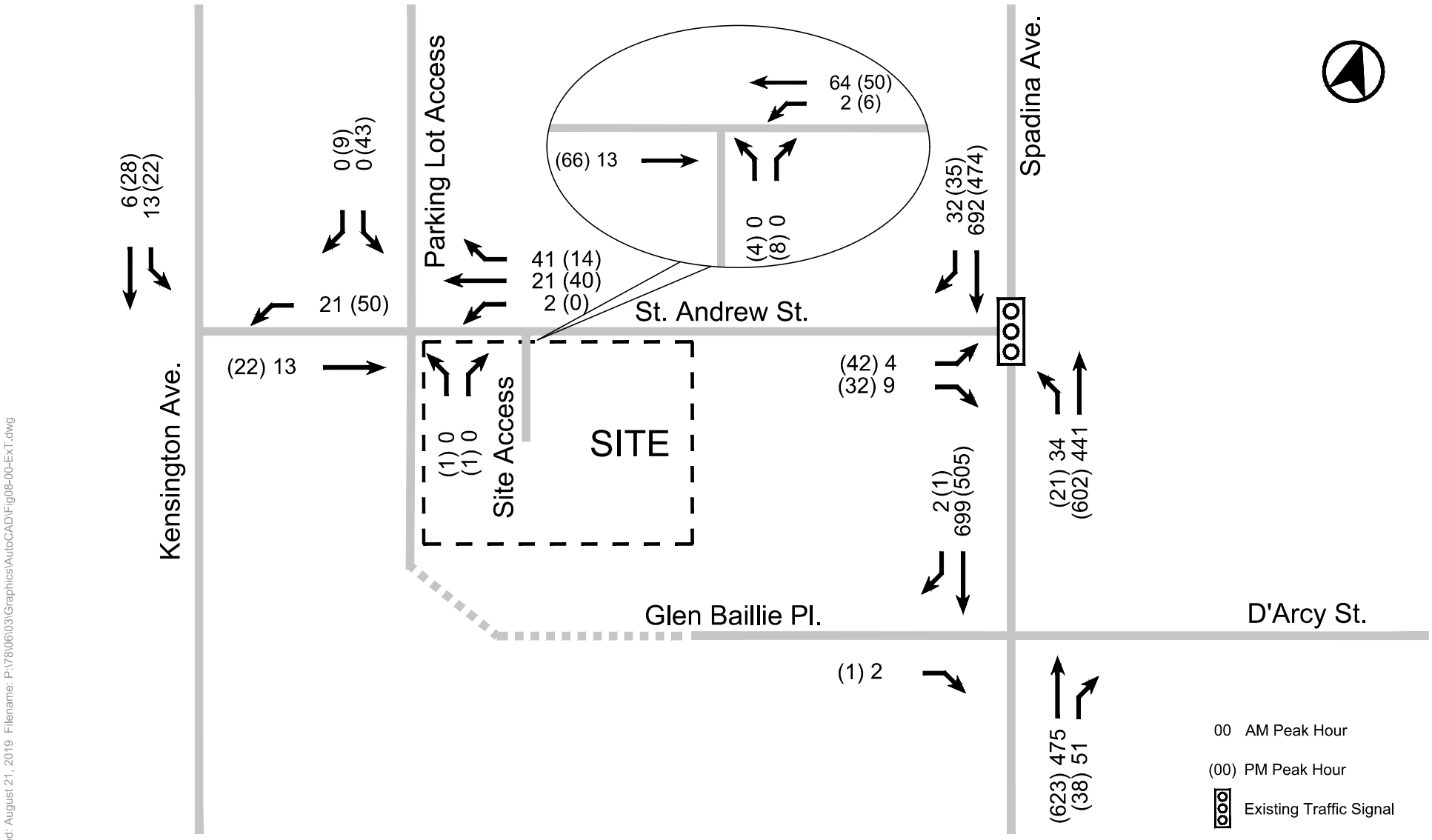
EXISTING LANE CONFIGURATION

BA Group

17 St. Andrew Street
7806-03 August 2019

Figure 7



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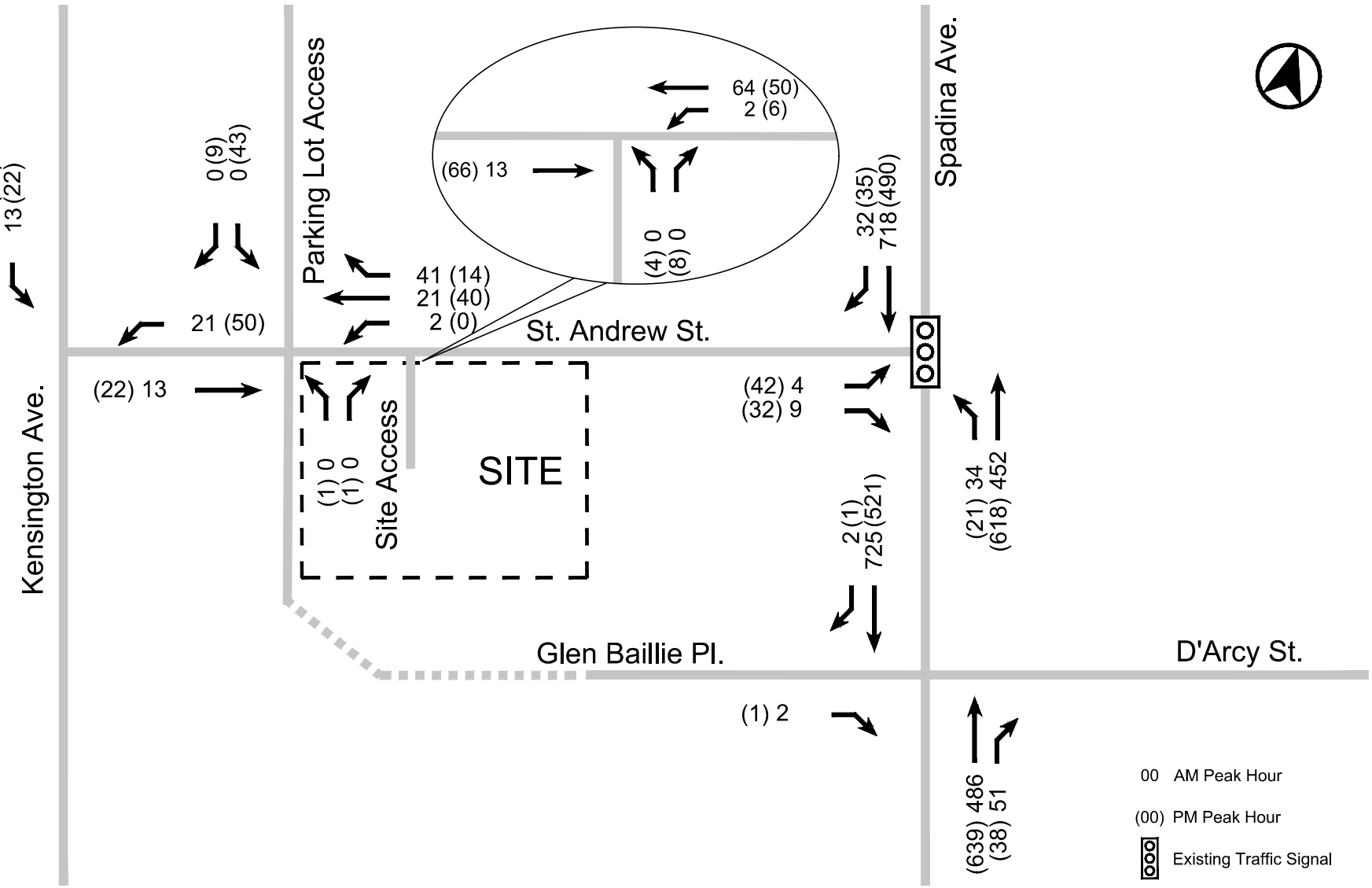
EXISTING TRAFFIC VOLUMES

BA Group

17 St. Andrew Street
7806-03 August 2019

Figure 8



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FUTURE BACKGROUND TRAFFIC VOLUMES

9.4 SITE TRAFFIC

9.4.1 Existing Site Traffic Volumes

Existing site related traffic volumes were counted during the morning and afternoon peak hour periods at the entrance of the surface parking lot of 17 St. Andrew Street. The traffic count was conducted on Wednesday, September 12, 2018, as summarized in **Table 12**.

TABLE 12 EXISTING SITE TRAFFIC VOLUMES

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Existing Site Traffic (17 St. Andrew Street)	2	0	2	6	12	18

Existing site traffic volumes are illustrated in **Figure 10**.

9.4.2 Site Trip Generation

The proposed development is contemplated to be a privately operated student residence that will accommodate students principally associated with universities and colleges located in the downtown core of Toronto. As such, the site proposes no on-site parking provisions for student tenants. Given the minimal on-site parking and the urban nature of the site location, the site-generated trips are anticipated to be negligible during both weekday morning and afternoon peal hour periods. Traffic associated with the site will reflect mainly pick-up and drop-off activities. Service vehicle activities (i.e. deliveries and refuse reflection) will occur during off-peak periods.

To capture the pick-up and drop-off activities, trip generation rates were established for the site based on a review of proxy data for student residential developments in the City of Toronto with similar size and transit characteristics, as summarized in **Table 13**.

TABLE 13 SITE TRIP GENERATION

Proxy Locations	# of Units	AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
Neill Wycik Co-op College	281	0.000	0.000	0.000	0.014	0.014	0.028
Average Trip Rate		**0.000**	**0.000**	**0.000**	**0.014**	**0.014**	**0.028**
Adopted Trip Rate		**0.000**	**0.000**	**0.000**	**0.014**	**0.014**	**0.028**
New Site Trips (78 units)		**0**	**0**	**0**	**1**	**1**	**2**
Existing Site Traffic Volumes		-2	0	-2	-6	-12	-18
Net New Site Tips		**-2**	**0**	**-2**	**-5**	**-11**	**-16**

The proposed residential development will generate approximately -2 and -16 two-way vehicle trips during the weekday morning and afternoon peak traffic hours, respectively.

9.4.3 Toronto Green Standard Version 3

The Toronto Green Standard (TGS) is Toronto's sustainable design requirements for new developments that aim to promote sustainable site and building design across five areas. TGS consists of multiple tiers of sustainable performance measures (from Tier 1 to Tier 4) where Tier 1 is mandatory as part of the planning approval process, whereas Tiers 2 to 4 are voluntary. A new Version 3 of the TGS is applicable to development applications submitted after May 1, 2018.

The Tier 1 standard within the updated TGS requires all development proposals to reduce single occupancy auto vehicle trips generated by the proposed development by 15% through the adopted TDM measures and multimodal infrastructure strategies for the site. As such, the impacts of the adopted TDM measures and site context on the proposed site trip generation must be quantified. The combined effect of the adopted TDM measures and multimodal infrastructure strategies were assessed based on a comparison to default trip generation derived from the ITE Trip Generation Manual 10th Edition for an urban locational context and is summarized in **Table 14**.

TABLE 14 TRIP GENERATION REDUCTION SUMMARY

	Inbound	Outbound	Two-Way
ITE (Land Use 225: Off-Campus Student Apartment)	5 (12)	7 (12)	12 (24)
Site Trip Generation	0 (1)	0 (1)	0 (2)
Reduction	**100% (92%)**	**100% (92%)**	**100% (92%)**

Notes:
1. xx (xx) [xx] – AM (PM) [SAT]
2. ITE Trips based on Land Use 225 Off-Campus Student Apartment average rates

As outlined above, a comparison of the ITE trip generation to the projected site trip generation, with the adoption of the suggested Mobility Choice Travel Plan (noted in Section 0), is anticipated to have a reduced two-way trips generation by approximately 92% to 100% during the study peak hours. As such, this reduction meets and exceeds the requirements set out within the TGS for Tier 1.

9.4.4 Trip Distribution and Assignment

The trip distribution pattern for the site traffic was established based on a review of 2016 Transportation Tomorrow Survey (TTS) data for home-based vehicle trips to and from the study area during the weekday morning and afternoon peak hour periods. The distribution of inbound and outbound residential site traffic adopted for the proposed development is outlined in **Table 15**.

TABLE 15 RESIDENTIAL TRIP DISTRIBUTION

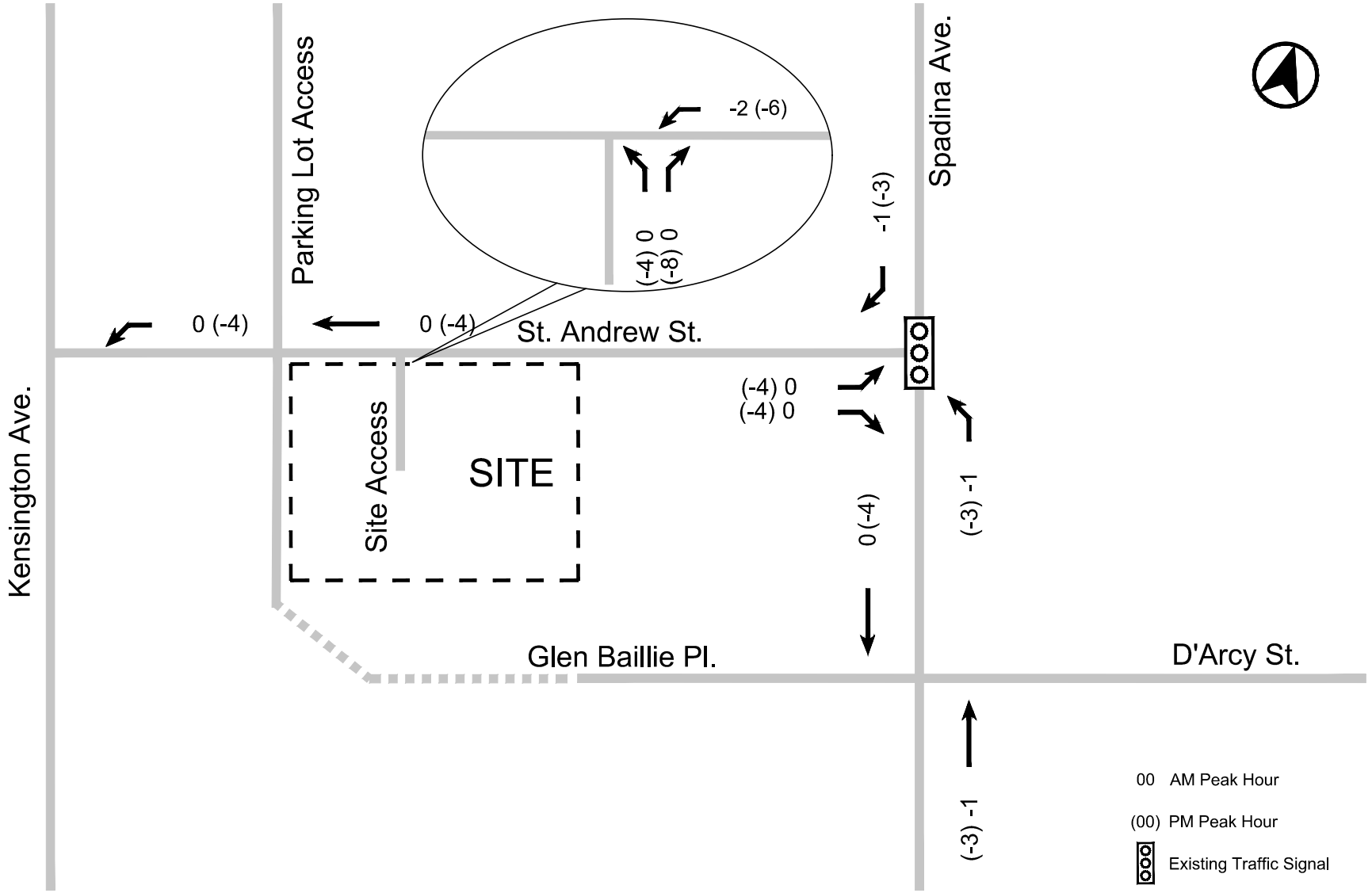
To / From	Inbound	Outbound
North on Spadina Avenue	50%	40%
South on Spadina Avenue	50%	45%
South on Kensington Avenue	0%	15%
Total	**100%**	**100%**

Notes:
1. Trip distribution data based on a review of 2011 TTS data for 2006 Transportation Analysis Zones 67, 68, 74, 75, 76, 91, 92, and 93.

New site traffic volumes assigned to the area road network are illustrated in **Figure 11**. Net new site traffic volumes are illustrated in **Figure 12**.

9.5 FUTURE TOTAL TRAFFIC

Future total traffic volumes were established by adding site-generated traffic to future background traffic volumes. **Figure 13** illustrates future total traffic volumes for the weekday morning and afternoon peak hours.



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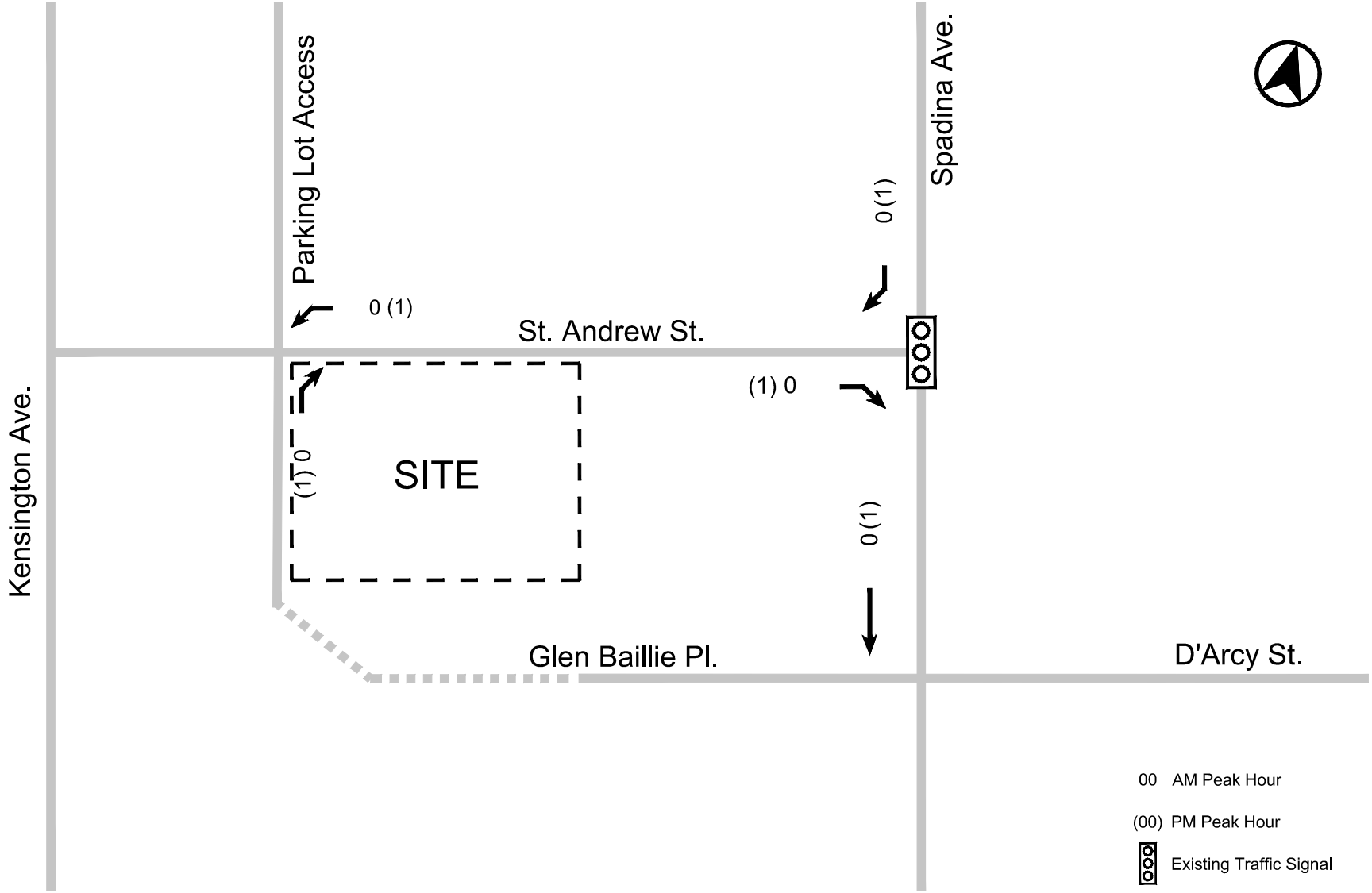
EXISTING SITE TRAFFIC VOLUMES (TO BE REMOVED)



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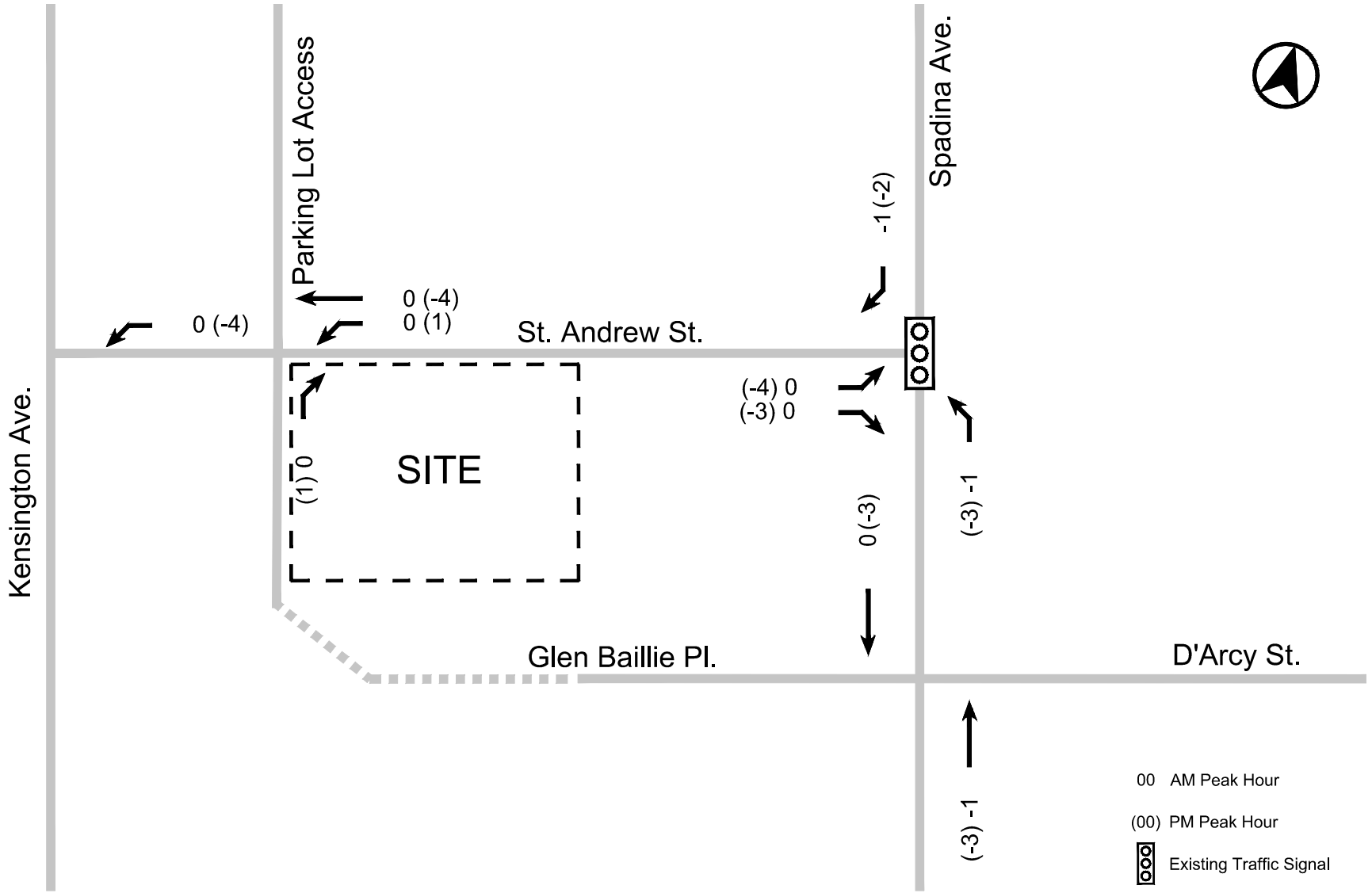
NEW SITE TRAFFIC VOLUMES

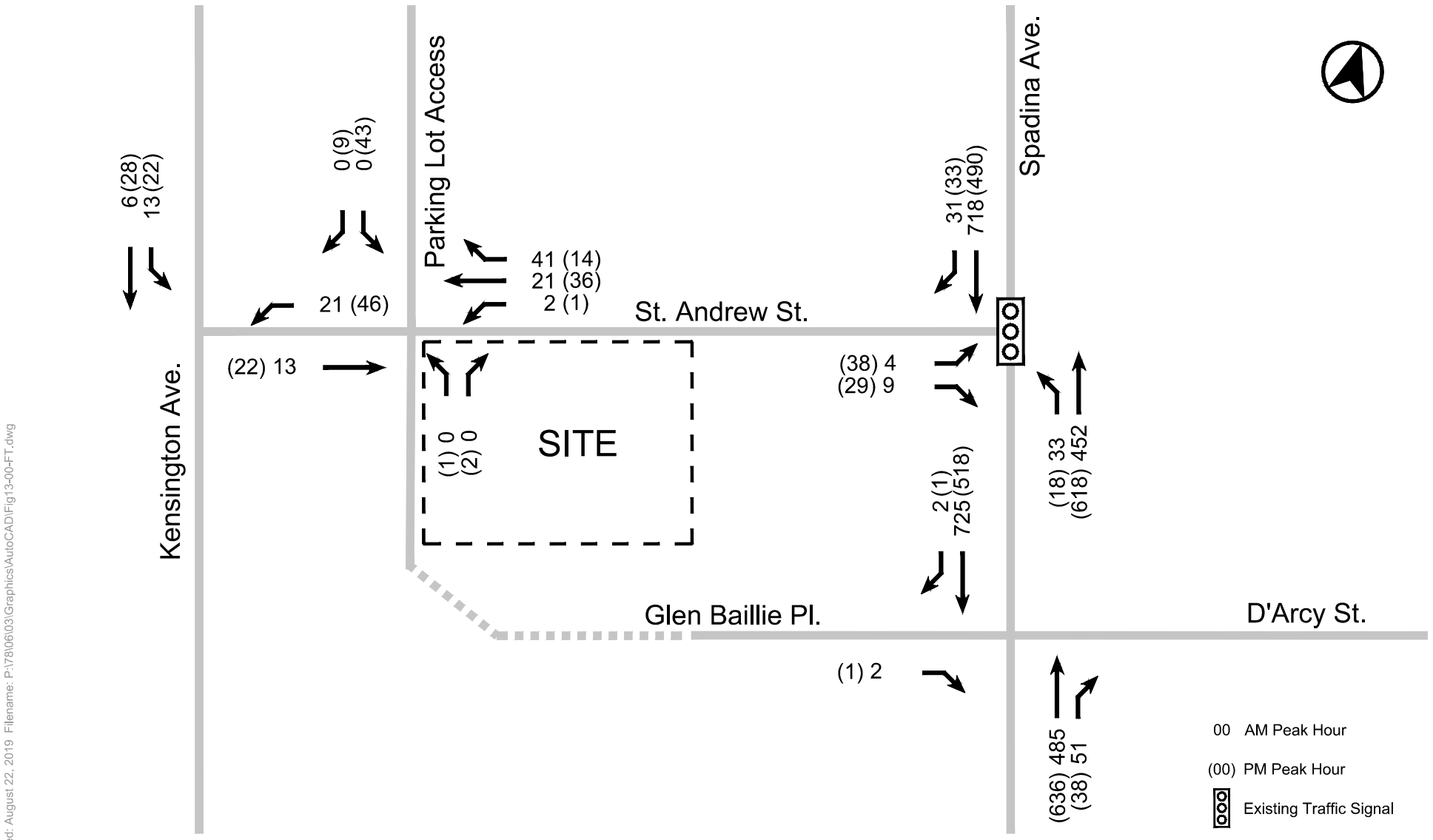
BA Group

17 St. Andrew Street
7806-03 August 2019

Figure 11



NET NEW SITE TRAFFIC VOLUMES



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FUTURE TOTAL TRAFFIC VOLUMES

BA Group

17 St. Andrew Street
7806-03 August 2019

Figure 13

10.0 TRAFFIC OPERATION ANALYSIS

10.1 METHODOLOGY

Traffic operations analyses have been completed using Synchro (Version 9.2) software package in accordance with the methodologies outlined in the *Highway Capacity Manual* (HCM 2000) and the City of Toronto's *Transportation Impact Study Guidelines*.

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

The key performance indicator of the unsignalized intersection / driveway analyses is the average delay per vehicle (in seconds) and a level of service (LOS) designation, ranging from LOS A (little delay) to LOS F (extended delay), with respect to the relative time for a motorist to complete a travel movement at an intersection or driveway.

Signal Timing Plans

Existing traffic signal timing plans for all signalized intersections within the study area were obtained from the City of Toronto. Analyses were undertaken using these signal timing plans for existing, future background and future total traffic conditions.

The existing traffic signal timing planes are provided in **Appendix E**.

Road Network Assumptions

Existing lane configurations in the area road network have been assumed in the analysis for the existing and future background traffic conditions.

Under future total traffic conditions, site access will be provided via a single driveway on St. Andrew Street. This driveway will operate under STOP-controlled with full vehicular manoeuvres permitted.

10.2 STUDY AREA INTERSECTIONS

Traffic operations and site traffic related impacts have been reviewed at the following area intersections through capacity analysis:

Signalized

- Spadina Avenue / St. Andrew Street

Unsignalized

- Spadina Avenue / Glen Baillie Place
- St. Andrew Street / Site Access
- St. Andrew Street / North-South Laneway/TPA Garage
- St. Andrew Street / Kensington Avenue

10.2.1 Signalized Intersection Analysis

The following sections summarize the existing, future background and future total traffic conditions at the study area signalized intersection listed below:

- Spadina Avenue / St. Andrew Street

The existing signal timing plan was maintained through the existing, future background, and future total scenarios. **Table 16** summaries the traffic operates under existing, future background and future total conditions at the key study area signalized intersection.

TABLE 16 SIGNALIZED INTERSECTIONS - TRAFFIC OPERATIONS ANALYSIS

Intersection / Movement	Existing Traffic		Future Background Traffic		Future Total Traffic	
	V/C	LOS	V/C	LOS	V/C	LOS
Spadina Avenue / St. Andrew Street						
EBLR	0.01 (0.11)	B (B)	0.01 (0.11)	B (B)	0.01 (0.10)	B (B)
NBL	0.12 (0.06)	B (B)	0.12 (0.06)	B (B)	0.11 (0.05)	B (B)
NBT	0.25 (0.35)	B (B)	0.26 (0.36)	B (B)	0.26 (0.36)	B (B)
SBT	0.55 (0.38)	C (C)	0.57 (0.39)	C (C)	0.57 (0.39)	C (C)
SBR	0.09 (0.40)	B (D)	0.09 (0.41)	B (D)	0.09 (0.38)	B (D)
Overall	**0.30 (0.28)**	**B (B)**	**0.31 (0.29)**	**B (B)**	**0.31 (0.28)**	**B (B)**

Notes:
1. xx (xx) – morning peak hour (afternoon peak hour)

Under existing traffic conditions, the intersection operates at an acceptable level of service during the weekday morning and afternoon peak traffic hours with overall v/c ratios of 0.30 and 0.28, respectively.

Under future background traffic conditions with the allowances of specific area development and general corridor growth, the intersection continues to operate at acceptable level of service during the weekday morning and afternoon peak traffic hours with overall v/c ratios of 0.31 and 0.29, respectively.

With the addition of site-related traffic under future total traffic conditions, the intersections continues to operate at an acceptable level of service during the weekday morning and afternoon peak traffic hours with overall v/c ratios of 0.31 and 0.28, respectively.

Based on the foregoing, the traffic generated by the proposed development can be acceptably accommodated at the Spadina Avenue / St. Andrew Street intersection. No mitigation measures or improvements are recommended at this intersection.

10.2.2 Unsignalized Intersection Analysis

The following sections summarize the existing, future background and future total traffic conditions at the study area unsignalized intersections listed below:

- Spadina Avenue / Glen Baillie Place
- St. Andrew Street / Site Access
- St. Andrew Street / North-South Laneway/TPA Garage
- St. Andrew Street / Kensington Avenue

Traffic operations at all unsignalized intersections within the study area are at acceptable level of service under all scenarios without any need for road improvements or mitigation measures. All movements will function at LOS A to LOS D in the future total scenarios. **Table 17** summaries the traffic operates under existing, future background and future total conditions at the study area unsignalized intersections.

TABLE 17 UNSIGNALIZED INTERSECTIONS - TRAFFIC OPERATIONS ANALYSIS

Movement	Existing Traffic		Future Background Traffic		Future Total Traffic	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
Spadina Avenue / Glen Baillie Place						
EBR	9.7 (26.9)	A (D)	9.6 (26.9)	A (D)	9.6 (26.9)	A (D)
St. Andrew Street / Site Access						
WBLT	0.2 (0.9)	A (A)	0.2 (0.9)	A (A)	-	-
NBLR	0.0 (8.9)	A (A)	0.0 (8.9)	A (A)	-	-
St. Andrew Street / North-South Laneway/TPA Garage[1]						
WBLTR	0.2 (0.0)	A (A)	0.2 (0.0)	A (A)	0.2 (0.1)	A (A)
NBLTR	0.0 (11.6)	A (B)	0.0 (11.6)	A (B)	0.0 (11.1)	A (B)
SBLTR	0.0 (16.8)	A (C)	0.0 (16.8)	A (C)	0.0 (16.7)	A (C)
St. Andrew Street / Kensington Avenue						
WBL	9.5 (13.0)	A (B)	9.5 (13.0)	A (B)	9.5 (12.9)	A (B)
SBLT	5.1 (3.8)	A (A)	5.1 (3.8)	A (A)	5.1 (3.8)	A (A)

Note:
1. For the purpose of this analysis, the inbound and outbound driveways for the TPA parking garage (20 St. Andrew Street) are modelled as a single, 2-way driveway. The north-south laneway was modelled as the south leg of this intersection.

Given the above, new site related activities can, as such, be appropriately accommodated at the area unsignalized intersections.

APPENDIX A:
Reduced-scaled Architectural Drawings

Drawing List

Number	Title
A000	DRAWING LIST
A001	STATISTICS & PERSPECTIVE
A002	SURVEY
A003	CONTEXT PLAN
A004	SITE PLAN
A099	BASEMENT PLAN
A101	PLAN - LEVEL 01
A102	PLAN - LEVEL 02
A103	PLAN - LEVEL 03
A104	PLAN - LEVEL 04
A105	PLAN - LEVEL 05
A106	PLAN - LEVEL 06
A107	ROOF PLAN
A301	ELEVATION - NORTH
A302	ELEVATION - EAST
A303	ELEVATION - SOUTH
A304	ELEVATION - WEST
A305	COLOUR ELEVATION
A401	SECTION A
A402	SECTION B
A403	SECTION C
A404	SECTION D

NORTH WEST CORNER

17 ST ANDREW ST
TORONTO

Issued for ZBA Submission
September 27th, 2019

NO.	DATE	REVISION / ISSUANCE
01	2019.09.27	ISSUED FOR ZBA SUBMISSION

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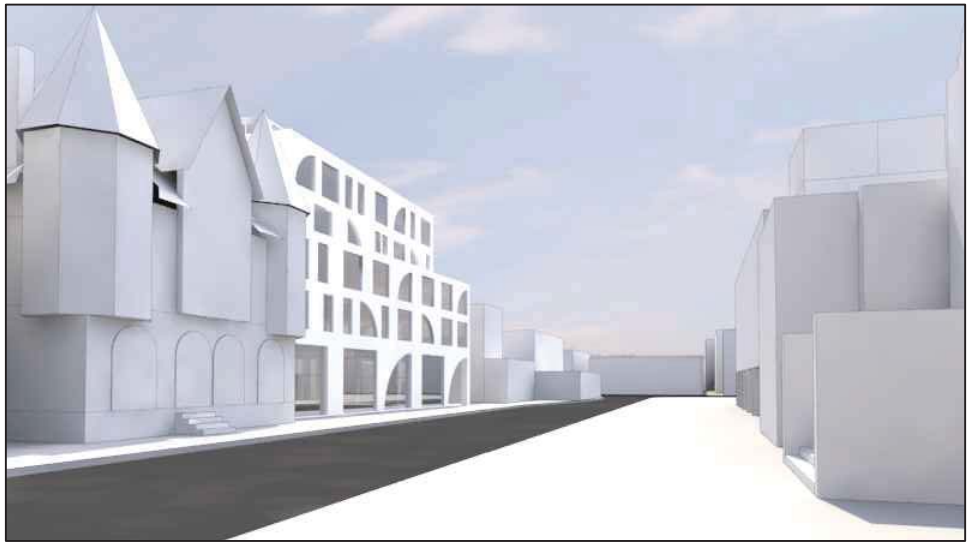
DRAWING LIST

PROJECT	41839	DRAWN	M A & CO
SCALE	NTS	CHECKED	M A
DATE	2018.0329	PLOTTED	2019.09.27

A000



AERIAL VIEW FROM SOUTH WEST

Statistics Template - Toronto Green Standard Version 3.0

Mid to High Rise Residential and all New Non-Residential Development

The Toronto Green Standard Version 3.0 Statistics Template is submitted with Site Plan Control Applications and stand alone Zoning Bylaw Amendment applications. Complete the table and copy it directly onto the Site Plan submitted as part of the application.

For Zoning Bylaw Amendment applications: complete General Project Description and Section 1.

For Site Plan Control applications: complete General Project Description, Section 1 and Section 2.

For further information, please visit www.toronto.ca/greendevelopment

General Project Description	Proposed
Total Gross Floor Area	3454.26
Breakdown of project components (m²)	
Residential	3282.76
Retail	171.5
Commercial	N/A
Industrial	N/A
Institutional/Other	N/A
Total number of residential units	77

Section 1: For Stand Alone Zoning Bylaw Amendment Applications and Site Plan Control Applications

Automobile Infrastructure	Required	Proposed	Proposed %
Number of Parking Spaces	44	0	0
Number of parking spaces dedicated for priority LEV parking	1	0	0
Number of parking spaces with EVSE	1	0	0

Cycling Infrastructure	Required	Proposed	Proposed %
Number of long-term bicycle parking spaces (residential)	69	143	207
Number of long-term bicycle parking spaces (all other uses)	1	1	100
Number of long-term bicycle parking (all uses) located on:			
a) first storey of building	N/A	24	N/A
b) second storey of building	N/A	0	N/A
c) first level below-ground	N/A	120	N/A
d) second level below-ground	N/A	0	N/A
e) other levels below-ground	N/A	0	N/A

Cycling Infrastructure	Required	Proposed	Proposed %
Number of short-term bicycle parking spaces (residential)	8	8	100
Number of short-term bicycle parking spaces (all other uses)	3	4	133
Number of male shower and change facilities (non-residential)	0	0	
Number of female shower and change facilities (non-residential)	0	0	

Tree Planting & Soil Volume	Required	Proposed	Proposed %
Total Soil Volume (40% of the site area x 66 m² x 30 m³)	220	200	91

GFA BREAKDOWN

TOTAL Non-Residential (Commercial) GFA	171.5
TOTAL Residential GFA	3,282.70
TOTAL Building GFA	3,454.20

Non-res GFA includes retail garbage room

RESIDENTIAL BIKE PARKING

*TGS-TIER 1-Bicycle Zone 1

Residential			Required	Provided
Long Term	0.9/unit*	0.9 x 77	69	143
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL RES BICYCLE SPACES			72	151

NON-RES BIKE PARKING

Non-Residential/ Long Term		Areas	Required	Provided
Long Term - Retail	0.20/100sm	130sm	1	1
Short Term - Retail	3+0.3/100sm	130sm	3	4
TOTAL NON-RES BICYCLE SPACES - Long Term				5

TOTAL PROVIDED BIKE SPACES

Tot Bike Spaces	Res	Non-Res	TOTAL
Long Term	143	1	144
Short Term	8	4	12
TOTAL	151	5	156

BIKE PARKING LOCATION

Bicycle Space Location

Level	RES-BIKE SPACES		NON-RES SPACES		TOTAL
	Long-Term	Short-Term	Long-Term	Short-Term	
GF	23	8	1	4	36
BASEMENT	120		0		120
TOTAL	143	8	11	4	156

AMENITY SPACE

By-Law 569-2013

TOTAL Res Amenity = 4.0sm/unit			Required	Provided
			308	320.7
Indoor Amenity	2.0m/unit	2.0 x 77	154	159.1
Outdoor Amenity	2.0m/unit	2.0 x 77	154	161.6

AMENITY SPACE LOCATION

Amenity Space Location

Level	AMENITY		TOTAL
	Indoor	Outdoor	
BASEMENT	31.4	0	31.4
MEZZ FH	127.7	161.6	289.3
TOTAL	159.1	161.6	320.7

LOADING TYPE/ LOCATION

By-Law 569-2013

		Required	Provided
		TYPE G	TYPE G
Level	LOADING		
GF	TYPE G		

SITE STATISTICS

Site Area: 1,208 sq.m, 13,000 sq.ft.

FSI: 2.9

ID	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X					
				ZONING GROSS FLOOR AREA								RSA (RESIDENTIAL SALEABLE AREA)						NON-RES			TOTAL	EFF.								
				DEDUCTIONS								DEDUCTIONS																		
FORMULA																													
		BELOW-GRADE PARKING	ENVELOPE GFA	BASEMENT STORAGE/LOBBY/ MECH	ELEVATORS	EXIT STAIRWELLS	LOADING/GARAGE	AMENITY SPACES/LAUNDRY RM	BICYCLE PARKING	OPEN TO BELOW	UTILITY ROOMS	TOTAL	ZONING GFA	LOBBY / CORRIDOR	STORAGE	TOTAL DEDUCTIONS	RSA	AVG UNIT SIZE (EXCLUDING TH)	COMMERCIAL - LEASABLE	COMMERCIAL - B.O.H.	TOTAL	RESIDENTIAL + COMMERCIAL LEASABLE	EFFICIENCY	STUDIO	1B	2B	3B	TOTAL	BEDS
BASEMENT		-	821.1	309.0	16.2	31.8	-	73.2	-	-	70.0	449.2	325.9	69.3	-	69.3	256.6	32.1	130.0	41.5	171.5	256.6	76.7%	3	2	3	-	8	
GROUND FLOOR		-	771.8	-	16.2	65.0	159.0	-	84.4	-	4.3	329.7	442.1	96.7	52.0	148.7	77.9	-	-	-	-	241.9	56.0%	-	-	-	-	-	
FLOOR 02		-	805.0	-	16.2	39.9	4.0	-	-	81.9	1.8	143.4	661.6	45.3	27.4	67.7	616.9	31.7	-	-	-	616.9	90.2%	6	3	3	1	13	
FLOOR 03		-	848.0	-	16.2	31.8	4.0	-	-	-	-	52.0	796.0	72.4	27.9	100.3	695.7	31.8	-	-	-	695.7	87.4%	6	5	5	1	19	
FLOOR 04		-	668.0	-	16.2	19.6	4.0	-	-	-	-	39.3	617.8	62.8	16.0	78.8	539.1	23.4	-	-	-	539.1	87.2%	15	4	-	-	19	
FLOOR 05		-	642.0	-	16.2	35.6	4.0	-	-	-	-	55.8	591.8	59.0	-	59.0	531.8	25.3	-	-	-	531.8	90.0%	12	2	3	-	17	
ROOFTOP MECH/AMENITY LEVEL		-	257.0	-	16.2	36.5	4.0	127.7	-	-	68.5	252.8	4.1	-	4.1	4.1	(0.0)	0.0	-	-	-	(0.0)	0.0%	-	-	2	-	2	
TOTAL		-	4,012.9	309.0	113.4	286.3	183.0	199.9	-	81.9	144.8	1,284.3	3,454.4	405.5	127.4	527.9	2,755.0	31.0	130.0	41.5	171.5	2,883.0	83.6%	46	16	16	1	77	93
TOTAL (SF)		-	43,188	3,326	1,221	3,082	2,014	2,152	-	882	1,558	14,003	37,183	4,371	1,371	5,682	29,658	334	1,399	447	1,846	31,054		59.7%	25.8%	18.2%	1.3%	100.0%	

NO.	DATE	REVISION / ISSUANCE
01	2019.08.13	ISSUED FOR COORDINATION
02	2019.08.15	ISSUED FOR CLIENT REVIEW
03	2019.09.27	ISSUED FOR ZBA SUBMISSION

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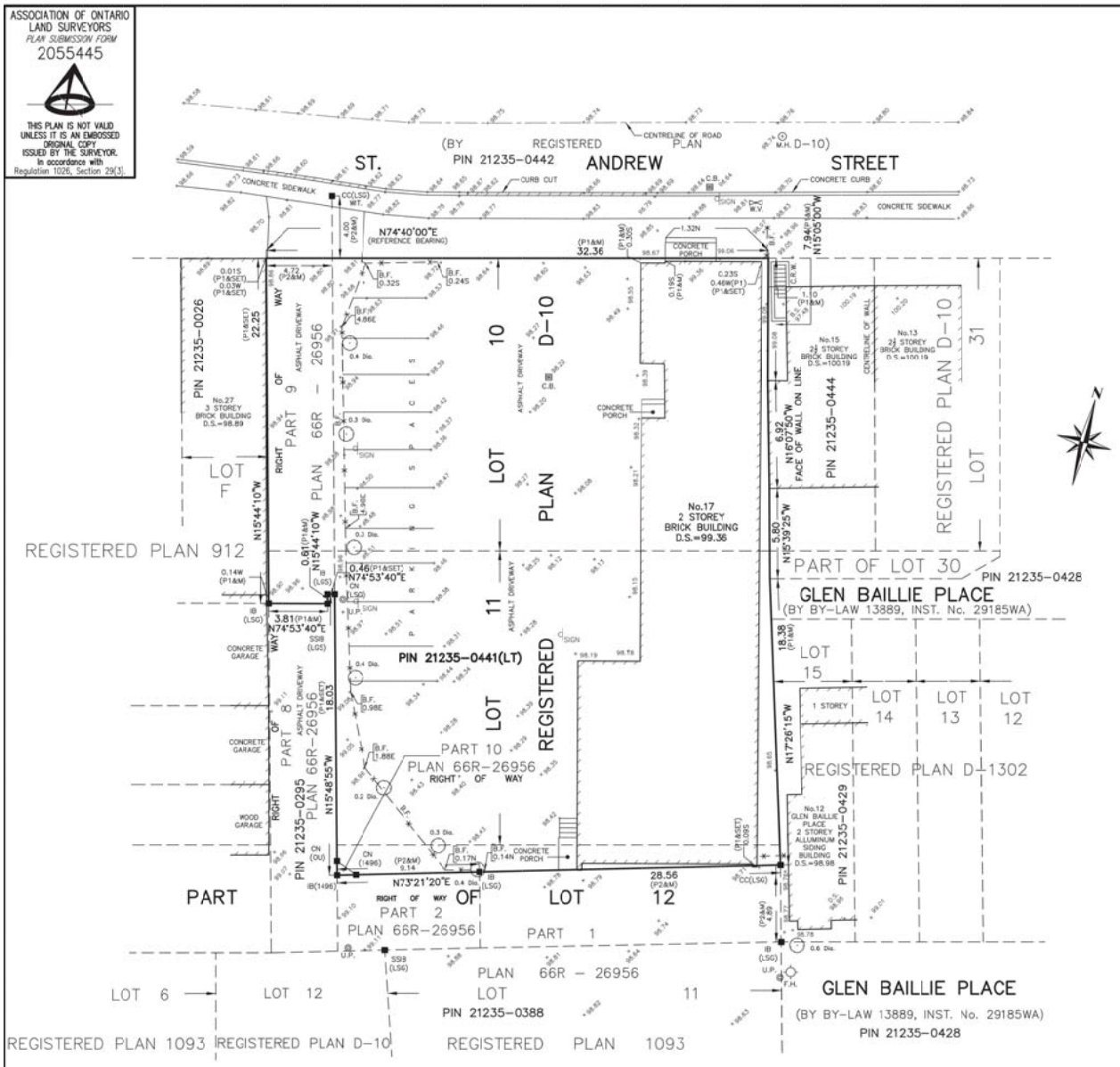
STATISTICS & PERSPECTIVES

PROJECT	41839	DRAWN	
SCALE	NTS	CHECKED	
DATE	2019.08.13	PLOTTED	2019.09.27

A001



SURVEYOR'S REAL PROPERTY REPORT
PART 1 – PLAN OF
PART OF LOTS 10, 11 AND 12
REGISTERED PLAN D–10
CITY OF TORONTO

SCALE 1: 200

10m 5 0 10 METRES

MANDARIN SURVEYORS LIMITED, O.L.S. ©

METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

LEGEND

□	DENOTES MONUMENT SET
■	DENOTES MONUMENT FOUND
SSIB	DENOTES SHORT STANDARD IRON BAR
IB	DENOTES IRON BAR
CN	DENOTES CONCRETE NAIL IN WASHER
CC	DENOTES CUT CROSS
P1	DENOTES PLAN OF SURVEY BY RABIDEAU & CZERWINSKI, O.L.S. DATE MAY 31, 2000
P2	DENOTES PLAN 66R–26956
WIT	DENOTES WITNESS
PIN	DENOTES PROPERTY IDENTIFIER NUMBER
M	DENOTES MEASURED
N,S,E,W	DENOTES NORTH, SOUTH, EAST, WEST
B.F.	DENOTES BOARD FENCE
C.R.W.	DENOTES CONCRETE RETAINING WALL
LSG	DENOTES LAND SURVEY GROUP, O.L.S.
OU	DENOTES ORIGINAL UNKNOWN
D.S.	DENOTES FINISHED SILL ELEVATION AT ENTRY
1496	DENOTES RABIDEAU & CZERWINSKI, O.L.S.
U.P.	DENOTES UTILITY POLE
M.H.	DENOTES MANHOLE
F.H.	DENOTES FIRE HYDRANT
W.V.	DENOTES WATER VALVE
C.B.	DENOTES CATCH BASIN
	DENOTES CONIFEROUS TREE
	DENOTES DECIDUOUS TREE

ALL TIES TO CONCRETE FOUNDATION, UNLESS NOTED OTHERWISE.

BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE SOUTHERLY OF ST. ANDREW STREET AS SHOWN ON PLAN 66R–26956 HAVING A BEARING OF N74° 40' 00"E.

BENCHMARK NOTE

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE CITY OF TORONTO BENCHMARK No.CT1506 HAVING AN ELEVATION OF 98.142 METRES, LOCATED AT SS DUNDAS STREET WEST, WEST OF SPADINA AVENUE. BENCHMARK ON 2 STOREY BRICK BUILDING (547 DUNDAS STREET WEST) WEST END OF NORTH WALL

THIS REPORT WAS PREPARED FOR PANJEE ENTERPRISES LIMITED AND THE UNDERSIGNED ACCEPTS NO RESPONSIBILITY FOR ITS USE BY OTHER PARTIES.

PART 2 (SURVEY REPORT)

1. REGISTERED EASEMENTS AND/OR RIGHT OF WAYS: SUBJECT TO RIGHT OF WAY AS IN INST. No. CT514864.
2. ADDITIONAL COMMENTS: NOTE THE LOCATION OF THE FENCES AROUND THE WESTERLY LIMITS OF THE SUBJECT PROPERTY. NOTE THE LOCATION OF BUILDING CORNER AND STEPS.
3. THIS PLAN DOES NOT CERTIFY COMPLIANCE WITH ZONING BY-LAWS.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 28th DAY OF MAY , 2018

MAY 30 , 2018
DATE

Z. ZENG
ONTARIO LAND SURVEYOR

MANDARIN SURVEYORS LIMITED
ONTARIO LAND SURVEYOR CANADA LANDS SURVEYOR
WWW.MANDARINSURVEYOR.COM
2400 MIDLAND AVE., #121 PHONE: (647)430-1366 FAX: (647)799-4068
SCARBOROUGH, ONTARIO, M1S 1X7 E-MAIL: MANDARINSURVEYOR@GMAIL.COM

SURVEY BY: S.Z. | CAD No: 18-148SRPR | JOB No: 2018-148

NO.	DATE	REVISION / ISSUANCE
01	2019.08.15	ISSUED FOR CLIENT REVIEW
02	2019.09.27	ISSUED FOR ZBA SUBMISSION

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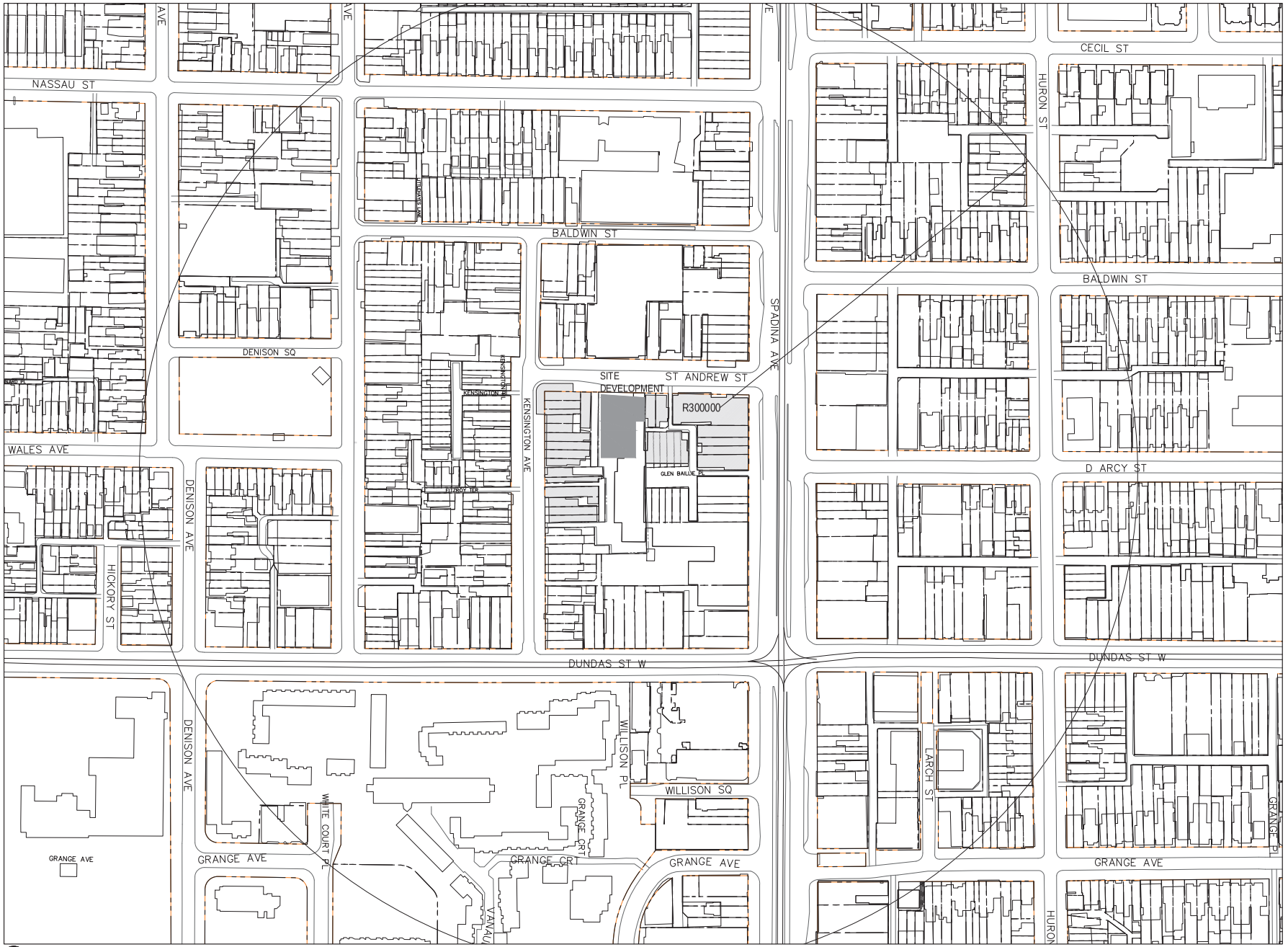
SURVEY

PROJECT	41839	DRAWN	-
SCALE	As Noted	CHECKED	-
DATE	2019.08.15	PLOTTED	2019.09.27

A002



1 A003 CONTEXT PLAN
SCALE - 1:1000

NO.	DATE	REVISION / ISSUANCE
01	2019.08.15	ISSUED FOR CLIENT REVIEW
02	2019.09.27	ISSUED FOR ZBA SUBMISSION

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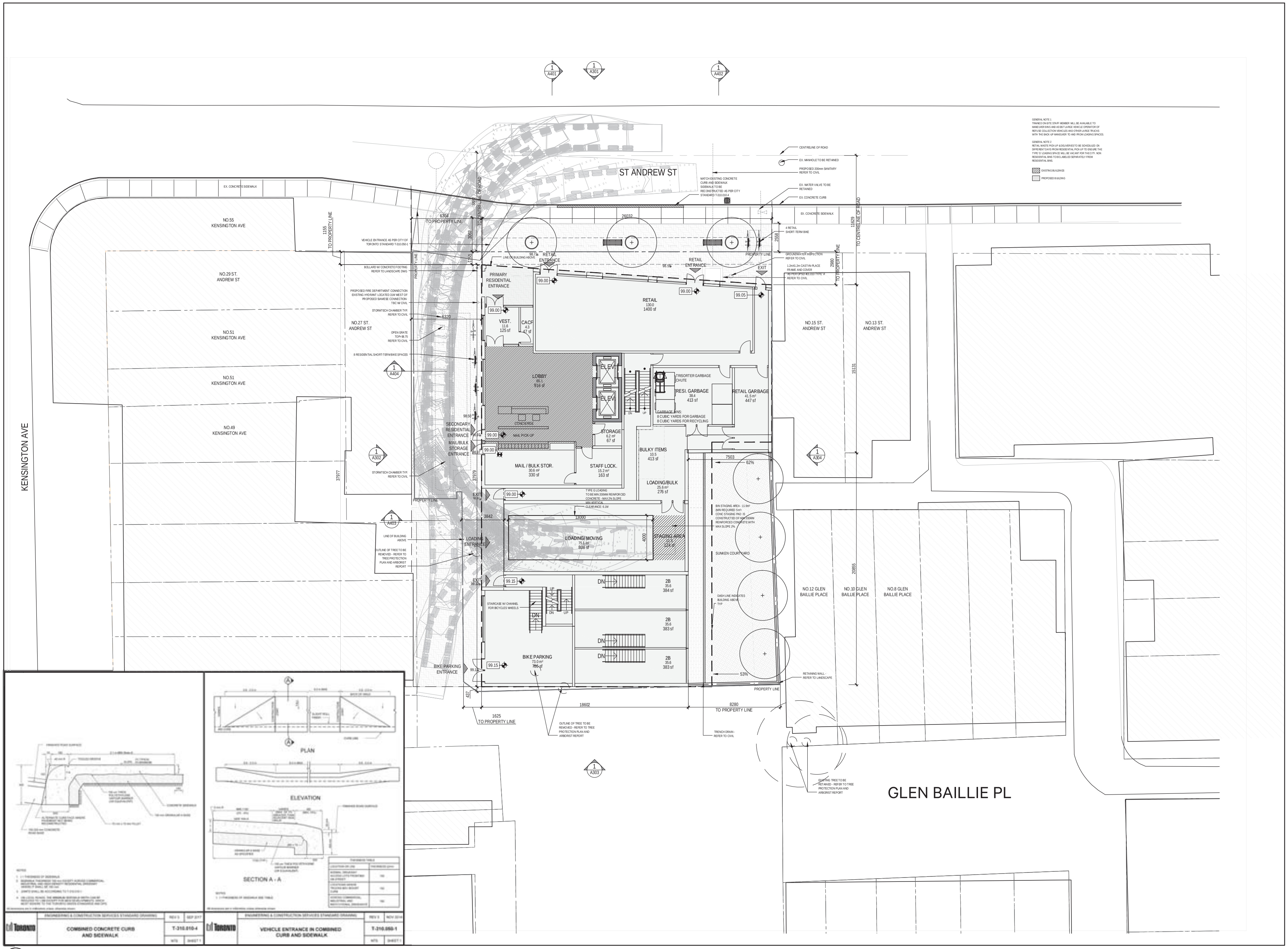
CONTEXT PLAN

PROJECT	41839	DRAWN	M A
SCALE	1:1000	CHECKED	M A
DATE	2019.08.15	PLOTTED	2019.09.27

A003



1 SITE PLAN
004 SCALE - 1:150

NO.	DATE	REVISION / ISSUANCE
01	2019.07.31	ISSUED FOR COORDINATION
02	2019.08.12	ISSUED FOR COORDINATION
03	2019.08.13	ISSUED FOR COORDINATION
04	2019.08.15	ISSUED FOR CLIENT REVIEW
05	2019.08.22	ISSUED FOR CLIENT REVIEW
06	2019.09.27	ISSUED FOR ZBA SUBMISSION

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SITE PLAN

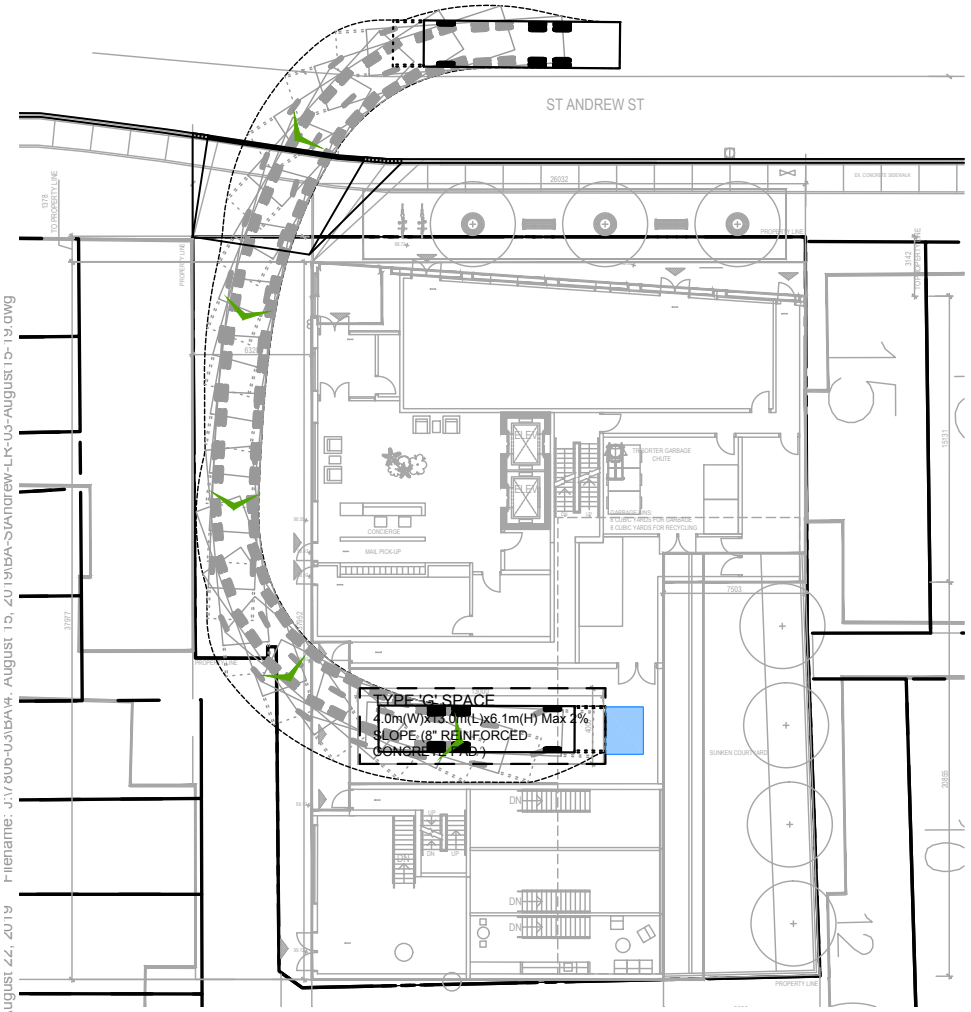
PROJECT	41839	DRAWN	MA & CO
SCALE	1:150	CHECKED	MA
DATE	2017.11.30	PLOTTED	2019.09.27

A004

APPENDIX B:
Vehicle Manoeuvring Diagrams (VMDs)

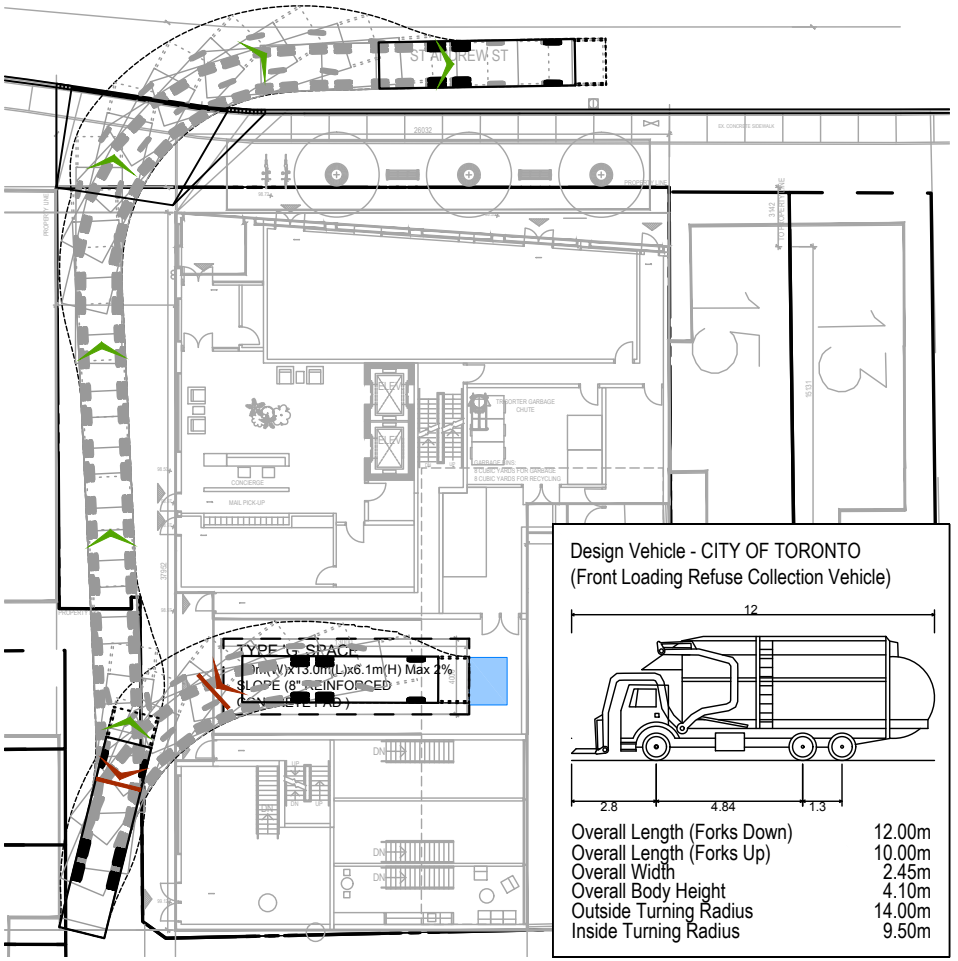
INBOUND

ST. ANDREW STREET



OUTBOUND

ST. ANDREW STREET



Design Vehicle - CITY OF TORONTO
(Front Loading Refuse Collection Vehicle)

Overall Length (Forks Down)	12.00m
Overall Length (Forks Up)	10.00m
Overall Width	2.45m
Overall Body Height	4.10m
Outside Turning Radius	14.00m
Inside Turning Radius	9.50m

1:400

0 2 4 6 8 10 20m

Scale

Date Plotted: August 27, 2019 Filename: J:\7806-03\BA\4. August 15, 2019\BA-StAndrew-LR-03-August 15-19.dwg

BA Group

17 ST. ANDREW STREET

VEHICULAR MANOEUVRING DIAGRAM

CITY OF TORONTO FRONT LOADING REFUSE VEHICLE

Project:	17 ST ANDREW ST.
Project No.	7806-03
Date:	OCTOBER 12, 2018
Revised:	AUG 15, 2019
Drawing No.	VMD-01

APPENDIX C:
Turning Movement Counts (TMCs)

Turning Movement Count (2 . SPADINA AVE & DARCY ST / GLEN BAILLE PL)

Start Time	N Approach SPADINA AVE						E Approach DARCY ST						S Approach SPADINA AVE						W Approach GLEN BAILLE PL						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	0	92	0	0	0	92	1	0	0	0	16	1	11	76	0	0	1	87	2	0	0	0	22	2	182	
07:45:00	0	113	0	0	3	113	0	0	0	0	24	0	5	99	0	0	1	104	0	0	0	0	21	0	217	
08:00:00	2	147	0	0	9	149	0	0	0	0	31	0	6	91	0	0	1	97	2	0	0	0	21	2	248	
08:15:00	0	149	0	0	15	149	0	0	0	0	51	0	12	130	0	0	1	142	0	0	0	0	28	0	291	938
08:30:00	0	147	0	0	10	147	0	0	0	0	67	0	13	115	0	0	0	128	0	0	0	0	27	0	275	1031
08:45:00	0	196	0	0	18	196	1	0	0	0	102	1	15	108	0	0	4	123	0	0	0	0	29	0	320	1134
09:00:00	2	189	0	0	12	191	1	0	0	0	56	1	14	130	0	0	0	144	1	0	0	0	40	1	337	1223
09:15:00	0	167	0	0	20	167	1	0	0	0	91	1	9	122	0	0	1	131	1	0	0	0	44	1	300	1232
BREAK																										
16:00:00	1	120	0	0	0	121	0	0	0	0	189	0	9	130	0	0	2	139	2	0	0	0	162	2	262	
16:15:00	0	122	0	0	0	122	0	0	0	0	226	0	6	135	0	0	5	141	0	0	0	0	170	0	263	
16:30:00	0	99	0	0	2	99	1	0	0	0	201	1	1	158	0	0	6	159	1	0	0	0	175	1	260	
16:45:00	1	109	0	0	2	110	0	0	0	0	192	0	5	138	0	0	2	143	0	0	0	0	152	0	253	1038
17:00:00	0	116	0	0	5	116	0	0	0	0	203	0	7	135	0	0	3	142	0	0	0	0	196	0	258	1034
17:15:00	1	152	0	0	1	153	3	0	0	0	215	3	9	147	0	0	4	156	0	0	0	0	200	0	312	1083
17:30:00	0	115	0	0	1	115	1	0	0	0	268	1	12	163	0	0	1	175	1	0	0	0	166	1	292	1115
17:45:00	0	122	0	0	6	122	0	0	0	0	250	0	10	178	0	0	5	188	0	0	0	0	143	0	310	1172
Grand Total	7	2155	0	0	104	2162	9	0	0	0	2182	9	144	2055	0	0	37	2199	10	0	0	0	1596	10	**4380**	-
Approach%	0.3%	99.7%	0%	0%		-	100%	0%	0%	0%		-	6.5%	93.5%	0%	0%		-	100%	0%	0%	0%		-	**-**	-
Totals %	0.2%	49.2%	0%	0%		49.4%	0.2%	0%	0%	0%		0.2%	3.3%	46.9%	0%	0%		50.2%	0.2%	0%	0%	0%		0.2%	**-**	-
Heavy	0	2	0	0		-	0	0	0	0		-	1	3	0	0		-	0	0	0	0		-	**-**	-
Heavy %	0%	0.1%	0%	0%		-	0%	0%	0%	0%		-	0.7%	0.1%	0%	0%		-	0%	0%	0%	0%		-	**-**	-
Bicycles	4	478	0	0		-	21	0	1	0		-	17	461	0	0		-	3	0	0	0		-	**-**	-
Bicycle %	57.1%	22.2%	0%	0%		-	233.3%	0%	0%	0%		-	11.8%	22.4%	0%	0%		-	30%	0%	0%	0%		-	**-**	-

Peak Hour: 08:30 AM - 09:30 AM Weather: Partly Cloudy (16.2 °C)

Start Time	N Approach SPADINA AVE						E Approach DARCY ST						S Approach SPADINA AVE						W Approach GLEN BAILLE PL						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:30:00	0	147	0	0	10	147	0	0	0	0	67	0	13	115	0	0	0	128	0	0	0	0	27	0	275
08:45:00	0	196	0	0	18	196	1	0	0	0	102	1	15	108	0	0	4	123	0	0	0	0	29	0	320
09:00:00	2	189	0	0	12	191	1	0	0	0	56	1	14	130	0	0	0	144	1	0	0	0	40	1	337
09:15:00	0	167	0	0	20	167	1	0	0	0	91	1	9	122	0	0	1	131	1	0	0	0	44	1	300
Grand Total	2	699	0	0	60	701	3	0	0	0	316	3	51	475	0	0	5	526	2	0	0	0	140	2	**1232**
Approach%	0.3%	99.7%	0%	0%		-	100%	0%	0%	0%		-	9.7%	90.3%	0%	0%		-	100%	0%	0%	0%		-	**-**
Totals %	0.2%	56.7%	0%	0%		56.9%	0.2%	0%	0%	0%		0.2%	4.1%	38.6%	0%	0%		42.7%	0.2%	0%	0%	0%		0.2%	**-**
PHF	0.25	0.89	0	0		0.89	0.75	0	0	0		0.75	0.85	0.91	0	0		0.91	0.5	0	0	0		0.5	**-**
Heavy	0	1	0	0		1	0	0	0	0		0	1	1	0	0		2	0	0	0	0		0	**-**
Heavy %	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	2%	0.2%	0%	0%		0.4%	0%	0%	0%	0%		0%	**-**
Lights	2	660	0	0		662	2	0	0	0		2	43	445	0	0		488	2	0	0	0		2	**-**
Lights %	100%	94.4%	0%	0%		94.4%	66.7%	0%	0%	0%		66.7%	84.3%	93.7%	0%	0%		92.8%	100%	0%	0%	0%		100%	**-**
Mediums	0	38	0	0		38	1	0	0	0		1	7	29	0	0		36	0	0	0	0		0	**-**
Mediums %	0%	5.4%	0%	0%		5.4%	33.3%	0%	0%	0%		33.3%	13.7%	6.1%	0%	0%		6.8%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	1	0	0		1	0	0	0	0		0	1	1	0	0		2	0	0	0	0		0	**-**
Articulated Trucks %	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	2%	0.2%	0%	0%		0.4%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	59	-	-	-	-	-	311	-	-	-	-	-	5	-	-	-	-	-	138	-	**-**
Pedestrians%	-	-	-	-	11.3%		-	-	-	-	59.7%		-	-	-	-	1%		-	-	-	-	26.5%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	2	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0.2%		-	-	-	-	1%		-	-	-	-	0%		-	-	-	-	0.4%		**-**
Bicycles on Road	1	195	0	0	0	-	2	0	0	0	0	-	5	60	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

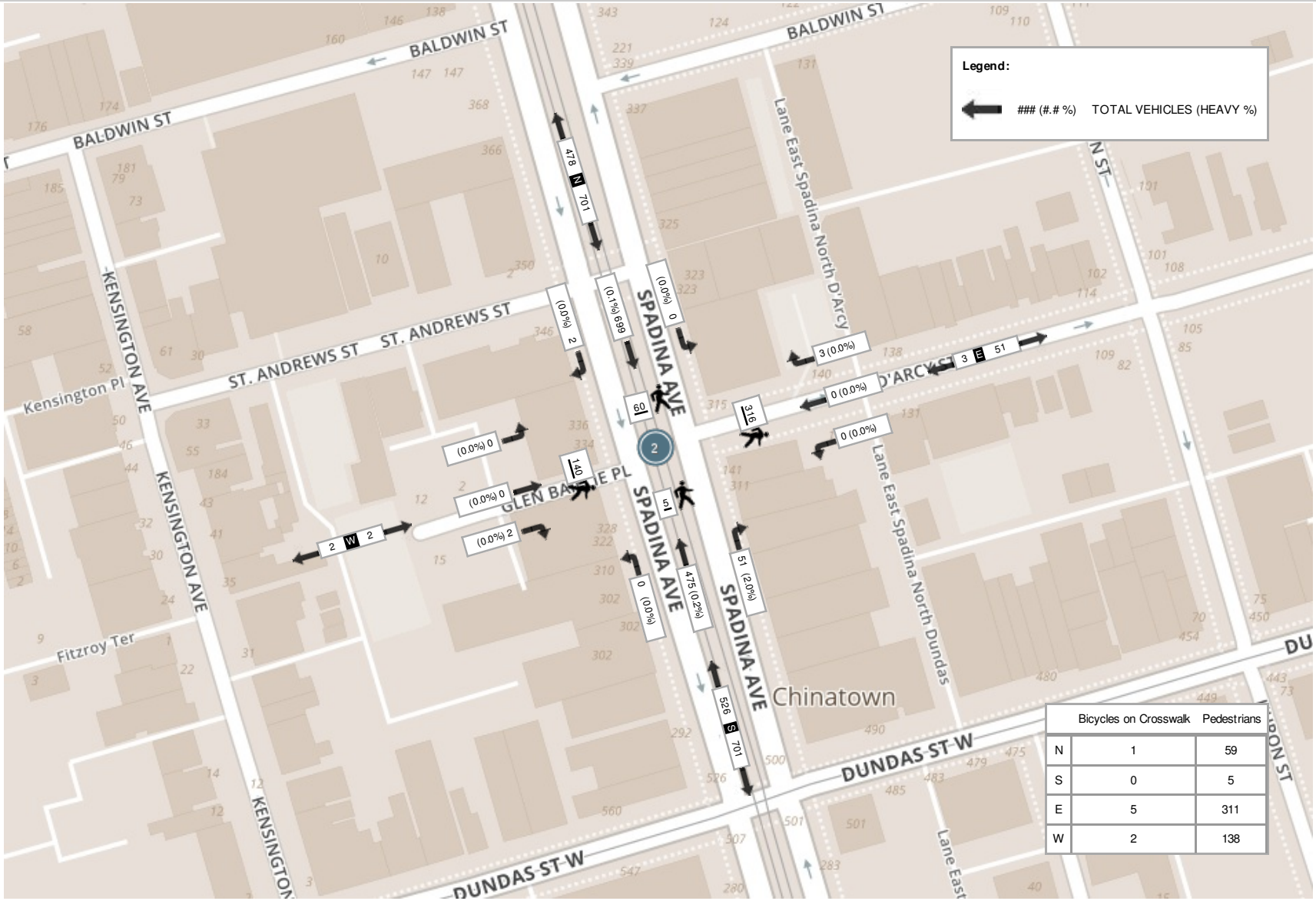
BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 05:00 PM - 06:00 PM Weather: Clear (19.5 °C)

Start Time	N Approach SPADINA AVE						E Approach DARCY ST						S Approach SPADINA AVE						W Approach GLEN BAILLE PL						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	0	116	0	0	5	116	0	0	0	0	203	0	7	135	0	0	3	142	0	0	0	0	196	0	258
17:15:00	1	152	0	0	1	153	3	0	0	0	215	3	9	147	0	0	4	156	0	0	0	0	200	0	312
17:30:00	0	115	0	0	1	115	1	0	0	0	268	1	12	163	0	0	1	175	1	0	0	0	166	1	292
17:45:00	0	122	0	0	6	122	0	0	0	0	250	0	10	178	0	0	5	188	0	0	0	0	143	0	310
Grand Total	1	505	0	0	13	506	4	0	0	0	936	4	38	623	0	0	13	661	1	0	0	0	705	1	**1172**
Approach%	0.2%	99.8%	0%	0%		-	100%	0%	0%	0%		-	5.7%	94.3%	0%	0%		-	100%	0%	0%	0%		-	-
Totals %	0.1%	43.1%	0%	0%		43.2%	0.3%	0%	0%	0%		0.3%	3.2%	53.2%	0%	0%		56.4%	0.1%	0%	0%	0%		0.1%	-
PHF	0.25	0.83	0	0		0.83	0.33	0	0	0		0.33	0.79	0.88	0	0		0.88	0.25	0	0	0		0.25	-
Heavy	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Heavy %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Lights	1	483	0	0		484	4	0	0	0		4	37	602	0	0		639	1	0	0	0		1	-
Lights %	100%	95.6%	0%	0%		95.7%	100%	0%	0%	0%		100%	97.4%	96.6%	0%	0%		96.7%	100%	0%	0%	0%		100%	-
Mediums	0	22	0	0		22	0	0	0	0		0	1	21	0	0		22	0	0	0	0		0	-
Mediums %	0%	4.4%	0%	0%		4.3%	0%	0%	0%	0%		0%	2.6%	3.4%	0%	0%		3.3%	0%	0%	0%	0%		0%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	13	-	-	-	-	-	935	-	-	-	-	-	13	-	-	-	-	-	705	-	-
Pedestrians%	-	-	-	-	0.8%		-	-	-	-	56.1%		-	-	-	-	0.8%		-	-	-	-	42.3%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0.1%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Road	1	116	0	0	0	-	10	0	0	0	0	-	2	229	0	0	0	-	1	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 08:30 AM - 09:30 AM Weather: Partly Cloudy (16.2 °C)



	Bicycles on Crosswalk	Pedestrians
N	1	59
S	0	5
E	5	311
W	2	138

BA Group
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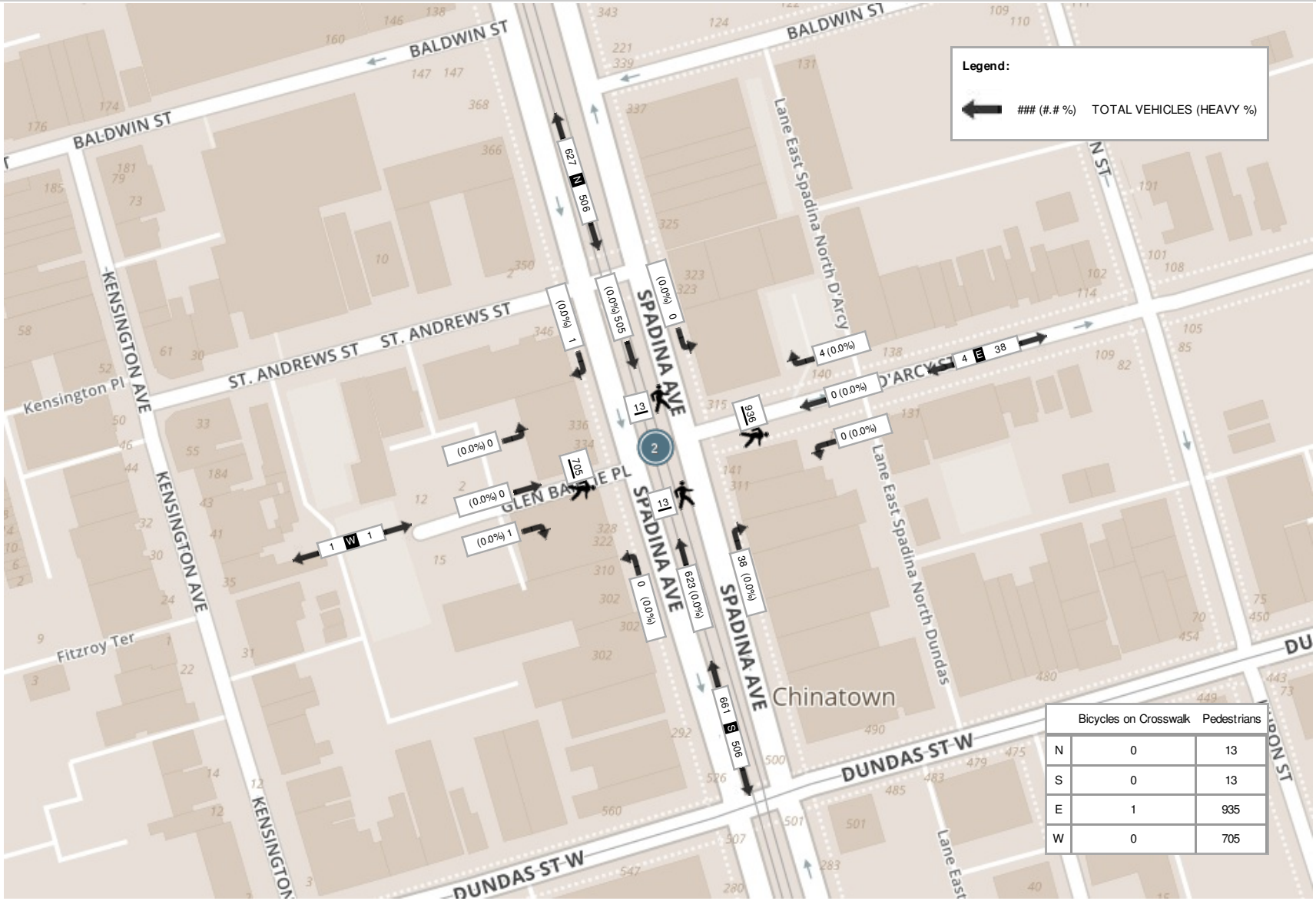
Peak Hour: 05:00 PM - 06:00 PM Weather: Clear (19.5 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	13
S	0	13
E	1	935
W	0	705

Turning Movement Count (1 . SPADINA AVE & ST ANDREW ST)

Start Time	N Approach SPADINA AVE					S Approach SPADINA AVE					W Approach ST ANDREW ST					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	U-Turn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	5	87	0	4	92	74	5	0	0	79	3	3	0	17	6	177	
07:45:00	11	111	0	4	122	90	5	2	5	97	1	2	0	17	3	222	
08:00:00	7	146	0	2	153	81	8	4	7	93	1	1	0	33	2	248	
08:15:00	6	146	0	9	152	123	10	1	14	134	4	2	0	48	6	292	939
08:30:00	9	142	0	8	151	102	3	2	13	107	1	1	0	47	2	260	1022
08:45:00	4	196	0	7	200	105	4	1	17	110	1	0	0	55	1	311	1111
09:00:00	5	176	0	7	181	117	8	9	13	134	2	1	0	37	3	318	1181
09:15:00	7	158	0	10	165	110	12	3	16	125	1	2	0	57	3	293	1182
BREAK																	
16:00:00	5	99	0	54	104	112	3	8	53	123	10	10	0	253	20	247	
16:15:00	6	108	0	57	114	130	3	2	43	135	7	14	0	238	21	270	
16:30:00	11	87	0	31	98	147	4	4	46	155	7	16	0	216	23	276	
16:45:00	10	102	0	51	112	135	3	1	25	139	7	8	0	233	15	266	1059
17:00:00	6	100	0	44	106	124	4	4	46	132	5	8	0	257	13	251	1063
17:15:00	9	136	0	46	145	141	5	6	36	152	7	7	0	291	14	311	1104
17:30:00	6	106	0	53	112	154	6	4	73	164	5	9	0	287	14	290	1118
17:45:00	14	114	0	50	128	166	6	2	41	174	7	9	0	256	16	318	1170
Grand Total	121	2014	0	437	2135	1911	89	53	448	2053	69	93	0	2342	162	**4350**	-
Approach%	5.7%	94.3%	0%		-	93.1%	4.3%	2.6%		-	42.6%	57.4%	0%		-	-	-
Totals %	2.8%	46.3%	0%		49.1%	43.9%	2%	1.2%		47.2%	1.6%	2.1%	0%		3.7%	-	-
Heavy	0	1	0		-	2	0	0		-	0	0	0		-	-	-
Heavy %	0%	0%	0%		-	0.1%	0%	0%		-	0%	0%	0%		-	-	-
Bicycles	16	440	0		-	415	7	0		-	29	23	0		-	-	-
Bicycle %	13.2%	21.8%	0%		-	21.7%	7.9%	0%		-	42%	24.7%	0%		-	-	-

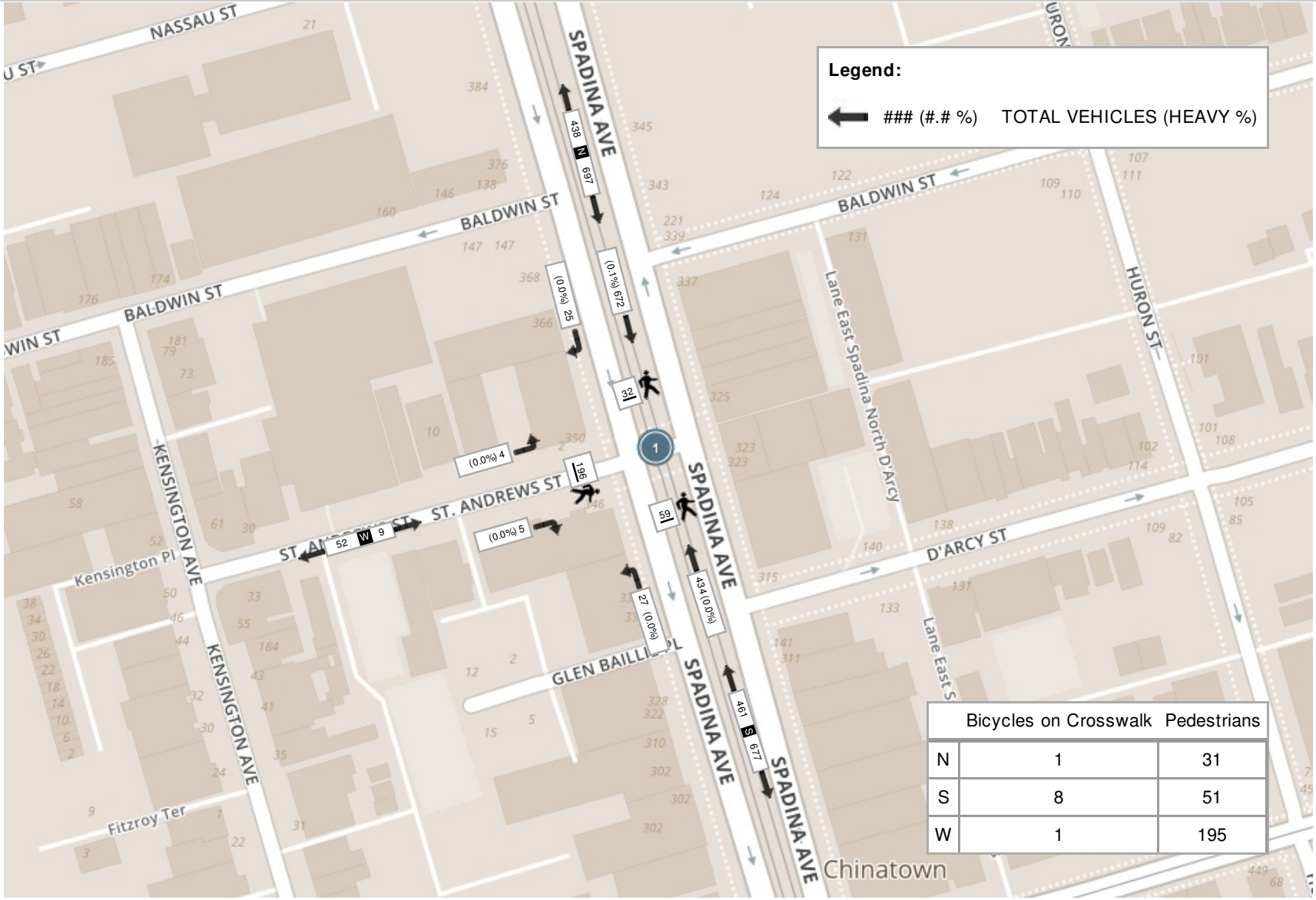
Peak Hour: 08:30 AM - 09:30 AM Weather: Partly Cloudy (16.2 °C)

Start Time	N Approach SPADINA AVE					S Approach SPADINA AVE					W Approach ST ANDREW ST					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
08:30:00	9	142	0	8	151	102	3	2	13	107	1	1	0	47	2	260
08:45:00	4	196	0	7	200	105	4	1	17	110	1	0	0	55	1	311
09:00:00	5	176	0	7	181	117	8	9	13	134	2	1	0	37	3	318
09:15:00	7	158	0	10	165	110	12	3	16	125	1	2	0	57	3	293
Grand Total	25	672	0	32	697	434	27	15	59	476	5	4	0	196	9	**1182**
Approach%	3.6%	96.4%	0%		-	91.2%	5.7%	3.2%		-	55.6%	44.4%	0%		-	-
Totals %	2.1%	56.9%	0%		59%	36.7%	2.3%	1.3%		40.3%	0.4%	0.3%	0%		0.8%	-
PHF	0.69	0.86	0		0.87	0.93	0.56	0.42		0.89	0.63	0.5	0		0.75	-
Heavy	0	1	0		1	0	0	0		0	0	0	0		0	-
Heavy %	0%	0.1%	0%		0.1%	0%	0%	0%		0%	0%	0%	0%		0%	-
Lights	23	635	0		658	402	27	15		444	5	4	0		9	-
Lights %	92%	94.5%	0%		94.4%	92.6%	100%	100%		93.3%	100%	100%	0%		100%	-
Mediums	2	36	0		38	32	0	0		32	0	0	0		0	-
Mediums %	8%	5.4%	0%		5.5%	7.4%	0%	0%		6.7%	0%	0%	0%		0%	-
Articulated Trucks	0	1	0		1	0	0	0		0	0	0	0		0	-
Articulated Trucks %	0%	0.1%	0%		0.1%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	31	-	-	-	-	51	-	-	-	-	195	-	-
Pedestrians%	-	-	-	10.8%		-	-	-	17.8%		-	-	-	67.9%		-
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	8	-	-	-	-	1	-	-
Bicycles on Crosswalk%	-	-	-	0.3%		-	-	-	2.8%		-	-	-	0.3%		-
Bicycles on Road	3	187	0	0	-	58	0	0	0	-	10	5	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Clear (19.5 °C)

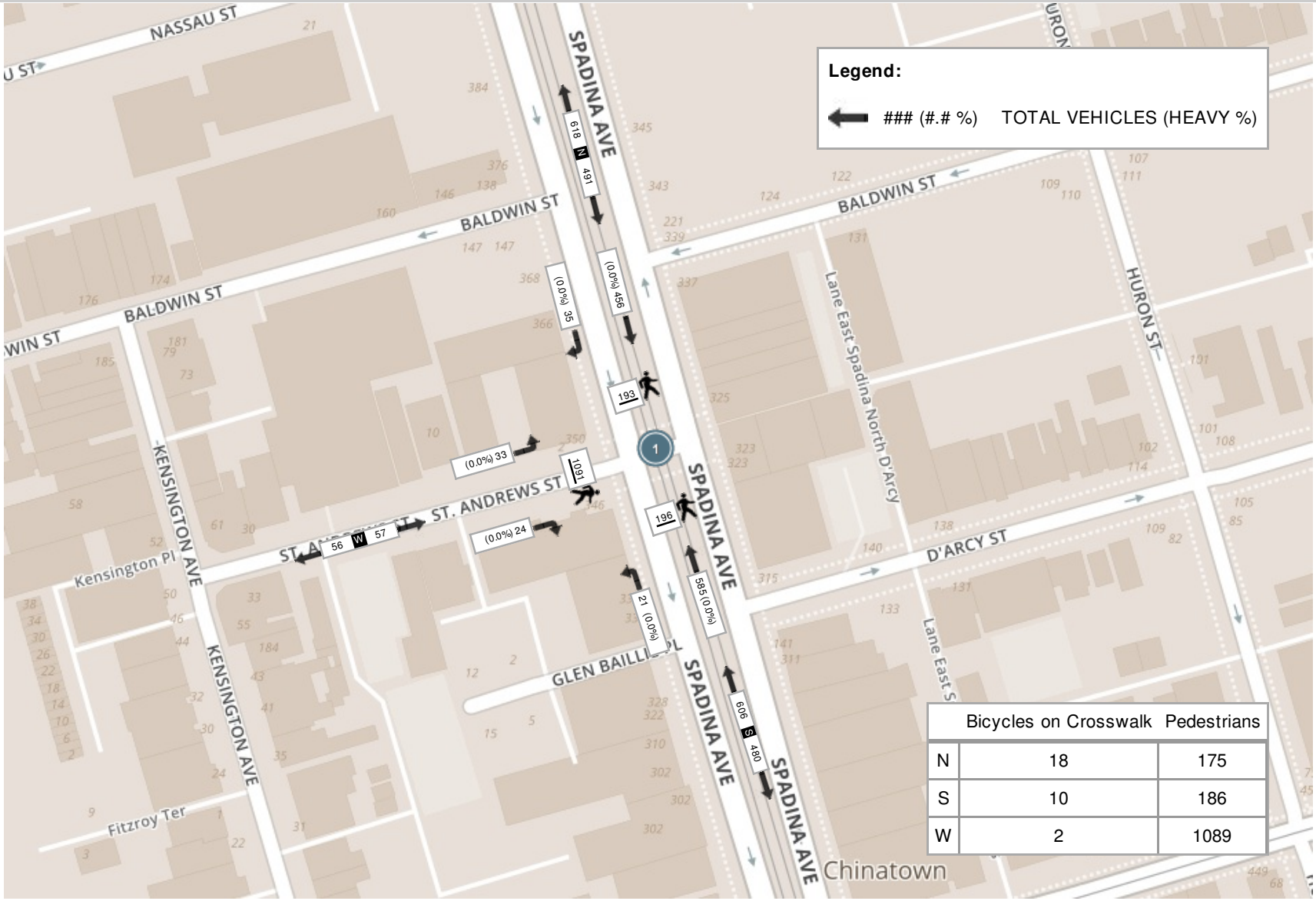
Start Time	N Approach SPADINA AVE					S Approach SPADINA AVE					W Approach ST ANDREW ST					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
17:00:00	6	100	0	44	106	124	4	4	46	132	5	8	0	257	13	251
17:15:00	9	136	0	46	145	141	5	6	36	152	7	7	0	291	14	311
17:30:00	6	106	0	53	112	154	6	4	73	164	5	9	0	287	14	290
17:45:00	14	114	0	50	128	166	6	2	41	174	7	9	0	256	16	318
Grand Total	35	456	0	193	491	585	21	16	196	622	24	33	0	1091	57	**1170**
Approach%	7.1%	92.9%	0%		-	94.1%	3.4%	2.6%		-	42.1%	57.9%	0%		-	-
Totals %	3%	39%	0%		42%	50%	1.8%	1.4%		53.2%	2.1%	2.8%	0%		4.9%	-
PHF	0.63	0.84	0		0.85	0.88	0.88	0.67		0.89	0.86	0.92	0		0.89	-
Heavy	0	0	0		0	0	0	0		0	0	0	0		0	-
Heavy %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Lights	34	432	0		466	571	20	16		607	23	33	0		56	-
Lights %	97.1%	94.7%	0%		94.9%	97.6%	95.2%	100%		97.6%	95.8%	100%	0%		98.2%	-
Mediums	1	24	0		25	14	1	0		15	1	0	0		1	-
Mediums %	2.9%	5.3%	0%		5.1%	2.4%	4.8%	0%		2.4%	4.2%	0%	0%		1.8%	-
Articulated Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	175	-	-	-	-	186	-	-	-	-	1089	-	-
Pedestrians%	-	-	-	11.8%		-	-	-	12.6%		-	-	-	73.6%		-
Bicycles on Crosswalk	-	-	-	18	-	-	-	-	10	-	-	-	-	2	-	-
Bicycles on Crosswalk%	-	-	-	1.2%		-	-	-	0.7%		-	-	-	0.1%		-
Bicycles on Road	7	90	0	0	-	209	5	0	0	-	10	10	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 08:30 AM - 09:30 AM Weather: Partly Cloudy (16.2 °C)



	Bicycles on Crosswalk	Pedestrians
N	1	31
S	8	51
W	1	195

Peak Hour: 05:00 PM - 06:00 PM Weather: Clear (19.5 °C)



	Bicycles on Crosswalk	Pedestrians
N	18	175
S	10	186
W	2	1089

Spectrum

Turning Movement Count
Location Name: ST ANDREW ST & GLEN BAILLE PL
Date: Wed, Sep 12, 2018 Deployment Lead: Theo Daglis

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Turning Movement Count (3 . ST ANDREW ST & GLEN BAILLE PL)

Start Time	N Approach PARKING GARAGE							E Approach ST ANDREW ST							SE Approach PRIVATE PARKING LOT DRIVEWAY							S Approach GLEN BAILLE PL							W Approach ST ANDREW ST							Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Bear Left N:SE	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	Hard Left E:SE	U-Turn E:E	Peds E:	Approach Total	Hard Right SE:E	Bear Right SE:N	Bear Left SE:W	Hard Left SE:S	U-Turn SE:SE	Peds SE:	Approach Total	Hard Right S:SE	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Bear Right W:SE	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	0	0	0	0	0	11	0	8	1	0	0	0	0	9	0	0	0	0	0	4	0	0	0	0	0	0	4	0	0	0	5	0	0	2	5	14	
07:45:00	0	0	0	0	0	5	0	13	2	0	0	1	6	16	0	0	0	0	0	11	0	0	0	0	0	0	7	0	0	0	1	0	0	1	1	17	
08:00:00	0	0	0	0	0	14	0	9	2	2	1	0	7	14	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	2	0	0	3	2	16	
08:15:00	0	0	0	0	0	13	0	11	4	0	1	0	7	16	0	0	0	0	0	7	0	0	0	0	0	0	9	0	0	0	5	0	0	2	5	21	68
08:30:00	0	0	0	1	0	14	1	9	1	1	0	0	7	11	0	0	0	0	0	8	0	0	0	0	0	0	17	0	0	0	1	0	0	2	1	13	67
08:45:00	0	0	0	0	0	25	0	6	3	0	0	0	5	9	0	0	0	0	0	6	0	0	1	0	0	0	7	1	0	0	0	0	0	0	0	10	60
09:00:00	0	0	0	1	0	17	1	8	5	0	0	0	4	13	0	0	0	0	0	7	0	0	0	0	0	0	10	0	0	0	1	0	0	0	1	15	59
09:15:00	1	0	0	1	0	18	2	12	4	0	1	0	3	17	0	0	0	0	0	13	0	0	0	0	0	0	15	0	0	0	1	0	0	0	1	20	58
BREAK																																					
16:00:00	3	0	0	7	0	60	10	3	7	0	3	1	11	14	5	0	1	0	0	31	6	0	0	0	0	0	36	0	0	0	9	0	0	4	9	39	
16:15:00	1	0	0	13	0	78	14	4	6	0	2	0	14	12	1	0	1	0	0	34	2	0	1	0	1	0	37	2	0	0	6	0	0	8	6	36	
16:30:00	0	0	0	17	0	64	17	6	5	0	1	0	17	12	0	0	1	0	0	33	1	0	0	0	0	0	30	0	0	0	4	0	0	1	4	34	
16:45:00	5	0	0	6	0	45	11	1	6	0	0	0	11	7	2	0	1	0	0	45	3	0	0	0	0	0	47	0	0	0	3	0	0	1	3	24	133
17:00:00	2	0	0	7	0	77	9	4	5	0	2	2	17	13	3	0	0	0	0	56	3	0	0	0	0	0	58	0	0	0	3	0	0	2	3	28	122
17:15:00	3	0	1	10	0	64	14	4	7	1	1	0	14	13	0	0	1	0	0	40	1	0	1	0	0	0	40	1	1	0	3	0	0	0	4	33	119
17:30:00	1	0	0	10	0	57	11	4	7	0	1	0	13	12	0	0	1	0	0	35	1	0	0	0	0	0	36	0	0	1	6	0	0	0	7	31	116
17:45:00	3	0	0	12	0	51	15	7	11	0	1	2	12	21	0	0	0	0	0	31	0	0	0	0	0	0	28	0	0	1	3	0	0	1	4	40	132
Grand Total	19	0	1	85	0	613	105	109	76	4	14	6	148	209	11	0	6	0	0	363	17	0	3	0	1	0	382	4	1	2	53	0	0	27	56	**391**	-
Approach%	18.1%	0%	1%	81%	0%		-	52.2%	36.4%	1.9%	6.7%	2.9%		-	64.7%	0%	35.3%	0%	0%		-	0%	75%	0%	25%	0%		-	1.8%	3.6%	94.6%	0%	0%		-	**-**	-
Totals %	4.9%	0%	0.3%	21.7%	0%		26.9%	27.9%	19.4%	1%	3.6%	1.5%		53.5%	2.8%	0%	1.5%	0%	0%		4.3%	0%	0.8%	0%	0.3%	0%		1%	0.3%	0.5%	13.6%	0%	0%		14.3%	**-**	-
Heavy	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	**-**	-
Heavy %	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	**-**	-
Bicycles	3	0	0	6	0		-	2	80	1	0	0		-	0	0	0	0	0		-	0	1	0	0	0		-	0	0	63	1	0		-	**-**	-
Bicycle %	15.8%	0%	0%	7.1%	0%		-	1.8%	105.3%	25%	0%	0%		-	0%	0%	0%	0%	0%		-	0%	33.3%	0%	0%	0%		-	0%	0%	118.9%	0%	0%		-	**-**	-

Spectrum

Turning Movement Count
Location Name: ST ANDREW ST & GLEN BAILLE PL
Date: Wed, Sep 12, 2018 Deployment Lead: Theo Daglis

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 07:30 AM - 08:30 AM Weather: Partly Cloudy (16.2 °C)

Start Time	N Approach PARKING GARAGE							E Approach ST ANDREW ST							SE Approach PRIVATE PARKING LOT DRIVEWAY							S Approach GLEN BAILLE PL							W Approach ST ANDREW ST							Int. Total (15 min)
	Right	Thru	Bear Left	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	Hard Left	U-Turn	Peds	Approach Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Peds	Approach Total	Hard Right	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Bear Right	Thru	Left	U-Turn	Peds	Approach Total	
07:30:00	0	0	0	0	0	11	0	8	1	0	0	0	0	9	0	0	0	0	0	4	0	0	0	0	0	0	4	0	0	0	5	0	0	2	5	14
07:45:00	0	0	0	0	0	5	0	13	2	0	0	1	6	16	0	0	0	0	0	11	0	0	0	0	0	0	7	0	0	0	1	0	0	1	1	17
08:00:00	0	0	0	0	0	14	0	9	2	2	1	0	7	14	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	2	0	0	3	2	16
08:15:00	0	0	0	0	0	13	0	11	4	0	1	0	7	16	0	0	0	0	0	7	0	0	0	0	0	0	9	0	0	0	5	0	0	2	5	21
Grand Total	0	0	0	0	0	43	0	41	9	2	2	1	20	55	0	0	0	0	0	24	0	0	0	0	0	0	21	0	0	0	13	0	0	8	13	**68**
Approach%	0%	0%	0%	0%	0%		-	74.5%	16.4%	3.6%	3.6%	1.8%		-	0%	0%	0%	0%	0%		-	0%	0%	0%	0%	0%		-	0%	0%	100%	0%	0%		-	**-**
Totals %	0%	0%	0%	0%	0%		0%	60.3%	13.2%	2.9%	2.9%	1.5%		80.9%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	19.1%	0%	0%		19.1%	**-**
PHF	0	0	0	0	0		0	0.79	0.56	0.25	0.5	0.25		0.86	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0.65	0	0		0.65	**-**
Heavy	-	-	-	-	-			-	-	-	-	-			-	-	-	-	-			-	-	-	-	-			-	-	-	-	-			**-**
Heavy %	-	-	-	-	-		%	-	-	-	-	-		%	-	-	-	-	-		%	-	-	-	-	-		%	-	-	-	-	-		%	**-**
Lights	0	0	0	0	0		0	41	9	2	2	1		55	0	0	0	0	0		0	0	0	0	0	0		0	0	0	12	0	0		12	**-**
Lights %	0%	0%	0%	0%	0%		0%	100%	100%	100%	100%	100%		100%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	92.3%	0%	0%		92.3%	**-**
Mediums	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	1	0	0		1	**-**
Mediums %	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	7.7%	0%	0%		7.7%	**-**
Pedestrians	-	-	-	-	-	40	-	-	-	-	-	-	20	-	-	-	-	-	-	24	-	-	-	-	-	-	21	-	-	-	-	-	-	8	-	**-**
Pedestrians%	-	-	-	-	-	34.5%		-	-	-	-	-	17.2%		-	-	-	-	-	20.7%		-	-	-	-	-	18.1%		-	-	-	-	-	6.9%		**-**
Bicycles on Crosswalk	-	-	-	-	-	3	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	-	2.6%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	0	-	2	2	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	5	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: ST ANDREW ST & GLEN BAILLE PL
Date: Wed, Sep 12, 2018 Deployment Lead: Theo Daglis

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear (19.5 °C)

Start Time	N Approach PARKING GARAGE							E Approach ST ANDREW ST							SE Approach PRIVATE PARKING LOT DRIVEWAY							S Approach GLEN BAILLE PL							W Approach ST ANDREW ST							Int. Total (15 min)
	Right	Thru	Bear Left	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	Hard Left	U-Turn	Peds	Approach Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Peds	Approach Total	Hard Right	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Bear Right	Thru	Left	U-Turn	Peds	Approach Total	
16:00:00	3	0	0	7	0	60	10	3	7	0	3	1	11	14	5	0	1	0	0	31	6	0	0	0	0	0	36	0	0	0	9	0	0	4	9	39
16:15:00	1	0	0	13	0	78	14	4	6	0	2	0	14	12	1	0	1	0	0	34	2	0	1	0	1	0	37	2	0	0	6	0	0	8	6	36
16:30:00	0	0	0	17	0	64	17	6	5	0	1	0	17	12	0	0	1	0	0	33	1	0	0	0	0	0	30	0	0	0	4	0	0	1	4	34
16:45:00	5	0	0	6	0	45	11	1	6	0	0	0	11	7	2	0	1	0	0	45	3	0	0	0	0	0	47	0	0	0	3	0	0	1	3	24
Grand Total	9	0	0	43	0	247	52	14	24	0	6	1	53	45	8	0	4	0	0	143	12	0	1	0	1	0	150	2	0	0	22	0	0	14	22	**133**
Approach%	17.3%	0%	0%	82.7%	0%		-	31.1%	53.3%	0%	13.3%	2.2%		-	66.7%	0%	33.3%	0%	0%		-	0%	50%	0%	50%	0%		-	0%	0%	100%	0%	0%		-	**-**
Totals %	6.8%	0%	0%	32.3%	0%		39.1%	10.5%	18%	0%	4.5%	0.8%		33.8%	6%	0%	3%	0%	0%		9%	0%	0.8%	0%	0.8%	0%		1.5%	0%	0%	16.5%	0%	0%		16.5%	**-**
PHF	0.45	0	0	0.63	0		0.76	0.58	0.86	0	0.5	0.25		0.8	0.4	0	1	0	0		0.5	0	0.25	0	0.25	0		0.25	0	0	0.61	0	0		0.61	**-**
Heavy	-	-	-	-	-			-	-	-	-	-			-	-	-	-	-			-	-	-	-	-			-	-	-	-	-			**-**
Heavy %	-	-	-	-	-		%	-	-	-	-	-		%	-	-	-	-	-		%	-	-	-	-	-		%	-	-	-	-	-		%	**-**
Lights	9	0	0	43	0		52	14	24	0	6	1		45	8	0	4	0	0		12	0	1	0	1	0		2	0	0	22	0	0		22	**-**
Lights %	100%	0%	0%	100%	0%		100%	100%	100%	0%	100%	100%		100%	100%	0%	100%	0%	0%		100%	0%	100%	0%	100%	0%		100%	0%	0%	100%	0%	0%		100%	**-**
Mediums	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	**-**
Mediums %	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	-	247	-	-	-	-	-	-	53	-	-	-	-	-	-	142	-	-	-	-	-	-	150	-	-	-	-	-	-	14	-	**-**
Pedestrians%	-	-	-	-	-	40.7%		-	-	-	-	-	8.7%		-	-	-	-	-	23.4%		-	-	-	-	-	24.7%		-	-	-	-	-	2.3%		**-**
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0.2%		-	-	-	-	-	0%		-	-	-	-	-	0%		**-**
Bicycles on Road	2	0	0	3	0	0	-	0	37	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	17	1	0	0	-	**-**
Bicycles on Road%	-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		**-**

Peak Hour: 07:30 AM - 08:30 AM Weather: Partly Cloudy (16.2 °C)

	Bicycles on Crosswalk	Pedestrians
N	3	40
S	0	21
SE	0	24
E	0	20
W	0	8

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear (19.5 °C)

	Bicycles on Crosswalk	Pedestrians
N	0	247
S	0	150
SE	1	142
E	0	53
W	0	14

Turning Movement Count (4 . ST ANDREW ST & KENSINGTON AVE)

Start Time	N Approach ST ANDREW ST					E Approach KENSINGTON AVE					S Approach ST ANDREW ST					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	U-Turn S:S	Peds S:	Approach Total		
07:30:00	1	1	0	4	2	0	1	0	0	1	0	0	0	0	0	3	
07:45:00	2	3	0	6	5	0	0	0	6	0	0	0	0	4	0	5	
08:00:00	1	0	0	4	1	0	7	0	1	7	0	0	0	0	0	8	
08:15:00	1	0	0	10	1	0	0	0	5	0	0	0	0	5	0	1	17
08:30:00	0	1	0	4	1	0	5	0	12	5	0	0	0	5	0	6	20
08:45:00	2	1	0	5	3	0	2	0	7	2	0	0	0	3	0	5	20
09:00:00	3	3	0	12	6	1	6	0	11	7	1	0	0	8	1	14	26
09:15:00	1	2	0	6	3	0	7	1	17	8	0	0	0	7	0	11	36
BREAK																	
16:00:00	5	2	0	64	7	0	14	0	74	14	1	0	0	11	1	22	
16:15:00	8	3	0	85	11	0	4	0	67	4	0	1	0	15	1	16	
16:30:00	8	2	0	69	10	0	9	0	63	9	0	0	0	17	0	19	
16:45:00	7	3	0	59	10	0	6	0	65	6	0	0	0	25	0	16	73
17:00:00	5	4	0	59	9	0	7	0	45	7	0	0	0	13	0	16	67
17:15:00	8	5	0	60	13	0	10	0	51	10	0	0	0	11	0	23	74
17:30:00	6	1	0	54	7	0	9	0	60	9	0	0	0	16	0	16	71
17:45:00	8	2	0	81	10	0	4	0	65	4	0	0	0	23	0	14	69
Grand Total	66	33	0	582	99	1	91	1	549	93	2	1	0	163	3	**195**	-
Approach%	66.7%	33.3%	0%		-	1.1%	97.8%	1.1%		-	66.7%	33.3%	0%		-	**-**	-
Totals %	33.8%	16.9%	0%		50.8%	0.5%	46.7%	0.5%		47.7%	1%	0.5%	0%		1.5%	**-**	-
Heavy	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Heavy %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycles	28	46	0		-	52	14	0		-	11	34	0		-	**-**	-
Bicycle %	42.4%	139.4%	0%		-	5200%	15.4%	0%		-	550%	3400%	0%		-	**-**	-

Peak Hour: 08:30 AM - 09:30 AM Weather: Unknown (17.2 °C)

Start Time	N Approach ST ANDREW ST					E Approach KENSINGTON AVE					S Approach ST ANDREW ST					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
08:30:00	0	1	0	4	1	0	5	0	12	5	0	0	0	5	0	6
08:45:00	2	1	0	5	3	0	2	0	7	2	0	0	0	3	0	5
09:00:00	3	3	0	12	6	1	6	0	11	7	1	0	0	8	1	14
09:15:00	1	2	0	6	3	0	7	1	17	8	0	0	0	7	0	11
Grand Total	6	7	0	27	13	1	20	1	47	22	1	0	0	23	1	**36**
Approach%	46.2%	53.8%	0%		-	4.5%	90.9%	4.5%		-	100%	0%	0%		-	**-**
Totals %	16.7%	19.4%	0%		36.1%	2.8%	55.6%	2.8%		61.1%	2.8%	0%	0%		2.8%	**-**
PHF	0.5	0.58	0		0.54	0.25	0.71	0.25		0.69	0.25	0	0		0.25	**-**
Heavy	-	-	-			-	-	-			-	-	-			**-**
Heavy %	-	-	-		%	-	-	-		%	-	-	-		%	**-**
Lights	5	7	0		12	0	18	1		19	0	0	0		0	**-**
Lights %	83.3%	100%	0%		92.3%	0%	90%	100%		86.4%	0%	0%	0%		0%	**-**
Mediums	1	0	0		1	1	2	0		3	1	0	0		1	**-**
Mediums %	16.7%	0%	0%		7.7%	100%	10%	0%		13.6%	100%	0%	0%		100%	**-**
Pedestrians	-	-	-	27	-	-	-	-	47	-	-	-	-	23	-	**-**
Pedestrians%	-	-	-	27.8%		-	-	-	48.5%		-	-	-	23.7%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**
Bicycles on Road	3	16	0	0	-	0	2	0	0	-	4	1	0	0	-	**-**
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear (21.3 °C)

Start Time	N Approach ST ANDREW ST					E Approach KENSINGTON AVE					S Approach ST ANDREW ST					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
16:30:00	8	2	0	69	10	0	9	0	63	9	0	0	0	17	0	19
16:45:00	7	3	0	59	10	0	6	0	65	6	0	0	0	25	0	16
17:00:00	5	4	0	59	9	0	7	0	45	7	0	0	0	13	0	16
17:15:00	8	5	0	60	13	0	10	0	51	10	0	0	0	11	0	23
Grand Total	28	14	0	247	42	0	32	0	224	32	0	0	0	66	0	**74**
Approach%	66.7%	33.3%	0%		-	0%	100%	0%		-	0%	0%	0%		-	**-**
Totals %	37.8%	18.9%	0%		56.8%	0%	43.2%	0%		43.2%	0%	0%	0%		0%	**-**
PHF	0.88	0.7	0		0.81	0	0.8	0		0.8	0	0	0		0	**-**
Heavy	-	-	-			-	-	-			-	-	-			**-**
Heavy %	-	-	-		%	-	-	-		%	-	-	-		%	**-**
Lights	28	14	0		42	0	31	0		31	0	0	0		0	**-**
Lights %	100%	100%	0%		100%	0%	96.9%	0%		96.9%	0%	0%	0%		0%	**-**
Mediums	0	0	0		0	0	1	0		1	0	0	0		0	**-**
Mediums %	0%	0%	0%		0%	0%	3.1%	0%		3.1%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	246	-	-	-	-	224	-	-	-	-	61	-	**-**
Pedestrians%	-	-	-	45.8%		-	-	-	41.7%		-	-	-	11.4%		**-**
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	5	-	**-**
Bicycles on Crosswalk%	-	-	-	0.2%		-	-	-	0%		-	-	-	0.9%		**-**
Bicycles on Road	8	9	0	0	-	20	7	0	0	-	2	18	0	0	-	**-**
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

Peak Hour: 08:30 AM - 09:30 AM Weather: Unknown (17.2 °C)

	Bicycles on Crosswalk	Pedestrians
N	0	27
S	0	23
E	0	47

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear (21.3 °C)

	Bicycles on Crosswalk	Pedestrians
N	1	246
S	5	61
E	0	224

APPENDIX D:
Signal Timing Plans (STPs)

LOCATION:	**Spadina Ave & St. Andrews St**	*DISTRICT:*	**Toronto & East York**
MODE/COMMENT:	**SAP with PR & TSP***	*COMPUTER SYSTEM:*	**TransSuite**
TCS:	**1146**	*CONTROLLER/CABINET TYPE:*	**Peek ATC 1000 / TS2 T1**
PREPARED/CHECKED BY:	**RZ/IA**	*CONFLICT FLASH:*	**Red & Red**
PREPARATION DATE:	**April 18, 2018**	*DESIGN WALK SPEED:*	**1.0 m/s (FDW based on full crossing at 1.2 m/s)**
IMPLEMENTATION DATE:	**May 29, 2018**	*CHANNEL/DROP:*	**4054/7**
		CONTROLLER FIRMWARE:	**3.018.1.2976**

NEMA Phase		OFF All Other Times	AM 06:30-09:30 M-F	PM 15:30-18:30 M-F	Phase Mode (Fixed/Demanded/Callable)	Remarks
	Local Plan	Pattern 1	Pattern 2	Pattern 3		
	Split Table	Split 1	Split 2	Split 3		
1 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					Pedestrian Minimums: NSWK = 7 secs; NSFD = 8 secs EWWK = 7 secs; EWFD = 23 secs EBG phase is callable by vehicle and/or pedestrian actuation. If a vehicle and/or pedestrian call is received, the maximum EBG would be served. The EWWK & EWFD are only displayed on the signal heads if a vehicle and/or pedestrian call is received.
2 Spadina Ave	WLK 7 FDW 8 MIN 15 MAX1 46 AMB 4 ALR 2 SPLIT	52	52	52	Fixed (NSG / NSTGA) POZ activated by Request Loop (max extension of 30 secs in Green/Walk)	Side Street Passage Time = 3 secs Left-Turn Passage Time = 2 sec **Overlap A & B are only displayed when no NBLA is active.** See back for TSP Instructions. ***TSP disabled.**
3 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					If NBLA / NB U-Turn is called without side street demand, signal will terminate SB green & NS Transit green and it will serve NBLA / NB U-Turn and NBG. If there is a late call for side street it would be served in the next cycle. No issues with Yellow Trap as the advances are fully protected.
4 Andrews St	WLK 7 FDW 23 MIN 30 MAX1 31 AMB 4 ALR 3 SPLIT	38	38	38	Callable by Stopbar loop and/or Pushbutton.	
5	WLK FDW MIN 6 MAX1 6 AMB 3 ALR 3 SPLIT	13	13	13	NBLA / NB U-Turn Fully Proteced Callable & Extendable by Stopbar Loop	
6 Spadina Ave	WLK 7 FDW 8 MIN 15 MAX1 46 AMB 4 ALR 2 SPLIT	39	39	39	Fixed (NSG / NSTGA) POZ activated by Request Loop (max extension of 30 secs in Green/Walk)	
7 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					
8 Activated to allow for TSP	WLK 7 FDW 23 MIN 30 MAX1 31 AMB 4 ALR 3 SPLIT	38	38	38		
Overlap A	WLK FDW MIN MAX1 AMB 4 ALR 2 SPLIT				NBTGA (Parent Phase 2)	
Overlap B	WLK FDW MIN MAX1 AMB 4 ALR 2 SPLIT				SBTGA (Parent Phase 6)	
	CL OF	90 60	90 1*	90 1		

Notes: T-Intersection (no East leg)
*Based on request from TTC

APPENDIX E:
Synchro Traffic Analysis Outputs

HCM Unsignalized Intersection Capacity Analysis
1: Spadina Ave. & Glen Baillie Pl./D'Arcy St.

EXAM
09-30-2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	0	0	0	0	475	51	0	699	2
Future Volume (Veh/h)	0	0	2	0	0	0	0	475	51	0	699	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	2	0	0	0	0	522	56	0	768	2
Pedestrians		140			316							
Lane Width (m)		3.0			0.0							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		10			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											61	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	1170	1803	525	1252	1776	605	910			894		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	812	1569	41	910	1537	605	501			894		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	191	85	776	180	88	446	811			767		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	348	230	512	258
Volume Left	0	0	0	0	0
Volume Right	2	0	56	0	2
cSH	776	1700	1700	1700	1700
Volume to Capacity	0.00	0.20	0.14	0.30	0.15
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	9.7	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.7	0.0		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	29.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
2: Spadina Ave. & St. Andrew St.

EXAM
09-30-2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	9	34	441	692	32
Future Volume (vph)	4	9	34	441	692	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.0	3.5	3.5	3.0
Total Lost time (s)	6.0		5.0	5.0	5.0	5.0
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.91		1.00	1.00	1.00	0.47
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.90		1.00	1.00	1.00	0.85
Flt Protected	0.99		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1437		1685	3570	3570	710
Flt Permitted	0.99		0.22	1.00	1.00	1.00
Satd. Flow (perm)	1437		393	3570	3570	710
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	10	37	474	744	34
RTOR Reduction (vph)	6	0	0	0	0	10
Lane Group Flow (vph)	8	0	37	474	744	24
Confl. Peds. (#/hr)	32	124	196			196
Confl. Bikes (#/hr)		10				3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	31.0		46.0	46.0	33.0	33.0
Effective Green, g (s)	32.0		47.0	47.0	34.0	34.0
Actuated g/C Ratio	0.36		0.52	0.52	0.38	0.38
Clearance Time (s)	7.0		6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	510		320	1864	1348	268
v/s Ratio Prot	c0.01		0.01	c0.13	c0.21	
v/s Ratio Perm			0.05			0.03
v/c Ratio	0.01		0.12	0.25	0.55	0.09
Uniform Delay, d1	18.8		11.9	11.8	22.0	18.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1		0.7	0.3	1.6	0.7
Delay (s)	18.8		12.7	12.2	23.6	18.7
Level of Service	B		B	B	C	B
Approach Delay (s)	18.8			12.2	23.4	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	13	0	2	64	0	0
Future Volume (Veh/h)	13	0	2	64	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	0	2	70	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				93		
pX, platoon unblocked						
vC, conflicting volume			14		88	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			14		88	14
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)			1617		917	1072

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	14	72	0
Volume Left	0	2	0
Volume Right	0	0	0
cSH	1700	1617	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.2	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	0.0
Approach LOS			A

Intersection Summary				
Average Delay			0.2	
Intersection Capacity Utilization			8.3%	ICU Level of Service A
Analysis Period (min)			15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	13	0	2	21	41	0	0	0	0	0	0
Future Volume (Veh/h)	0	13	0	2	21	41	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	16	0	2	26	51	0	0	0	0	0	0
Pedestrians		8			20			21			43	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			2			2			3	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					115							
pX, platoon unblocked												
vC, conflicting volume	120			37			100	161	57	134	136	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	120			37			100	161	57	134	136	102
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1429			1560			830	696	982	767	719	919

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	79	0	0
Volume Left	0	2	0	0
Volume Right	0	51	0	0
cSH	1429	1560	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.2	0.0	0.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.2	0.0	0.0
Approach LOS			A	A

Intersection Summary				
Average Delay			0.2	
Intersection Capacity Utilization			26.9%	ICU Level of Service A
Analysis Period (min)			15	

HCM Unsignalized Intersection Capacity Analysis
5: Kensington Ave. & St. Andrew St.

EXAM
09-30-2019

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	0	0	0	13	6
Future Volume (Veh/h)	21	0	0	0	13	6
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Hourly flow rate (vph)	33	0	0	0	20	9
Pedestrians	47		23			27
Lane Width (m)	3.0		0.0			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		0			2
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	119	74			47	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	119	74			47	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			99	
cM capacity (veh/h)	842	940			1522	

Direction, Lane #	WB 1	SB 1
Volume Total	33	29
Volume Left	33	20
Volume Right	0	0
cSH	842	1522
Volume to Capacity	0.04	0.01
Queue Length 95th (m)	1.0	0.3
Control Delay (s)	9.5	5.1
Lane LOS	A	A
Approach Delay (s)	9.5	5.1
Approach LOS	A	

Intersection Summary				
Average Delay	7.4			
Intersection Capacity Utilization	27.2%	ICU Level of Service		A
Analysis Period (min)	15			

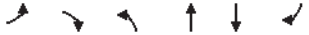
HCM Unsignalized Intersection Capacity Analysis
1: Spadina Ave. & Glen Baillie Pl./D'Arcy St.

EXPM
09-30-2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	0	0	0	0	623	38	0	505	1
Future Volume (Veh/h)	0	0	1	0	0	0	0	623	38	0	505	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1	0	0	0	0	663	40	0	537	1
Pedestrians		705			936							
Lane Width (m)		3.0			0.0							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		49			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											61	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90		0.90					
vC, conflicting volume	1574	2882	974	1888	2862	1288	1243			1639		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1413	2868	745	1763	2846	1288	1045			1639		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	28	8	166	30	8	158	309			401		

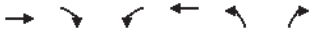
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	1	442	261	358	180
Volume Left	0	0	0	0	0
Volume Right	1	0	40	0	1
cSH	166	1700	1700	1700	1700
Volume to Capacity	0.01	0.26	0.15	0.21	0.11
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	26.9	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	26.9	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	24.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	32	21	602	474	35
Future Volume (vph)	42	32	21	602	474	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.0	3.5	3.5	3.0
Total Lost time (s)	6.0		5.0	5.0	5.0	5.0
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.91		1.00	1.00	1.00	0.10
Flpb, ped/bikes	1.00		0.91	1.00	1.00	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1475		1531	3570	3570	147
Flt Permitted	0.97		0.34	1.00	1.00	1.00
Satd. Flow (perm)	1475		555	3570	3570	147
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	35	23	654	515	38
RTOR Reduction (vph)	23	0	0	0	0	16
Lane Group Flow (vph)	58	0	23	654	515	22
Confl. Peds. (#/hr)	193	222	1091			1091
Confl. Bikes (#/hr)		10				7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	31.0		46.0	46.0	33.0	33.0
Effective Green, g (s)	32.0		47.0	47.0	34.0	34.0
Actuated g/C Ratio	0.36		0.52	0.52	0.38	0.38
Clearance Time (s)	7.0		6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	524		376	1864	1348	55
v/s Ratio Prot	c0.04		0.01	c0.18	0.14	
v/s Ratio Perm			0.03			c0.15
v/c Ratio	0.11		0.06	0.35	0.38	0.40
Uniform Delay, d1	19.5		11.0	12.6	20.4	20.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.3	0.5	0.8	20.0
Delay (s)	19.9		11.3	13.1	21.2	40.5
Level of Service	B		B	B	C	D
Approach Delay (s)	19.9			13.0	22.5	
Approach LOS	B			B	C	

Intersection Summary				
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.28			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	51.6%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	66	0	6	50	4	8
Future Volume (Veh/h)	66	0	6	50	4	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	0	7	54	4	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				93		
pX, platoon unblocked						
vC, conflicting volume			72		140	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			72		140	72
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	99
cM capacity (veh/h)			1541		854	996

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	72	61	13
Volume Left	0	7	4
Volume Right	0	0	9
cSH	1700	1541	947
Volume to Capacity	0.04	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.3
Control Delay (s)	0.0	0.9	8.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.9	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Laneway/TPA Access & St. Andrew St.

EXPM
09-30-2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	22	0	0	40	14	1	0	1	43	0	9
Future Volume (Veh/h)	0	22	0	0	40	14	1	0	1	43	0	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	26	0	0	47	16	1	0	1	51	0	11
Pedestrians		14			53			150			247	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			4			12			20	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					115							
pX, platoon unblocked												
vC, conflicting volume	310			176			256	486	229	382	478	316
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	310			176			256	486	229	382	478	316
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	85	100	98
cM capacity (veh/h)	1009			1241			460	340	685	341	344	577

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	26	63	2	62
Volume Left	0	0	1	51
Volume Right	0	16	1	11
cSH	1009	1241	551	368
Volume to Capacity	0.00	0.00	0.00	0.17
Queue Length 95th (m)	0.0	0.0	0.1	4.8
Control Delay (s)	0.0	0.0	11.6	16.8
Lane LOS			B	C
Approach Delay (s)	0.0	0.0	11.6	16.8
Approach LOS			B	C

Intersection Summary					
Average Delay	6.9				
Intersection Capacity Utilization	31.6%	ICU Level of Service		A	
Analysis Period (min)	15				

HCM Unsignalized Intersection Capacity Analysis
5: Kensington Ave. & St. Andrew St.

EXPM
09-30-2019

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	0	0	0	22	28
Future Volume (Veh/h)	50	0	0	0	22	28
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	63	0	0	0	28	35
Pedestrians	224		66			247
Lane Width (m)	3.0		0.0			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	16		0			20
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	381	471			224	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	381	471			224	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	100			98	
cM capacity (veh/h)	515	403			1146	

Direction, Lane #	WB 1	SB 1
Volume Total	63	63
Volume Left	63	28
Volume Right	0	0
cSH	515	1146
Volume to Capacity	0.12	0.02
Queue Length 95th (m)	3.3	0.6
Control Delay (s)	13.0	3.8
Lane LOS	B	A
Approach Delay (s)	13.0	3.8
Approach LOS	B	

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	33.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Spadina Ave. & Glen Baillie Pl./D'Arcy St.

FBAM
09-30-2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	0	0	0	0	486	51	0	725	2
Future Volume (Veh/h)	0	0	2	0	0	0	0	486	51	0	725	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	2	0	0	0	0	534	56	0	797	2
Pedestrians		140			316							
Lane Width (m)		3.0			0.0							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		10			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											61	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	1205	1844	540	1278	1817	611	939			906		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	833	1604	29	922	1572	611	512			906		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	183	80	781	175	83	442	796			759		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	356	234	531	268
Volume Left	0	0	0	0	0
Volume Right	2	0	56	0	2
cSH	781	1700	1700	1700	1700
Volume to Capacity	0.00	0.21	0.14	0.31	0.16
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	9.6	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.6	0.0		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	30.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
2: Spadina Ave. & St. Andrew St.

FBAM
09-30-2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	9	34	452	718	32
Future Volume (vph)	4	9	34	452	718	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.0	3.5	3.5	3.0
Total Lost time (s)	6.0		5.0	5.0	5.0	5.0
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.91		1.00	1.00	1.00	0.47
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.90		1.00	1.00	1.00	0.85
Flt Protected	0.99		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1437		1685	3570	3570	710
Flt Permitted	0.99		0.21	1.00	1.00	1.00
Satd. Flow (perm)	1437		370	3570	3570	710
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	10	37	486	772	34
RTOR Reduction (vph)	6	0	0	0	0	9
Lane Group Flow (vph)	8	0	37	486	772	25
Confl. Peds. (#/hr)	32	124	196			196
Confl. Bikes (#/hr)		10				3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	31.0		46.0	46.0	33.0	33.0
Effective Green, g (s)	32.0		47.0	47.0	34.0	34.0
Actuated g/C Ratio	0.36		0.52	0.52	0.38	0.38
Clearance Time (s)	7.0		6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	510		310	1864	1348	268
v/s Ratio Prot	c0.01		0.01	c0.14	c0.22	
v/s Ratio Perm			0.05			0.03
v/c Ratio	0.01		0.12	0.26	0.57	0.09
Uniform Delay, d1	18.8		12.1	11.9	22.2	18.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1		0.8	0.3	1.8	0.7
Delay (s)	18.8		12.9	12.2	24.0	18.7
Level of Service	B		B	B	C	B
Approach Delay (s)	18.8			12.3	23.8	
Approach LOS	B			B	C	

Intersection Summary					
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.31				
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0		
Intersection Capacity Utilization	62.4%	ICU Level of Service	B		
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	13	0	2	64	0	0
Future Volume (Veh/h)	13	0	2	64	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	0	2	70	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				93		
pX, platoon unblocked						
vC, conflicting volume			14		88	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			14		88	14
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)			1617		917	1072

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	14	72	0
Volume Left	0	2	0
Volume Right	0	0	0
cSH	1700	1617	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.2	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	0.0
Approach LOS			A

Intersection Summary				
Average Delay			0.2	
Intersection Capacity Utilization			8.3%	ICU Level of Service A
Analysis Period (min)			15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	13	0	2	21	41	0	0	0	0	0	0
Future Volume (Veh/h)	0	13	0	2	21	41	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	16	0	2	26	51	0	0	0	0	0	0
Pedestrians		8			20			21			43	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			2			2			3	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					115							
pX, platoon unblocked												
vC, conflicting volume	120			37			100	161	57	134	136	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	120			37			100	161	57	134	136	102
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1429			1560			830	696	982	767	719	919

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	79	0	0
Volume Left	0	2	0	0
Volume Right	0	51	0	0
cSH	1429	1560	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.2	0.0	0.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.2	0.0	0.0
Approach LOS			A	A

Intersection Summary				
Average Delay			0.2	
Intersection Capacity Utilization			26.9%	ICU Level of Service A
Analysis Period (min)			15	

HCM Unsignalized Intersection Capacity Analysis FBAM
5: Kensington Ave. & St. Andrew St. 09-30-2019

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	0	0	0	13	6
Future Volume (Veh/h)	21	0	0	0	13	6
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Hourly flow rate (vph)	33	0	0	0	20	9
Pedestrians	47		23			27
Lane Width (m)	3.0		0.0			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		0			2
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	119	74			47	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	119	74			47	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			99	
cM capacity (veh/h)	842	940			1522	

Direction, Lane #	WB 1	SB 1
Volume Total	33	29
Volume Left	33	20
Volume Right	0	0
cSH	842	1522
Volume to Capacity	0.04	0.01
Queue Length 95th (m)	1.0	0.3
Control Delay (s)	9.5	5.1
Lane LOS	A	A
Approach Delay (s)	9.5	5.1
Approach LOS	A	

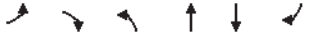
Intersection Summary				
Average Delay	7.4			
Intersection Capacity Utilization	27.2%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis FBPM
1: Spadina Ave. & Glen Baillie Pl./D'Arcy St. 09-30-2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	0	0	0	0	639	38	0	520	1
Future Volume (Veh/h)	0	0	1	0	0	0	0	639	38	0	520	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1	0	0	0	0	680	40	0	553	1
Pedestrians		705			936							
Lane Width (m)		3.0			0.0							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		49			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											61	
pX, platoon unblocked	0.89	0.89	0.89	0.89	0.89		0.89					
vC, conflicting volume	1598	2914	982	1914	2895	1296	1259			1656		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1433	2904	744	1785	2883	1296	1054			1656		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	27	7	165	29	8	155	305			395		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	1	453	267	369	185
Volume Left	0	0	0	0	0
Volume Right	1	0	40	0	1
cSH	165	1700	1700	1700	1700
Volume to Capacity	0.01	0.27	0.16	0.22	0.11
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	26.9	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	26.9	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	24.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	32	21	618	489	35
Future Volume (vph)	42	32	21	618	489	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.0	3.5	3.5	3.0
Total Lost time (s)	6.0		5.0	5.0	5.0	5.0
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.91		1.00	1.00	1.00	0.10
Flpb, ped/bikes	1.00		0.92	1.00	1.00	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1475		1543	3570	3570	147
Flt Permitted	0.97		0.33	1.00	1.00	1.00
Satd. Flow (perm)	1475		543	3570	3570	147
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	35	23	672	532	38
RTOR Reduction (vph)	23	0	0	0	0	16
Lane Group Flow (vph)	58	0	23	672	532	22
Confl. Peds. (#/hr)	193	222	1091			1091
Confl. Bikes (#/hr)		10				7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	31.0		46.0	46.0	33.0	33.0
Effective Green, g (s)	32.0		47.0	47.0	34.0	34.0
Actuated g/C Ratio	0.36		0.52	0.52	0.38	0.38
Clearance Time (s)	7.0		6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	524		372	1864	1348	55
v/s Ratio Prot	c0.04		0.01	c0.19	0.15	
v/s Ratio Perm			0.03			c0.15
v/c Ratio	0.11		0.06	0.36	0.39	0.41
Uniform Delay, d1	19.5		11.0	12.7	20.5	20.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.3	0.5	0.9	20.9
Delay (s)	19.9		11.4	13.2	21.3	41.5
Level of Service	B		B	B	C	D
Approach Delay (s)	19.9			13.1	22.7	
Approach LOS	B			B	C	

Intersection Summary				
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.29			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	51.6%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	66	0	6	50	4	8
Future Volume (Veh/h)	66	0	6	50	4	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	0	7	54	4	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				93		
pX, platoon unblocked						
vC, conflicting volume			72		140	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			72		140	72
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	99
cM capacity (veh/h)			1541		854	996

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	72	61	13
Volume Left	0	7	4
Volume Right	0	0	9
cSH	1700	1541	947
Volume to Capacity	0.04	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.3
Control Delay (s)	0.0	0.9	8.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.9	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	22	0	0	40	14	1	0	1	43	0	9
Future Volume (Veh/h)	0	22	0	0	40	14	1	0	1	43	0	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	26	0	0	47	16	1	0	1	51	0	11
Pedestrians		14			53			150			247	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			4			12			20	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					115							
pX, platoon unblocked												
vC, conflicting volume	310			176			256	486	229	382	478	316
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	310			176			256	486	229	382	478	316
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	85	100	98
cM capacity (veh/h)	1009			1241			460	340	685	341	344	577

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	26	63	2	62
Volume Left	0	0	1	51
Volume Right	0	16	1	11
cSH	1009	1241	551	368
Volume to Capacity	0.00	0.00	0.00	0.17
Queue Length 95th (m)	0.0	0.0	0.1	4.8
Control Delay (s)	0.0	0.0	11.6	16.8
Lane LOS			B	C
Approach Delay (s)	0.0	0.0	11.6	16.8
Approach LOS			B	C

Intersection Summary					
Average Delay	6.9				
Intersection Capacity Utilization	31.6%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	0	0	0	22	28
Future Volume (Veh/h)	50	0	0	0	22	28
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	63	0	0	0	28	35
Pedestrians	224		66			247
Lane Width (m)	3.0		0.0			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	16		0			20
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	381	471			224	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	381	471			224	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	100			98	
cM capacity (veh/h)	515	403			1146	

Direction, Lane #	WB 1	SB 1
Volume Total	63	63
Volume Left	63	28
Volume Right	0	0
cSH	515	1146
Volume to Capacity	0.12	0.02
Queue Length 95th (m)	3.3	0.6
Control Delay (s)	13.0	3.8
Lane LOS	B	A
Approach Delay (s)	13.0	3.8
Approach LOS	B	

Intersection Summary					
Average Delay	8.4				
Intersection Capacity Utilization	33.3%	ICU Level of Service		A	
Analysis Period (min)	15				

HCM Unsignalized Intersection Capacity Analysis
1: Spadina Ave. & Glen Baillie Pl./D'Arcy St.

FTAM
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	0	0	0	0	485	51	0	725	2
Future Volume (Veh/h)	0	0	2	0	0	0	0	485	51	0	725	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	2	0	0	0	0	533	56	0	797	2
Pedestrians		140			316							
Lane Width (m)		3.0			0.0							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		10			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											61	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	1204	1843	540	1278	1816	610	939			905		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	832	1603	29	920	1571	610	512			905		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	183	80	781	175	83	442	796			760		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	355	234	531	268
Volume Left	0	0	0	0	0
Volume Right	2	0	56	0	2
cSH	781	1700	1700	1700	1700
Volume to Capacity	0.00	0.21	0.14	0.31	0.16
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	9.6	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.6	0.0		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	30.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
2: Spadina Ave. & St. Andrew St.

FTAM
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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	9	33	452	718	31
Future Volume (vph)	4	9	33	452	718	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.0	3.5	3.5	3.0
Total Lost time (s)	6.0		5.0	5.0	5.0	5.0
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.91		1.00	1.00	1.00	0.47
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.90		1.00	1.00	1.00	0.85
Flt Protected	0.99		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1437		1685	3570	3570	710
Flt Permitted	0.99		0.21	1.00	1.00	1.00
Satd. Flow (perm)	1437		370	3570	3570	710
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	10	35	486	772	33
RTOR Reduction (vph)	6	0	0	0	0	9
Lane Group Flow (vph)	8	0	35	486	772	24
Confl. Peds. (#/hr)	32	124	196			196
Confl. Bikes (#/hr)		10				3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	31.0		46.0	46.0	33.0	33.0
Effective Green, g (s)	32.0		47.0	47.0	34.0	34.0
Actuated g/C Ratio	0.36		0.52	0.52	0.38	0.38
Clearance Time (s)	7.0		6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	510		310	1864	1348	268
v/s Ratio Prot	c0.01		0.01	c0.14	c0.22	
v/s Ratio Perm			0.05			0.03
v/c Ratio	0.01		0.11	0.26	0.57	0.09
Uniform Delay, d1	18.8		12.1	11.9	22.2	18.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1		0.7	0.3	1.8	0.6
Delay (s)	18.8		12.8	12.2	24.0	18.7
Level of Service	B		B	B	C	B
Approach Delay (s)	18.8			12.3	23.8	
Approach LOS	B			B	C	

Intersection Summary				
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.31			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	61.6%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	13	0	2	21	41	0	0	0	0	0	0
Future Volume (Veh/h)	0	13	0	2	21	41	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	16	0	2	26	51	0	0	0	0	0	0
Pedestrians		8			20			21			43	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			2			2			3	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					115							
pX, platoon unblocked												
vC, conflicting volume	120			37			100	161	57	134	136	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	120			37			100	161	57	134	136	102
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1429			1560			830	696	982	767	719	919

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	79	0	0
Volume Left	0	2	0	0
Volume Right	0	51	0	0
cSH	1429	1560	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.2	0.0	0.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.2	0.0	0.0
Approach LOS			A	A

Intersection Summary					
Average Delay		0.2			
Intersection Capacity Utilization		26.9%	ICU Level of Service	A	
Analysis Period (min)		15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	0	0	0	13	6
Future Volume (Veh/h)	21	0	0	0	13	6
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Hourly flow rate (vph)	33	0	0	0	20	9
Pedestrians	47		23			27
Lane Width (m)	3.0		0.0			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		0			2
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	119	74			47	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	119	74			47	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			99	
cM capacity (veh/h)	842	940			1522	

Direction, Lane #	WB 1	SB 1
Volume Total	33	29
Volume Left	33	20
Volume Right	0	0
cSH	842	1522
Volume to Capacity	0.04	0.01
Queue Length 95th (m)	1.0	0.3
Control Delay (s)	9.5	5.1
Lane LOS	A	A
Approach Delay (s)	9.5	5.1
Approach LOS	A	

Intersection Summary				
Average Delay		7.4		
Intersection Capacity Utilization		27.2%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
1: Spadina Ave. & Glen Baillie Pl./D'Arcy St.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	0	0	0	0	636	38	0	517	1
Future Volume (Veh/h)	0	0	1	0	0	0	0	636	38	0	517	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1	0	0	0	0	677	40	0	550	1
Pedestrians		705			936							
Lane Width (m)		3.0			0.0							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		49			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											61	
pX, platoon unblocked	0.89	0.89	0.89	0.89	0.89		0.89					
vC, conflicting volume	1594	2908	980	1909	2889	1294	1256			1653		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1428	2898	742	1780	2876	1294	1050			1653		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	27	7	166	29	8	156	306			396		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	1	451	266	367	184
Volume Left	0	0	0	0	0
Volume Right	1	0	40	0	1
cSH	166	1700	1700	1700	1700
Volume to Capacity	0.01	0.27	0.16	0.22	0.11
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	26.9	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	26.9	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	24.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
2: Spadina Ave. & St. Andrew St.

FTPM
09-30-2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	29	18	618	489	33
Future Volume (vph)	38	29	18	618	489	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.0	3.5	3.5	3.0
Total Lost time (s)	6.0		5.0	5.0	5.0	5.0
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frpb, ped/bikes	0.91		1.00	1.00	1.00	0.10
Flpb, ped/bikes	1.00		0.92	1.00	1.00	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1472		1543	3570	3570	147
Flt Permitted	0.97		0.33	1.00	1.00	1.00
Satd. Flow (perm)	1472		543	3570	3570	147
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	32	20	672	532	36
RTOR Reduction (vph)	21	0	0	0	0	15
Lane Group Flow (vph)	52	0	20	672	532	21
Confl. Peds. (#/hr)	193	222	1091			1091
Confl. Bikes (#/hr)		10				7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	31.0		46.0	46.0	33.0	33.0
Effective Green, g (s)	32.0		47.0	47.0	34.0	34.0
Actuated g/C Ratio	0.36		0.52	0.52	0.38	0.38
Clearance Time (s)	7.0		6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	523		372	1864	1348	55
v/s Ratio Prot	c0.04		0.00	c0.19	c0.15	
v/s Ratio Perm			0.02			0.14
v/c Ratio	0.10		0.05	0.36	0.39	0.38
Uniform Delay, d1	19.4		11.0	12.7	20.5	20.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.3	0.5	0.9	19.0
Delay (s)	19.8		11.3	13.2	21.3	39.4
Level of Service	B		B	B	C	D
Approach Delay (s)	19.8			13.1	22.5	
Approach LOS	B			B	C	

Intersection Summary				
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.28			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	51.2%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	22	0	1	36	14	1	0	2	43	0	9
Future Volume (Veh/h)	0	22	0	1	36	14	1	0	2	43	0	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	26	0	1	42	16	1	0	2	51	0	11
Pedestrians		14			53			150			247	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			4			12			20	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					115							
pX, platoon unblocked												
vC, conflicting volume	305			176			253	483	229	380	475	311
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	305			176			253	483	229	380	475	311
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	85	100	98
cM capacity (veh/h)	1014			1241			462	341	685	342	345	580

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	26	59	3	62
Volume Left	0	1	1	51
Volume Right	0	16	2	11
cSH	1014	1241	590	368
Volume to Capacity	0.00	0.00	0.01	0.17
Queue Length 95th (m)	0.0	0.0	0.1	4.8
Control Delay (s)	0.0	0.1	11.1	16.7
Lane LOS		A	B	C
Approach Delay (s)	0.0	0.1	11.1	16.7
Approach LOS			B	C

Intersection Summary					
Average Delay		7.2			
Intersection Capacity Utilization	31.6%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	0	0	0	22	28
Future Volume (Veh/h)	46	0	0	0	22	28
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	58	0	0	0	28	35
Pedestrians	224		66			247
Lane Width (m)	3.0		0.0			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	16		0			20
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	381	471			224	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	381	471			224	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	100			98	
cM capacity (veh/h)	515	403			1146	

Direction, Lane #	WB 1	SB 1
Volume Total	58	63
Volume Left	58	28
Volume Right	0	0
cSH	515	1146
Volume to Capacity	0.11	0.02
Queue Length 95th (m)	3.0	0.6
Control Delay (s)	12.9	3.8
Lane LOS	B	A
Approach Delay (s)	12.9	3.8
Approach LOS	B	

Intersection Summary					
Average Delay		8.1			
Intersection Capacity Utilization	33.3%	ICU Level of Service		A	
Analysis Period (min)	15				